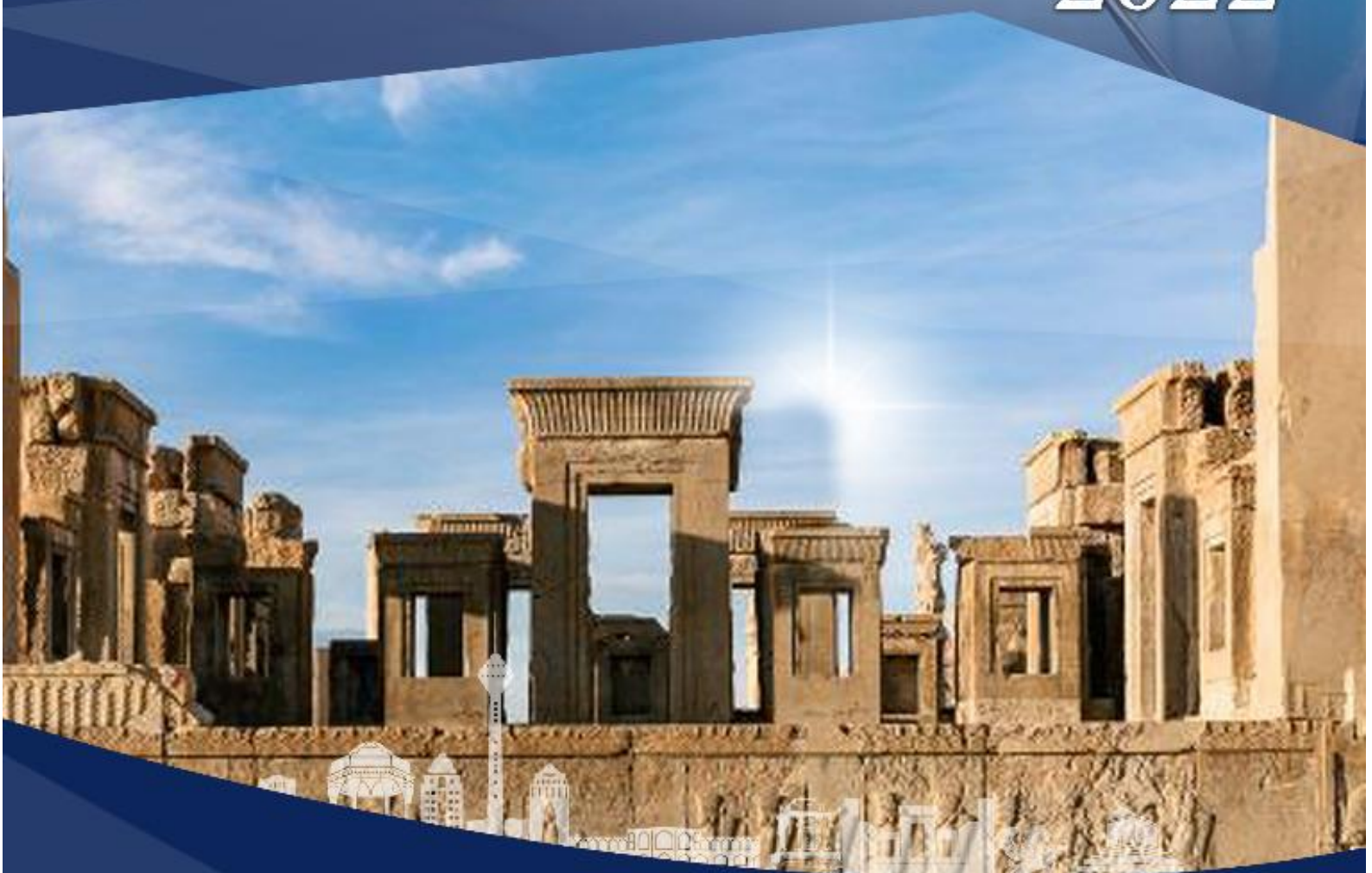
A close-up photograph of a surgical procedure. A surgeon's hands are visible, wearing blue gloves, holding a surgical instrument. The patient is draped in blue sterile cloth. The background is a bright, clinical setting.


4 Congress on Endometriosis and Minimally Invasive Gynecology EMIG 2022

27-28 Jan
3-4 Feb

2022



In the Name of God



4th Congress on
Endometriosis and Minimally
Invasive Gynecology
(EMIG 2022)

Avicenna Research Institute, ACECR

Tehran-Iran

27-28 January & 3-4 February 2022



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The authors will bear full responsibility for the accuracy of their English abstracts



A Message from Congress President

On behalf of "The 4th National and International Congress on Endometriosis and Minimally Invasive Gynecology", I am delighted to welcome you to this event. We are honored to be the host of this four-day scientific program providing a comprehensive review of the current issues in endometriosis and recent advances in surgery and medical treatment which is organized to attract a top-level faculty and large international audience. However, since the outbreak of COVID-19 pandemic as an unprecedented occasion, the globalized world witnessed numerous challenges. Fortunately, we made our best attempts to adapt and continue to hold and organize this colossal educational event as a webinar with participation of esteemed delegates of the field.

We have continued to work incessantly to be prepared for the upcoming EMIG 2022 Congress, undaunted by the countless challenges faced at every stage; thus, wise thought has been given to the programming of the congress to meet the needs of a virtual audience participating in our on-line experience; fortunately, the hope and motivation to once again participate, listen, discuss, and exchange ideas in actual and physical EMIG events in near future after overcoming the invisible enemy empowered us to have steadfast and determined resolution to make the arrangements in the best possible way. Moreover, the congress features an impressive number of distinguished scientists and experts presenting key research findings on endometriosis and other relevant disciplines.

Having accepted the inevitable, EMIG Congress is offered this year in a new format, unlike the traditional, to suit this peculiar condition of the COVID pandemic. As we believe that disruption in routine activities would bring new opportunities, we estimate to host further attendees from more countries around the world than ever before since the time-consuming travels and costly arrangements are all eliminated in virtual events.

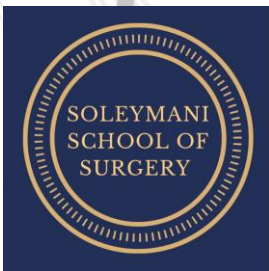
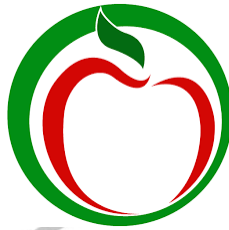
Partaking in EMIG 2022 gives you the opportunity to discuss the cutting edge advances in fertility preservation and receive state of the art updates in clinical treatments, thereby ameliorating the quality of life in patients. The possibility of virtually connecting with your peers and eminent speakers, having access to congress abstract, and earning CME credits has anchored the foundation and the underlying presumption on the productivity of the event.

I warmly invite you to join us for a memorable and inspiring congress and assure you that we exert our best attempts to make it an effective meeting which promises the opening of new horizons in surgical and medical advancements and promotion of patients' life quality.

Mohammad Reza Sadeghi
Chairman



Intellectual Supports





4th Congress on Endometriosis and Minimally Invasive Gynecology (EMIG 2022)



Tehran-Iran, 27-28 January & 3-4 February 2022





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Keynote Lecturers

1.	Roya Padmehr	(Iran)
2.	Saeed Alborzi	(Iran)
3.	Nicholas Leyland	(Canada)
4.	Mauricio Abrão	(Brazil)
5.	Atefeh Gorgen	(Iran)
6.	Shahin Khazali	(England)
7.	Mohamad Mabrouk	(England)
8.	Adel Shervin	(USA)
9.	Khadijeh Shadjoo	(Iran)
10.	Morvarid Ahmadbeigi	(Iran)
11.	Mehrdad Bohluli	(Iran)
12.	Camran Nezhat	(USA)
13.	Hooman Soleymani Majd	(England)



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Abbas Aflatoonian	Ladan Giahi
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Elham Akbari	Leili Hafizi
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Mina Amin Lou	Reihaneh Hosseini
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Shahrzad Ansari	Nasim Kalantarirad
Soheila Ansaripour	Roxana Kargar
Saeed Arasteh	Somaieh Kazemnejad
Soheila Arefi	Mohammad Kazemian
Hossein Asefjah	Cihan Kaya
Elham Askari	Shaheen Khazali
Zahra Asgari	Nicholas Leyland
Hossein Ashegh	Mohamed Mabrouk
Seyed Ali Azin	Azam Sadat Mahdavi
Mahboobeh Azadeh Rah	Malek Mansour Aghssa
Mehrdad Bohluli	Abolfazl Mehdizadeh Kashi
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Arash Mohazzab

Ashraf Moeini

Azam Sadat Mousavi

Nasim Naseri

Camran Nezhat

Behnaz Nouri

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Roya Padmehr

Alexander Popov

Tahereh Pourdast

Natalia Price

Maryam Rahmani

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Adel Shervin

Nasim Shokouhi

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Fatemeh Tabatabaei

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Shima Sedighinia

Sharareh Shafiee



Congress at a Glance

8:00-21:30		Day 1 (27 January)
Film Festival		
8:30-13:00	13:00-20:30	Day 2 (28 January)
Keynote Lecture	Diagnosis of Patients with Pelvic Pain and Referral Centers	
	Keynote Lecture	
How to Manage Ovarian Endometriomas?	Hysteroscopy	
	Keynote Lecture	
Opening Ceremony	Fertility and Fertility Preservation in Endometriosis	
Basic and Clinical Research in Endometriosis	Journal of Laparoscopic Surgery	
7:30-13:30	13:00-20:20	Day 3 (3 February)
Keynote Lecture	Keynote Lecture	
Keynote Lecture	Keynote Lecture	
Keynote Lecture	Urogynaecology and Laparoscopy	
Laparoscopic Hysterectomy	Keynote Lecture	
	Training in Laparoscopic Surgery and Minimally Invasive Surgeries	
Endometriosis and Surgical Treatment	Keynote Lecture	
	Complications of Laparoscopic Surgery	



4th Congress on Endometriosis and Minimally
Invasive Gynecology (EMIG 2022)



Tehran-Iran, 27-28 January & 3-4 February 2022

7:30-13:00	13:00-20:30	Day 4 (4 February)
Keynote Lecture	Keynote Lecture	
Keynote Lecture	Keynote Lecture	
Keynote Lecture	Journal of Laparoscopy Films	
Non-Surgical Treatments, Quality of Life and Legal Issues in Pelvic Pain	Keynote Lecture The Role of Imaging in Endometriosis	
Keynote Lecture	Keynote Lecture	
Myoma and Adenomyo- sis	Endometriosis and Cancer Presentation of Selected Articles	
	Closing Ceremony	



Festival Day 1 (27 January 2022)

Lectures	Subject	Time
Roya Padmehr	Frozen Pelvis	8:00-8:30
Khadijeh Shadjoo	Urinary Tract and Laparoscopic Surgery	8:30-9:00
Azam Sadat Mahdavi	Parametrial Endometriosis	9:00-9:30
Atefeh Gorgin	Anatomy in Laparoscopic Surgery	9:30-10:00
Roxana Kargar	Laparoscopy of Stage 4 Endometriosis	10:00-10:15
Benedetto Mondelli	Laparoscopic Surgery in Endometriosis	10:15-10:30
Amir Mansour Jalali	Use of Leuprolide Acetate in Treatment of Endometriosis	10:30-10:35

Lectures	Subject	Time
Saeed Alborzi	Laparoscopic Surgery in Endometriosis	10:45-11:15
Ameneh Sadat Haghighoo	Approach to Ureteral Endometriosis and Its Subsequent Renal Function Disorder	11:15-11:45
Hossein Asefjah	Laparoscopic Surgery in Endometriosis	11:45-12:15
Abolfazl Mehdizadeh Kashi	Laparoscopic Surgery in Endometriosis	12:15-12:30
Tahereh Pourdast	Disc and Segmental Resection of Rectal Endometriosis	12:30-12:45
Fatemeh Tabatabaei	Laparoscopic Cystectomy	12:45-13:00

Lectures	Subject	Time
Alexander Popov	Robotic-Assisted Sacrocolpopexy	13:30-13:45
Shirin Tavakolizadeh	Kissing Ovaries and Bilateral Endometriomas	13:45-13:55
Mohamed Mabrouk	Laparoscopic Surgery in Endometriosis	13:55-14:15
Banafsheh Tajbakhsh	Ergonomics in Laparoscopic Surgery	14:15-14:30
Shahla Nouri Ardabili	Tip and Tricks in Laparoscopic Hysterectomy	14:30-14:45
Samaneh Rokhgireh	Adhesion and Laparoscopic Surgery	14:45-15:00
Morvarid Ahmadbeigi	Exposure in Laparoscopic Endometriosis	15:00-15:15
Marjan Shekarabi	Spicogen Vaccine	15:15-15:20



Festival Day 1 (27 January 2022)

Lectures	Subject	Time
Adel Shervin	Laparoscopic Surgery in Endometriosis	15:30-16:30
Shaheen Khazali	Laparoscopic Surgery in Endometriosis	16:30-17:30
Nicholas Leyland	Laparoscopic Surgery in Endometriosis	17:30-18:00
Camran Nezhat	Laparoscopic Surgery in Endometriosis	18:00-18:05
Shruti Agarwal	Laparoscopic Surgery in Endometriosis	18:05-18:10
Deborah Lee	Laparoscopic Surgery in Endometriosis	18:10-18:15
Mahkam Tavallaee	Laparoscopic Surgery in Endometriosis	18:15-18:20
Hooman Soleymani Majd	Laparoscopic Surgery in Endometriosis	18:20-18:50

Lectures	Subject	Time
Mahboobeh Azadeh Rah	Hysteroscopic Polypectomy	19:00-19:15
Roya Shahriaripour	Basic Hysteroscopy Rules	19:15-19:30
Zahra Tavoli	Simple Laparoscopic Hysterectomy	19:30-19:45
Anahita Enzevaei	Laparoscopic Isthmocele Repair	19:45-20:00
Roya Derakhshan	Laparoscopic Cystectomy	20:00-20:15



Day 2 (28 January 2022)

Keynote Lecture

Roya Padmehr	Enhanced Recovery in Gynaecological Surgery	8:00-8:30
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Panel Name: How to Manage Ovarian Endometriomas?

Panel Chairs: Saeed Alborzi

Lectures	Subject	Time
Khadijeh Shadjoo	Laparoscopic Endometrioma Surgeries and Its Complications	8:30-8:45
Shima Ghafurian	What Imaging Techniques?	8:45-9:00
Roxana Kargar	What Medical Treatment?	9:00-9:15
Saeed Alborzi	Excision	Which Surgery? A Debate on Excision, Ablation or Sclerotherapy of Ovarian Endometriomas, and the Effects on Fertility
Ashraf Moeini	Ablation	9:15-9:30
Abbas Aflatoonian	Sclerotherapy	9:30-9:45
Roya Padmehr	What Are Short/long Term Outcomes?	9:45-10:00
Robabeh Taheripannah	What About Pregnancy and/or Fertility Preservation?	10:00-10:15
Speakers	Panel Discussion	10:15-10:30
		10:30-11:00

Opening Ceremony

11:00-12:00

Panel Name: Basic and Clinical Research in Endometriosis

Panel Chair: Saeed Reza Ghaffari

Lectures	Subject	Time
Arash Mohazzab	How To Design a Study in Endometriosis	12:00-12:15
Mina Amin Lou	Genetics and Epigenetics in Endometriosis	12:15-12:30
Amir Hassan Zarnani	Etiology of Endometriosis Development: Dysfunctional Pelvic Immune Components or Aberrant Endometrial Stem Cells	12:30-12:45
Saeed Reza Ghaffari	Could Cell and Gene Therapy Be the Future of Endometriosis	12:45-13:00



Day 2 (28 January 2022)

Panel Name: Diagnosis of Patients with Pelvic Pain and Referral Centers

Panel Chairs: Morvarid Ahmadbeigi

Lectures	Subject	Time
Nasim Kalantarirad	How To Design Operating Room for Advanced Laparoscopic and Hysteroscopic Surgeries	13:30-13:45
Bahareh Abbasi	Laparoscopy and Hysteroscopy, Preoperative and Postoperative Nursing Care	13:45-14:00
Morvarid Ahmadbeigi	Diagnosis and Treatment of Pelvic Pain	14:00-14:15
Fariba Mohammadi	Operating Room Recovery in Laparoscopic Patients	14:15-14:30

Keynote Lecture

Saeed Alborzi	Colorectal Endometriosis	14:30-15:00
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Panel Name: Hysteroscopy

Panel Chair: Roxana Kargar

Lectures	Subject	Time
Atefeh Gorgin	Basics of Hysteroscopy	15:00-15:15
Hossein Asefjah	Operative Hysteroscopy	15:15-15:30
Shahzad Ansari	The Shaver Technique for Operative Hysteroscopy	15:30-15:45
Zahra Rezaei	Tips and Tricks in Advanced Hysteroscopic Surgeries	15:45-16:00
Ameneh Sadat Haghgoo	Complications in Hysteroscopy	16:00-16:15
Speakers	Panel Discussion	16:15-16:45



Day 2 (28 January 2022)

Keynote Lecture

Nicholas Leyland	The Role of Ultrasound in Diagnosis for Medical Management and Surgical Planning	16:45-17:15
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Panel Name: Fertility and Fertility Preservation in Endometriosis

Panel Chair: Malek Mansour Aghssa

Lectures	Subject	Time
Soheila Ansaripour	Recurrent Pregnancy Loss and Endometriosis	17:15-17:30
Afsaneh Mohammad-zadeh	Ovarian Reserve Tests	17:30-17:50
Soheila Arefi	Does Surgery Improve IVF Outcomes?	17:50-18:05
Simin Zafardoust	Endometriosis and Infertility, A Review of Pathogenesis and Fertility Preservation	18:05-18:20
Ziba Zahiri	Should We Prescribe AMH to Every Patient Presenting with Endometriosis?	18:20-18:35
Somaieh Kazemnejad	The Effect of Endometriosis and Endometrioma on Embryo, Egg, and Implant Quality	18:35-18:50
Malek Mansour Aghssa	Conclusion	18:50-19:05
Mohammad Reza Sadeghi and Speakers	Panel Discussion	19:05-19:30

Keynote Lecture

Mauricio Abrão	Diagnosis and Treatment of Bowel Endometriosis	19:30-20:00
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Panel Name: Journal of Laparoscopic Surgery

Panel Chairs: Atefeh Gorgin

Lectures	Subject	Time
Atefeh Gorgin	Laparoscopic Surgery	20:00-20:10
Atiyeh Javaheri	Laparoscopic Ovarian Cystectomy	20:10-20:20
Reihaneh Hosseini	Laparoscopic Tuboplasty	20:20-20:30
Roya Padmehr	Laparoscopic Surgery for Bilateral Endometrioma and Its Considerations	20:30-20:40
Behnaz Nouri	Laparoscopic Surgery For Large Presacral Tumor	20:40-20:50
Khadijeh Shadjoo	Laparoscopy for DIE (Deep Infiltrating Endometriosis)	20:50-21:00



Day 3 (3 February 2022)

Keynote Lecture		
Roya Padmehr	Laparoscopic Surgery for Bilateral Endometrioma and its Considerations	7:30-7:45
Keynote Lecture		
Atefeh Gorgin	Laparoscopic Surgery	7:45-8:00
Keynote Lecture		
Atefeh Gorgin	Abstract, Surgical Outcome of Laparoscopic Endometriosis Surgery at Avicenna Endometriosis Clinic	8:00-8:30
Panel Name: Laparoscopic Hysterectomy		
Panel Chair: Abolfazl Mehdizadeh Kashi		
Lectures	Subject	Time
Abolfazl Mehdizadeh Kashi	Proposed Classification of Hysterectomies Involving Laparoscopy	8:30-8:45
Azam Sadat Mahdavi	Difficult Laparoscopic Hysterectomy, Tips and Tricks	8:45-9:00
Zahra Askari	Basic Rules in Laparoscopic Hysterectomy, Tips and Tricks	9:00-9:15
Reihaneh Hosseini	Techniques to Reduce Blood Loss During Laparoscopic Hysterectomy and Myomectomy	9:15-9:30
Cihan Kaya	Conventional Laparoscopy or Vaginally Assisted Natural Orifice Transluminal Endoscopic Surgery	9:30-9:45
Speakers and Roya Padmehr	Panel Discussion	9:45-10:00



Panel Name: Endometriosis and Surgical Treatment

Panel Chair: Shaheen Khazali

Lectures	Subject	Time
Roya Padmehr	Classification/Staging Systems for Endometriosis: The State of The ART	10:00-10:15
Khadijeh Shadjoo	Ovarian Endometrioma, Guidelines and Treatment	10:15-10:30
Saeed Alborzi	Urinary and Bladder Involvement in Endometriosis	10:30-10:45
Abolfazl Mehdizadeh Kashi	Frozen Pelvis and Deep Infiltrative Endometriosis	10:45-11:00
Atefeh Gorgin	Bowel Resection, Is It Feasible When Vagina Is Opened?	11:00-11:15
Hossein Yousef Fam	Bowel Endometriosis	11:15-11:30
Saeed Arasteh	Management of Ureteric Endometriosis Associated with Hydronephrosis	11:30-11:45
Mohamed Mabrouk	Deep Endometriosis Surgery: Be Prepared for The Challenge	11:45-12:00
Helder Ferreira	The Use of ICG Fluorescence in Endometriosis Surgery	12:00-12:15
Shaheen Khazali	Laparoscopy for Endometriosis: Tips and What To Expect	12:15-12:30
Speakers	Panel Discussion	12:30-13:00



Day 3 (3 February 2022)

Keynote Lecture

Shaheen Khazali	Neuropelveology, Pelvic Nerve Problems in Endometriosis	13:00-13:30
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Panel Name: Urogynaecology and Laparoscopy

Panel Chairs: Saman Mohammadipour

Lectures	Subject	Time
Saman Mohammadi-pour	Pelvic Floor Dysfunction and Treatment	14:00-14:15
Khadijeh Adabi	Müllerian Anomalies and Minimally Invasive Surgery	14:15-14:30
Nasim Shokouhi	The Use of Mesh in Gynecologic Surgery	14:30-14:45
Alexander Popov	Urogynecology and Laparoscopic Surgery	14:45-15:00
Natalia Price	Laparoscopic Colposuspension as a Non-Mesh Surgical Procedure for Stress Urinary Incontinence	15:00-15:15
Natalia Price	Surgery for Uterovaginal Prolapse	15:15-15:30
Nasrin Changizi	Overactive Pelvic Floor Muscles in Endometriosis	15:30-15:45
Speakers	Panel Discussion	15:45-16:00

Keynote Lecture

Mohamed Mabrouk	Pelvic Anatomy, Laparoscopic View	16:00-16:30
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Panel Name: Training in Laparoscopic Surgery and Minimally Invasive Surgeries

Panel Chair: Roya Padmehr

Lectures	Subject	Time
Roya Padmehr	Endometriosis Centers, Why and How?	16:30-16:45
Mahroo Rezaeinejad	A Review of The Ergonomic Issues in Laparoscopic Operating Room	16:45-17:00
Hossein Ashegh	Laparoscopic Training in Iran	17:00-17:15
Malek Mansour Aghssa	How to Behave in Laparoscopic Room: Tips and Tricks to Keep Instruments Safe	17:15-17:30
Ehsan Abbasi	Electrosurgery in Laparoscopy	17:30-17:45
Speakers	Panel Discussion	17:45-18:15



Day 3 (3 February 2022)

Keynote Lecture

Adel Shervin	Controversy in the Treatment of Endometrioma	18:15-19:00
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Panel Name: Complications of Laparoscopic Surgery

Panel Chair: Khadijeh Shadjoo

Lectures	Subject	Time
Alireza Chamani Tabriz	Anesthesia and its Complications in Laparoscopic Surgeries	19:10-19:20
Hossein Yousef Fam		19:20-19:30
Saeed Arasteh		19:30-19:40
Mohammad Kazemian		19:40-19:50
Saman Mohammadi-pour		19:50-20:00
Roya Padmehr	Case Presentation of Laparoscopic and Hysteroscopic Complications	20:00-20:10
Naser Amirjannati		20:10-20:20
Khadijeh Shadjoo		20:20-20:30
Alireza Milanifar		20:30-20:40
Atefeh Gorgin		20:40-20:50
Roxana Kargar		20:50-21:00
Morvarid Ahmadbeigi		21:00-21:10



Day 4 (4 February 2022)

Keynote Lecture

Khadijeh Shadjoo	Laparoscopic for DIE (Deep Infiltrating Endometriosis)	7:30-8:00
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Keynote Lecture

Khadijeh Shadjoo	Abstract, Fertility Outcome After Laparoscopic Endometriosis Surgery	8:00-8:30
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Panel Name: Non-Surgical Treatments, Quality of Life and Legal Issues in Pelvic Pain

Panel Chair: Shahla Chaichian

Lectures	Subject	Time
Seyed Ali Azin	Sexual Function in Patients With Pelvic Pain	8:30-8:45
Alireza Milanifar	Legal Issues in Laparoscopic Surgeries	8:45-9:00
Behzad Ghorbani	The Importance of Having A Psychiatrist in Endometriosis Multidisciplinary Clinic	9:00-9:15
Ladan Giahi	Endometriosis Diet, Foods to Eat and Foods to Avoid	9:15-9:30
Navid Abolahrar	Treating the Pain of Endometriosis	9:30-9:45
Shahla Chaichian	Medical Treatments in Endometriosis	9:45-10:00
Speakers	Panel Discussion	10:00-10:30

Keynote Lecture

Saeed Alborzi	Urinary and Bladder Involvement in Endometriosis	10:30-11:00
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Panel Name: Myoma and Adenomyosis

Panel Chairs: Hossein Asefjah

Lectures	Subject	Time
Hossein Asefjah	Tips and Tricks in Myoma Surgery, Laparoscopic Suturing in Myoma and Morcellation	11:00-11:15
Roya Padmehr	Surgical Treatments of Adenomyosis	11:15-11:30
Fatemeh Tabatabaei	Non-Surgical Treatment of Adenomyosis	11:30-11:45
Tahereh Pourdast	Adenomyosis Ultrasonography and Elastography	11:45-12:00
Leili Hafizi	Guidelines for Treatment of Myoma in Patients with Infertility	12:00-12:15
Elham Akbari	New Classifications in Myoma and Laparoscopic Surgery of Large Myoma	12:15-12:30
Speakers	Panel Discussion	12:30-13:00



Day 4 (4 February 2022)

Keynote Lecture

Mehرداد Bohluli	The Role of HIPEC in Ovarian Cancer	13:00-13:15
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Keynote Lecture

Nasrin Sharifi	Sedaghat	Duphaston Indications and Endometriosis	13:15-13:30
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Panel Name: Journal of Laparoscopy films

Panel Chair: Roya Padmehr

Lectures	Subject	Time
Kobra Tahermanesh	Laparoscopic Dermoid	13:45-14:00
Elham Akbari	Anatomy in Laparoscopic Surgery	14:00-14:10
Roya Padmehr	Laparoscopic Surgery in Endometriosis	14:10-14:20
Safoora Rouholamin	Laparoscopic Surgery and Ectopic Pregnancy	14:20-14:30
Saman Mohammadi-pour	Bowel Endometriosis Treated with Simultaneous Ileocecal and Rectal Resection	14:30-14:40
Elham Askari	Laparoscopic Surgery in Endometrioma	14:40-14:50
Atiyeh Javaheri	Laparoscopic Ovarian Cystectomy	14:50-15:00
Reyhane Hosseini	Laparoscopic Tuboplasty	15:00-15:10
Behnaz Nouri	Laparoscopic Surgery For Large Presacral Tumor	15:10-15:20



4th Congress on Endometriosis and Minimally
Invasive Gynecology (EMIG 2022)



Tehran-Iran, 27-28 January & 3-4 February 2022

Keynote Lecture

Camran Nezhat How to Standardize and Democratize Surgery 15:00-15:30

Panel Name: The Role of Imaging in Endometriosis

Panel Chair: Khadijeh Shadjoo

Lectures	Subject	Time
Nasim Naseri	A Step by Step Guide to Sonographic Evaluation of Deep Infiltrating Endometriosis	15:30-15:45
Seyed Reza Saadat Mostafavi	Bowel and Urinary Involvement in Endometriosis, What Should We See in Ultrasound?	15:45-16:00
Khadijeh Shadjoo	Comparing Ultrasound Endometriosis Sonography with Surgery Result	16:00-16:15
Maryam Rahmani	The Role of MRI in Diagnosis of Endometriosis	16:15-16:45
Caterina Exacoustos	Transvaginal Ultrasound Findings After Laparoscopic Resection for Deep Infiltrating Endometriosis	16:45-17:00
Speakers	Panel Discussion	17:00-17:30



Day 4 (4 February 2022)

Keynote Lecture

Hooman Soleymani Majd	Gynecologic Cancers and Minimally Invasive Surgery	17:30-18:00
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Panel Name: Endometriosis and Cancer

Panel Chair: Azam Sadat Mousavi

Lectures	Subject	Time
Hooman Soleymani Majd	Risk of Cancer - Reasons for Radical Surgery in Symptom Free Patients?	18:00-18:15
Azam Sadat Mousavi	Endometriosis and Cancer	18:15-18:30
Khadijeh Shadjoo	Hormone Replacement Therapy and Risk of Malignant Transformation of Endometriosis	18:30-18:45
Haleh Soltanghoraei	Ovarian Cancer in Endometriosis: Molecular Biology, Pathology	18:45-19:00
Ali Sadeghitabar	Screening Tests for Ovarian Cancer	19:00-19:15
Roya Padmehr	How to Manage Large Ovarian Endometrioma in Premenopausal Patients? Oophorectomy or not?	19:15-19:30
Atefeh Gorgin	Pelvic Anatomy in Cancer Surgery	19:30-19:45
Speakers	Panel Discussion	19:45-20:15

Panel Name: Recent Research in Endometriosis and Minimally Invasive Surgeries

Roya Padmehr Arash Mohazzab Khadijeh Shadjoo Atefeh Gorgin	Presentation of Selected Articles	20:15-21:15
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Closing Ceremony



Keynote Lecturers and Lectures Biography



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Shain Khazali

Dr. Khazali is the president of CEMIG (Centre for Endometriosis and Minimally Invasive Gynaecology), which is the first busiest endometriosis centre in the United Kingdom. Dr. Khazali is an honorary senior lecturer at The Royal Holloway University of London.

He is a senior member of the BSGE council (British Society for Gynaecological Endoscopy) and has been an active contributor to the BSGE's work since 2008. He chairs the website and communications subcommittee and has been leading the development of the new BSGE website.

Dr. Khazali's other contributions to BSGE work include setting up the video library and discussion forums, setting up and running successful video competitions, initially for trainees only, now extended to all members, organising live Webcasts and chairing two of these. Dr. Khazali is also a member of the international advisory board for the international society of Neupelveology-The ISON. He graduated from Tehran University of Medical Sciences in 2001 and moved to England to continue his education. He did his initial specialty training years in London and Cambridge, then moved to Oxford as a specialist registrar. In 2006, he relocated to the south coast of England and worked in Poole, Winchester and Southampton hospitals before becoming a Consultant (attending) at Ashford and St. Peter's Hospitals.

During these years, he also obtained a Masters degree from the University of Surrey in advanced gynaecological endoscopy, as well as advanced training in laparoscopy and hysteroscopy through the Royal College of Obstetricians and Gynaecologists, UK. He also holds a postgraduate degree in medical education from Dundee University. He has led a number of innovative projects, including an online pain diary for chronic pelvic pain, development of a new laparoscopic morcellator to improve safety and speed of surgery and also has devised a scoring system for assessing laparoscopic surgical skills of trainees. More recently, he devised

VNESS, which is a new staging system for advanced endometriosis. VNESS has been validated and is in the process of implementation. He has been travelling to Iran regularly to teach and perform advanced endometriosis surgery and to lead on a number of research projects on endometriosis.



Adel Shervin

Dr. Shervin received his MD degree from Tabriz University of Medical Sciences (1966-1973). He met ECFMG eligibility requirements matched for post graduate training program in USA at GBMC, Baltimore.

He completed his residency training program in Obstetrics and Gynecology at Maryland General Hospital, University of Maryland and Johns Hopkins Hospital, Baltimore. He achieved the Board Certification in Obstetrics and Gynecology of American Board of Obstetrics and Gynecology in the first sitting.

He worked at Women and Infant hospital of Washington University and had been engaged in private practice at Alton Illinois. He was the chairman of OB-GYN and MIS department and chairman of Department of OB-GYN at North Iowa Medical Center and Hutchinson Hospital, Iowa and Kansas, USA. Dr. Shervin had been the honorary professor in OB-GYN at Tehran University of Medical science, Tehran, Iran.

Dr. Shervin is a nationally and internationally known speaker, lecturer and teacher in field of advanced gynecological laparoscopic surgery and endometriosis as his primary areas of interest are advanced gynecological laparoscopic surgery, laparoscopic treatment of endometriosis, general gynecology, oncology, and infertility. He delivered many lectures at ISGE, ESGE, and different societies at different countries along with performing live teaching surgeries and tutorials.



Natalia Price

In 1996, Natalia qualified as an MD with first class honors in Kiev at the National Medical University of Ukraine. Her subsequent postgraduate medical and surgical training was in the Oxford Deanery. She undertook higher specialist training in laparoscopic pelvic floor reconstructive surgery and was appointed as a Consultant Gynaecologist in Oxford in 2010. The main focus of her work is minimal access laparoscopic surgical techniques to treat a wide range of gynaecological problems, including prolapse and incontinence.

Natalia is the lead for Oxford BSUG/RCOG accredited Mesh removal center treating many women with mesh complications, offering them laparoscopic mesh removal and native tissue repair surgery. Natalia is the surgical lead for the Oxford Endometriosis Centre, performing complex laparoscopic laser excisions of endometriosis. For the endometriosis cases which involve the bowel she operates in conjunction with Consultant Colorectal surgeons in order to perform these advanced laparoscopic procedures safely. She is the Program Director for Oxford RCOG Subspeciality Urogynaecology Training Programme and preceptor for ATSM in Laparoscopy Surgery for Excision of Benign Disease. She lectures at the annual BSGE anatomy course and the Oxford Anatomy course for urogynaecologists.

Natalia is passionate about improving and developing laparoscopic surgical techniques. She has a major interest in teaching laparoscopic surgery and have lectured widely both nationally and internationally. She has visited many units around the country performing and teaching laparoscopic prolapse reconstructive surgery and mesh removal surgery. She maintains a strong interest in academic research and has already published more than 50 peer-reviewed papers and book chapters. Her current research projects include a prospective study comparing uterus-preserving, minimally invasive surgery for prolapse with more traditional

hysterectomy. She is also currently studying the outcomes of the native tissue laparoscopic continence surgery as well as outcomes of laparoscopic mesh removal surgery.

She is currently Consultant Gynaecologist and Urogynaecologist at the Department of Obstetrics and Gynaecology of John Radcliffe Hospital in Oxford.



Mohamed Mabrouk

Mohamed Mabrouk is a Consultant Gynaecologist and Endometriosis Surgeon based in Cambridge, with special interest in endometriosis, menstrual disorders, advanced laparoscopic and hysteroscopic surgery. Mohamed is a European Board-Certified Gynaecologist. He is recognized internationally as an expert in the field of endometriosis and minimally invasive surgery, and offers expert ultrasound diagnosis and management of endometriosis and benign reproductive disorders.

A world-class surgeon, Mohamed performs high-level endoscopic surgery for endometriosis and benign gynaecological diseases and teaches complex endometriosis surgery in the UK, Europe and Internationally. He is frequently invited to speak at national and international congresses and present his learning on specialist courses to share his extensive knowledge. Mohamed received his specialist training and earned the European Board in Obstetrics and Gynaecology from Bologna university, Italy. He obtained his PhD in Endometriosis Management from VUMC, Amsterdam, the Netherlands. He was appointed as a consultant gynaecology surgeon at the Sacred Heart Hospital in Negrar, Verona, Italy and worked as a senior consultant in the Endometriosis Centre of Bologna University Hospital. Assistant Professor of Obstetrics and Gynaecology at Alexandria University Egypt, Mohamed is also the President of the Middle East Society of Gynaecological Endoscopy (MESGE). His achievements include two international awards in the field of endometriosis and female health awareness in the USA.



Nicholas Leyland

Dr. Nicholas Leyland earned his Bachelor of Applied Science from the University of Guelph in 1979 and his Medical Degree from the University of Toronto in 1983. In 1988, he earned his FRCSC. In 2006, he graduated Summa Cum Lauda from Harvard University with a Masters of Health Care Management. Dr. Leyland joined the Faculty of Health Sciences at McMaster University as an Associate Clinical Professor in Obstetrics and Gynecology in 2009. On July 1, 2010 Dr. Leyland became Professor and Chair of the Department of Obstetrics and Gynecology.



Hooman Soleymani Majd

Hooman Soleymani Majd started his Obstetrics and Gynaecology career in London, before moving to Oxford where he completed his structured postgraduate training program. During the course of training, he obtained his membership of the Royal College of Obstetricians and Gynaecologists (MRCOG), which culminated in a Certificate of Completion of Training (CCT) in Obstetrics and Gynaecology. Mr. Soleymani majd completed a further three years of Sub-Specialty Training in Gynaecological Oncology at the Churchill Cancer Centre in Oxford. He is also a BSCCP accredited Colposcopist and trainer, as well as a member of the British Gynaecological Cancer Society (BGCS).

He is an accomplished and experienced surgeon, performing numerous complex radical laparoscopic and open surgeries every year. He has

a special interest in performing ultra-radical surgery for ovarian cancer; his skill set includes upper abdominal surgery, liver mobilization and diaphragmatic reconstruction. Mr Soleymani Majd also has a particular surgical interest in treating patients with Placenta Accreta Spectrum (PAS) and is a founding member of the OxPAT group. Mr Soleymani Majd has active involvement in teaching registrars/fellows and medical students from Oxford University. He is part of an Oxford research group that has a special interest in new developments in surgical techniques in ultra-radical surgery for advanced ovarian cancer. Also, he has published many papers and been invited to speak at a number of international congresses. He is on the editorial board of Current Problems in Cancer Case Reports, Gynecology and Pelvic Medicine (GPM), and the Journal of Obstetrics, Gynecology and Cancer Research (JOGCR). He is also a reviewer for Cereus, BMJ case reports, European Journal of Gynaecology Oncology (EJGO), and Frontiers in Oncology.

Mr Soleymani Majd is an Honorary Senior Clinical Lecturer in Gynaecological Oncology surgery at Oxford University and works as a Consultant in Gynaecological Oncology at the Churchill Hospital, Oxford, and has been in post since 2016.



Alexander Popov

Popov is the head of the department of operative gynecology with oncogynecology with day hospital in the Moscow Regional Scientific Research Institute of Obstetrics and Gynecology.

The main directions of his professional activities are listed below:

- surgical treatment of benign and borderline tumors of the uterus and adnexes
- reproductive surgery



- surgical and conservative treatment of endometriosis
- surgical treatment of genital prolapse and urinary incontinence
- Robot-assisted surgery in gynecology

For more than 25 years of practice, he has published about 360 scientific works and 3 monographs. In cooperation with other colleagues, he is the author of 5 invention patents registered in Russia. He is one of the authors and leading experts for Federal Endometriosis and Myomas Guidelines. More than 30 PhD students defended their doctoral thesis in his department under his supervision. He is among the editors of several medical journals published in Russia. Dr. Popov was trained in leading clinics such as Clinic Mayo - prof. S. Podrats, Clinic NY University-prof. H. Reich, Germany Clinic of the University of Kiel - prof. K. Semm, and France University Clinic Clermont- Ferrand-prof. M. Bruihat.

Several times a year, Dr. Popov holds certificated training seminars. He widely introduces new techniques by distance and TV medicine training. He is the member of professional associations like the Russian Association of Human Reproduction (RAHR), Russian Association of Endoscopic Gynecologists (RAEG), Russian Association of Endometriosis (RAE), the European Association of Endoscopic Gynecology (ESGE), the European Association of Endometriosis (EEL), the World Association of Endometriosis (WES), Society of European Robotic Gynecological Surgery (SERGS), Society of Endometriosis and Uterine Disorders (SEUD), and American Association of Gynecologic Laparoscopists (AAGL).



Camran Nezhat

Camran Nezhat MD, FACOG, FACS is a minimally invasive and robotic surgeon specializing in treating endometriosis. Dr. Nezhat is recipient of AMA's highest honor, the Distinguished Service Award for meritorious service in the science and

art of medicine for the year 2020. "Innovation is a key driver in transforming health care and Dr. Nezhat's pioneering work has fundamentally changed contemporary surgery and opened a path for surgeons around the world to help their patients", said AMA President Susan R. Bailey M.D. "He continues to push the leading-edge of advanced procedures and the development of the safest, most efficacious technologies to enhance patient care and improve outcomes".

Dr. Nezhat was chosen by the AMA as an exceptional innovator and trailblazer whose significant contributions have revolutionized modern day surgery. He is best known for inventing video-assisted endoscopy and was the first to perform groundbreaking advances in minimally invasive surgical procedures that have helped millions of patients around the globe.

Camran Nezhat has been called the father of modern-day surgery for inventing and pioneering video-assisted endoscopic surgery, which to this day, continues to replace old techniques of open surgery. His developments have revolutionized surgery and gradually replaced laparotomy. He and his team were the first to perform many of the most advanced laparoscopic surgical procedures with and without robotic-arm assistance. Early on he advocated and proved that the majority of the open procedures of the time could be performed via video-laparoscopy. By doing so, he opened the door for surgeons all over the world to advance the field of minimally invasive surgery and help their patients.

As the original proponent for minimally invasive surgery, he has declared that wherever in the body a cavity exists or can be created, minimally invasive surgery is possible and probably preferable, the limiting factors are the skill and experience of the surgeon and the availability of proper instrumentations. In the 1990s, he collaborated with robotic pioneers, Ajit Shah and Phil Green, on development of the daVinci Robot and has innovated many of its applications. His pioneering work above, along with his other innovations, like vessel sealing and cutting devices, suction irrigation instruments, surgical lasers, safe abdominal entry techniques, robotics, etc., serve millions of patients around the world. He has more than 30 patents for his various inventions and developments. He is the



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author of eight textbooks and several hundred peer reviewed articles and book chapters. He has trained many physicians around the world who have become pillars of their communities. He started teaching postgraduate courses in 1982 and continues to teach and share his knowledge with medical professionals internationally.

He has had teaching and leadership roles at many different societies and universities around the world. In 2014, Camran Nezhat in collaboration with Society of Laparoendoscopic Surgeons, started the first "Endometriosis Specialist" Subspecialty in Minimally Invasive and Robotic Surgery Fellowship, embracing a multidisciplinary approach. He is the founder of Worldwide Endometriosis March (EndoMarch), a global grassroots movement with the mission of raising awareness about endometriosis and finding noninvasive diagnostic testing, and ultimately, prevention and treatment (www.endomarch.org). More than sixty countries are involved in this movement. He is the recipient of many awards. He has been involved in research, teaching, innovating and philanthropic activities while in private practice throughout his professional life. His biggest love is to take care of his patients.



Hélder Ferreira

Hélder Bruno Carvalho Ferreira was born in Braga (Portugal) and graduated in Medicine by Instituto de Ciências Biomédicas Abel Salazar of University of Porto in 2001. He completed his residency in Obstetrics and Gynecology at Hospital Geral de Santo Antonio (Porto, Portugal). He has been Consultant in Gynecology and Obstetrics since 2011. Helder completed his post graduated training fellowship program in Minimally Invasive Surgery (IRCAD-EITS University of Strasbourg 2009) with Professor Arnaud Wattiez. In 2011, he fulfilled a training period with Professor Joerg Keckstein (Landeskrankenhaus Villach, Austria).

Nowadays, he is the coordinator of minimal in vasive gynecology surgery unit of the gynecology department of Centro Hospitalar do Porto. It is one of the biggest departments of gynecology in Portugal (5700 surgeries and 173000 consultations per year). Hélder Ferreira has published in PubMed over twenty peer-reviewed articles and serves as an Ad hoc reviewer for various gynecology and surgical journals.

He has done presentations and lectures on minimally invasive surgery in more than 20 countries all over the world. Moreover, he has performed live surgery in different parts of the world (Portugal, Hungary, South Africa, India, Turkey) and during last European Congress of Gynecological Endoscopy-ESGE (2015) in Budapest.

He has been faculty member at IRCAD Laparoscopic Training Center courses since 2009 and coordinator of the gynecology laparoscopic courses at Minho University since 2011, chairman of YEP (Young Endoscopy Platform) of ESGE (European Society of Gynecologic Endoscopy), and head instructor at European Academy of gynecological Surgery courses in Leuven, Belgium. Also, he has worked as an active member of the executive board of Winners Project educational program.



Malek Mansour Aghssa

Fellowship in infertility

Faculty member of Tehran University of Medical Sciences

Member of International Society of Gynecological Endocrinology (ISGE)

Member of American Society of Reproductive Medicine (ASRM)

Member of European Society of Human Reproduction and Embryology (ESHRE)



Caterina Exacoustos

Associate Professor of Obstetrics and Gynecology at the University of Rome Tor Vergata, Italy
Member of American Association of Gynecologic Laparoscopists (AAGL), European Society of Gynecology Endoscopy (ESGE), European Endometriosis League (EEL), International Society of Ultrasound in Obstetrics and Gynecology (ISUOG), and Società Italiana di Ecografia Ostetrica e Ginecologica (SIEOG)



Mauricio Abrão

He is the coordinator of the Advanced Center for Gynecology and Minimally Invasive Gynecology Surgery at Hospital BP - A Beneficencia Portuguesa de São Paulo and Associate Professor at the Department of Obstetrics and Gynecology at FM-USP (Faculty of Medicine University of Sao Paulo; Brazil). He is responsible for the Department of Endometriosis at the Gynecological Clinic of the Hospital das Clínicas at FMUSP.

He has worked as the vice president of AAGL

(American Association of Gynecologic Laparoscopists) and is currently the Editor-in-Chief of the

Journal of Endometriosis and Pelvic Pain Disorders.



Cihan Kaya

Obstetrician and Gynecologist

Associate professor of Department of Obstetrics and Gynecology at Acıbadem Mehmet Ali Aydınlar Üniversitesi

Board member of Endometriosis and Adenomyosis Society of Turkey

Member of European Endometriosis League

Member of American Society for Reproductive Medicine (ASRM)

Member of European Society of Human Reproduction and Embryology (ESHRE)



Robabeh Taheripanah

Obstetrician and gynecologist

Fellowship in infertility

Faculty member of Shahid Beheshti University of Medical Sciences (SBUMS)

Research deputy of Infertility & Reproductive Health Research Center at SBUMS



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Dr. Saman Mohammadipour

Assistant professor of Islamic Azad University
Fellowship in colorectal surgery
Member of Iranian Coloproctology Society



Ziba Zahiri

Obstetrician and gynecologist
Full professor of Guilan University of Medical Sciences
Fellowship in IVF and infertility
Certified in advanced laparoscopy, hysteroscopy, and endometriosis ultrasound
Head of infertility and IVF department and the education deputy of Al-Zahra Hospital in Rasht



Elham Akbari

Obstetrician and gynecologist
Advanced laparoscopic surgeon
Head of operating department of Farmanieh Hospital



Khadijeh Adabi

Obstetrician and gynecologist
Faculty member of Tehran University of Medical Sciences
Fellowship in female pelvic medicine and reconstructive surgery from Tehran University of Medical Sciences



Tahereh Pourdast

Associate professor of Shiraz University of Medical Sciences
Fellowship in GYN laparoscopy
Endometriosis specialist



Mina Aminlou

MD, PhD in molecular genetics
The former head of endometriosis clinic of Avicenna Fertility Center



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Head of Scientific Support of Cell Tech Pharmed
Company



Kobra Tahermanesh

Obstetrician and gynecologist
Associate professor of Iran University of Medical
Sciences
Fellowship in minimally invasive gynecology
surgery
Gynecologist at Rasool-e Akram Tertiary
Hospital



Fatemeh Tabatabaei

Gynecologist
Faculty member at Tabriz University of Medical
Sciences



Behnaz Nouri

Obstetrician and gynecologist

Faculty member at Shahid Beheshti University of
Medical Sciences



Ameneh Sadat Haghgoo

Obstetrician and gynecologist
Fellowship in advanced laparoscopy and hystero-
scopy
Head of minimally invasive gynecological
surgery of Nikan hospital
Member of Iranian Society of Surgeons and
Iranian Society of Gynecologists & Obstetricians
Board member of Iranian Society of Minimally
Invasive Gynecology (ISMIG) and International
Society for Gynecologic Endoscopy (ISGE)



Hossein Yousef Fam

General surgeon
Fellowship in colorectal surgery
Faculty member at Rasoul Akram hospital
Member of European Society of Coloproctology



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Azamsadat Mousavi

Faculty member at Tehran University of Medical Sciences

Chief editor of the Iranian Journal of Obstetrics and Gynecology

President of the Iranian Association of Obstetricians and Gynecologists

Fellowship in infertility and gynaecological endoscopy

President of Asian Society of Endometriosis and Adenomyosis (ASEA)

Member of Scientific Committee of WES, SEUD



Abbas Aflatoonian

Professor of obstetrics and gynecology at Shahid Sadoughi University of Medical Sciences

Founder of Yazd Reproductive Sciences Institute

Founder of Yazd Madar Hospital

Editor in chief of International Journal of Reproductive Biomedicine



Shahrzad Ansari

Obstetrician and gynecologist at IVF center of Mehr hospital

Obstetrics and gynecology specialty board

Specialist in advanced hysteroscopy, laparoscopy, and IVF

Senior gynecologist and infertility specialist at Day General Hospital



Shima Ghafourian

Radiologist

Assistant professor of radiology at Iran University of Medical Sciences

Fellowship in breast and gynecology imaging



Saeed Alborzi

Professor and head of Department of Obstetrics and Gynecology of Shiraz University of Medical Sciences

Head of Gynecologic Endoscopy Division of Shiraz University of Medical Sciences



Hossein Ashegh

General surgeon

Laparoscopy specialist



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Head of Laparoscopy Training Center of Tehran
University of Medical Sciences



Zahra Rezaei

Obstetrician and gynecologist
Fellowship in IVF and infertility from Tehran
University of Medical Sciences
Member of Iranian Association of Obstetricians
and Gynecologists
Member of Iranian Association of Endoscopic
Surgeons



Maryam Rahmani

Full professor of Tehran University of Medical
Sciences
Radiologist at Advanced Diagnostic and Inter-
ventional Radiology Research Center (ADIR) of
Imam Khomeini Hospital
Fellowship in breast imaging from Tehran Uni-
versity of Medical Sciences
Member of women's imaging fellowship exami-
nation board



Seyed Reza Saadat Mostafavi

Assistant professor of radiology at Iran University
of Medical Sciences
Fellowship in musculoskeletal MRI from Universi-
ty of San Diego, USA
Member of Iranian Society of Radiology
Member of Medical Council of the Islamic Repub-
lic of Iran



Nasim Naseri

Radiologist
Fellowship in breast imaging from Tehran Univer-
sity of Medical Sciences
Member of specialized team at Avicenna Fertility
Center



Shahla Chaichian

Professor of obstetrics and gynecology
Fellowship in minimally invasive surgeries from
University of Tübingen
Secretary of Iranian Society of Minimally Invasive
Gynecology (ISMIG)



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Deputy of science a Endometriosis Research Center of Iran University of Medical Sciences
Member of Iranian Academy of Medical Sciences
Deputy of science at Pars Advanced and Minimally Invasive Medical Manners Research Center (PAMIM)



Leili Hafizi

Obstetrician and gynecologist
Associate professor of Mashhad University of Medical Sciences
Fellowship in female advanced endoscopy from Tehran University of Medical Sciences



Navid Abolahrar

Anesthesia, critical care & pain specialty board from Tehran University of Medical Sciences
Fellowship in pain medicine from Tehran University of Medical Sciences
Member of World Institute of Pain (WIP)
Member of International Association for the Study of Pain (IASP)
Member of Iranian Anesthesiology Association



Hossein Asefjah

Obstetrician and gynecologist
Fellowship in laparoscopic surgery
Member of American Association of Gynecologic Laparoscopy
Member of Iranian Society of Surgeons



Abolfazl Mehdizadeh Kashi

Professor of obstetrics and gynecology at Iran University of Medical Sciences
Fellowship in minimally invasive surgery
Director of Endometriosis Research Center of Iran University of Medical Sciences



Atieh Javaheri

Gynecologist
Faculty member at Shahid Sadoughi University of Medical Sciences
Fellowship in gynaecological endoscopy
Editorial board member of Journal of Shahid Sadoughi University of Medical Sciences



Ashraf Moeini

Faculty member at Tehran University of Medical Sciences

Fellowship in infertility

Member of specialized team at Royan Institute



Nasim Shokouhi

Obstetrician and gynecologist

Fellowship in female pelvic medicine and reconstructive surgery from Tehran University of Medical Sciences

Faculty member of Yas Hospital



Elham Asgari

Obstetrician and Gynecologist

Assistant professor of obstetrics and gynecology at Shiraz University of Medical Sciences

Fellowship in endoscopic surgery and endometriosis from Shiraz University of Medical Sciences

Member of Iranian Association of Endoscopic Surgeons



Safoura Rouhalamin

Obstetrician and gynecologist

Specialist in advanced laparoscopy, hysteroscopy, and endometriosis surgery

Fellowship in minimally invasive surgery



Nasrin Changizi

Obstetrician and gynecologist

Fellowship in pelvic floor dysfunction

Associate professor at Ministry of Health and Medical Education (MOHME)



Reihaneh Hosseini

Obstetrician and Gynecologist

Associate professor at Tehran University of Medical Sciences



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Fellowship in Gynecologic Laparoscopy and Hysteroscopy from Tehran University of Medical Sciences

Member of Mediterranean and Middle Eastern Endoscopic Surgery Association (MMESA)



Roya Padmehr

Obstetrician and Gynecologist

Fellowship in Advanced Laparoscopic Surgery in Gynecology and Endometriosis

Instructor of laparoscopy and hysteroscopy courses

Member of Iranian Society of Minimally Invasive Surgery

Member of Iranian Obstetrics and Gynecology Society

Member of Medical Council of the Islamic Republic of Iran



Khadijeh Shadjoo

Obstetrician and Gynecologist

Fellowship in Advanced Laparoscopy and Endometriosis

Member of Iranian Society of Minimally Invasive Surgery

Director of Endometriosis Clinic at Avicenna Fertility Center

Gynecologist and laparoscopist of Erfan Hospital



Azam Sadat Mahdavi

Obstetrician and gynecologist

Fellowship in infertility and laparoscopy from France

Member of the specialized team at Avicenna Fertility Center



Haleh Soltanghoraei

Associate professor of Personalized Medicine in Reproductive Health Research Group at Avicenna Research Institute

Clinical pathologist

Fellowship in perinatal and pediatric pathology

Technical director of pathology lab of Avicenna Fertility Center



Amir Hassan Zarnani

Immunologist

Fellowship in reproductive immunology

Head of Department of Immunology, School of Public Health at Tehran University of Medical Sciences

Faculty member of Reproductive Immunology Research Center at Avicenna Research Institute

Member of European Society for Reproductive Immunology (ESRI)

Founder of reproductive immunology research center of Avicenna Research Institute



Saeed Arasteh

Urologist at Avicenna Fertility Center

Fellowship in kidney transplantation

Member of Iranian Urological Association (IUA)

Member of European Association of Urology (EAU)

Member of Iranian Society for Reproductive Medicine



Nasim Kalantarirad

MS in Operation Theatre Technology

Member of specialized team at Avicenna Fertility Center

Instructor of laparoscopic surgery training courses for operating room technicians



Ali Sadeghitabar

Faculty member of immunochemistry research group at Avicenna Research Institute

Manager of Avicenna Fertility Center (Ph.D., MLD)

Technical director of medical diagnostic laboratory of Avicenna Fertility Center



Mehrdad Bohloli

General surgeon and HIPEC specialist

Member of Association of Turkish Colorectal Surgeons



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Member of Turkish Obesity Society, Turkish Hernia Society, Turkish Laparoscopy Society
Editorial board member of Turkish Journal of Colorectal Disease



Fariba Mohammadi

BS in nursing
Operating room supervisor
Member of infection control committee of Avicenna Fertility Center



Bahareh Abbasi

Member of specialized team at Avicenna Fertility Center
Former member of the British Society for Gynaecological Endoscopy (BSGE) in 2014-2017
Nursing supervisor of inpatient department at Avicenna Fertility Center in 2011-2013



Alireza Chamani Tabriz

Anesthesiologist

Operating Room Manager at Avicenna Fertility Center

Anesthesiologist of specialized team of endometriosis at Avicenna Fertility Center since 2010

Head of Anesthesiology Department and Intensive Care Unit at Avicenna Fertility Center



Atefeh Gorgin

Gynecologist, fellowship in advanced laparoscopic surgery and endometriosis
Member of the specialized team at Avicenna Fertility Center



Behzad Ghorbani

Psychiatrist at Pelvic Pain, Endometriosis and Advanced Laparoscopy Clinic of Avicenna Fertility Center

Assistant professor of Avicenna Fertility Center
Researcher and head of the Personalized Medicine in Reproductive Health Research Group at Avicenna Research Institute (ARI)



Arash Mohazzab

Doctor of Medicine (MD) from Shahid Beheshti University of Medical Sciences
PhD candidate in Epidemiology at Iran University of Medical Sciences
Research Consultant of Personalized Medicine in Reproductive Health Research Group at Avicenna Research Institute (ARI)
Member of Clinical Trial Center at Iran University of Medical Sciences



Afsaneh Mohammadzadeh

Gynecologist, fellowship in IVF and Assisted Reproductive Technology
Associate professor at Avicenna Research Institute
Head of Department of Infertility Fellowship Training Programs at Avicenna Fertility Center



Simin Zafardoust

Gynecologist
Infertility fellowship



Soheila Ansaripour

Researcher and assistant professor at Avicenna Fertility Center
Immunologist, fellowship in Reproductive Immunology
Head of the Department of Immunology at Tehran University of Medical Sciences
Founder, researcher, and faculty member of Reproductive Immunology Research Group at Avicenna Research Institute
Member of European Society for Reproductive Immunology (ESRI)



Seyed Ali Azin

MD Social Medicine
Member of International Society for Sexual Medicine
Member of Middle East Sexual Health Committee
Certified in sexual medicine and psycho-sexology from European Board of Sexual Medicine and European Federation of Sexology (EFS)



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Ladan Giahi

Dietician

PhD in Biological and Life Sciences from University of Vienna

Assistant professor of Avicenna Research Institute since 2012

Member of specialized team at Avicenna Fertility Center since 2013

Scientific consultant of national media and centers active in health entrepreneurship

Fellowship in advanced laparoscopic surgery and endometriosis from Avicenna Research Institute in 2016

Member of specialized team of Avicenna Fertility Center since 2017



Morvarid Ahmadbeigi

Doctor of Medicine (MD) from Shahid Beheshti University of Medical Sciences in 2007

Obstetrics and Gynecology specialty board from Shiraz University of Medical Sciences in 2014

Fellowship in advanced laparoscopic surgery and endometriosis from Avicenna Research Institute in 2019



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4th Congress on Endometriosis and Minimally Invasive Gynecology (EMIG 2022)



Tehran-Iran, 27-28 January & 3-4 February 2022

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**Oral
Presentations**



Etiology of Endometriosis Development: Dysfunctional Pelvic Immune Components or Aberrant Endometrial Stem Cells

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Abstract

Retrograde flow of menstrual blood during menstruation is considered as the dominant theory for the development of endometriosis. The pathogenesis of endometriosis is likely multifactorial, and extensive investigation has demonstrated the role of genetics, environmental factors, and the immune system in predisposing patients to endometriosis development. In this regard, several reports assumed elimination of ectopic endometrial cells by natural killer (NK) as the major causative factor for endometriosis development. Dysfunction of regulatory T cells (Tregs) and recruitment of inflammatory macrophages and mast cells triggering inflammatory cascade and pain have also been postulated as potential contribution of the immune system in endometriosis development. Nonetheless, recent findings suggest that endometrial-derived stem cells (ESCs) are key players in the pathogenesis of endometriosis. There are several reports indicating aberrant function of endometrial stem cells in patients with endometriosis. In this presentation, I will briefly review (i) the role of immune cell dysfunction in endometriosis (ii) introduce the evidence for the role of endometrial stem cells, (iii) examine their potential role in the pathogenesis of endometriosis, and (iv) give my personal view on relative contribution of immune cells and ESCs in the development of endometriosis.

Keywords: Endometrial stem cells, Endometriosis, Immune cells, Pathogenesis



Ovarian Cancer in Endometriosis: Molecular Biology and Pathology

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Abstract

Risk of development of malignant neoplasm is estimated to be 1% for premenopausal women and up to 2.5% for postmenopausal women suffering from endometriosis. About 75% of neoplasms complicating endometriosis arise within ovary; the most common extra ovarian site is rectovaginal septum. Endometriosis associated carcinomas (other than clear cell) tend to be lower grade in comparison to similar ovarian carcinoma without associated endometriosis.

The most common malignancy is endometrioid carcinoma followed by clear cell carcinoma which is seen mostly in premenopausal, obese cases, and those with history of unopposed estrogens. A hyperestrogenic state may be shared in common with pathogenesis of adenomyosis, leiomyoma, and endometrial cancer.

Endometriosis and synchronous carcinoma share similar genetic alterations including *ARID1A*, *PTEN*, and *PIK3CA* mutations. Multiple studies suggest *ARID1A* mutation occurs at early stage of canceration of endometriosis.

Histological evaluation of the endometriosis tissue samples for accompanied malignancies is a recommended strategy. Atypical endometriosis is another controversial issue. It could be cellular or structural. Structural atypia like endometrial atypical hyperplasia is known as a premalignant pathology rather than cellular atypia.

Follow up of the patients with endometriosis should be done by clinical data, imaging, and measuring serum biomarkers such as CA125 and HE4. The combined measures of CA125 and HE4 have proved to be highly efficient. Furthermore, this combined measure of CA125 can correct the variations in HE4 which are due to smoking or combined hormonal contraceptives consisting of an estrogen and a progestogen.

Keywords: ARID1A mutation, CA125, Contraceptive. HE4, Ovarian cancer



The Effect of Endometriosis on Fertility and Implantation

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Abstract

Endometriosis is an estrogen-dependent benign inflammatory disease characterized by the presence of ectopic endometrial implants. Implants typically occur in the pelvis but have also been seen in the upper abdomen, peripheral and axial skeleton, lungs, diaphragm, and central nervous system. The most common sites of endometriosis, in decreasing order, are the ovaries, anterior/posterior cul-de-sac, broad ligaments and uterosacral ligaments, uterus, fallopian tubes, sigmoid colon, and appendix.

Because the growth of the implants is dependent on produced ovarian steroids, it is a disease that most severely affects women ages 25–35 years. Patients can present with a wide range of symptoms including asymptomatic to infertile cases. In addition to infertility, it is commonly associated with symptoms such as dyspareunia, dysmenorrhea, bladder/bowel symptoms, and chronic pelvic pain. The prevalence of endometriosis increases dramatically to as high as 25%–50% in women with infertility and 30–50% of women with endometriosis have infertility. The fecundity rate in normal reproductive age couples without infertility is estimated to be around 15% to 20%, while the fecundity rate in women with untreated endometriosis is estimated to be anywhere from 2% to 10%. Pelvic anatomy becomes distorted and fecundity is reduced via mechanical disruptions such as pelvic adhesions. These disruptions impair oocyte release or pick-up, alter sperm motility, cause disordered myometrial contractions, as well as impaired fertilization and embryo transport. Inflammatory effects resulting from the presence of endometriomas have been shown to affect both oocyte production and ovulation in the affected ovary. Endometriosis affects the eutopic endometrium and causes implantation failure; however, the mechanism of cellular or molecular signaling from the lesion to the uterus is unknown. There are a number of studies proposing that aberrant gene expression in eutopic and ectopic endometrium may be related to infertility or the establishment of the disease. An example of aberrant gene expression is the *Hoxa10/HOXA10* gene. Expression of this gene is necessary for endometrial receptivity. It has been shown that abnormal levels of aromatase are present in both endometriotic implants as well as eutopic endometrium where it is normally absent, resulting in increased estradiol production. Adenomyosis is frequently found in patients with endometriosis and its presence may have a deleterious impact on implantation. There is also a luteal phase disruption in endometriosis that may result from progesterone receptor dysregulation and affect progesterone target genes, which in turn leads to decreased endometrial receptivity.

Keywords: Endometrial receptivity, Endometriosis, Fertility, Implantation



Does Laparoscopy Surgery in Severe Endometriosis Improve Outcome in Patients Suffering from IVF Failure?

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Abstract

It seems that endometriosis may affect fertility by inflammatory and immunological disturbances other than anatomical distortion and it has profound effect on tubal function, oocyte quality and quantity, and implantation. There are some debates on possible impact of endometriosis on IVF outcome. There is overwhelming evidence showing conflicting results whether endometriosis surgery could improve IVF results in patients with deep endometriosis especially in cases with repeated IVF failure. Theoretically, laparoscopy surgery for deep endometriosis can eradicate all these massive inflammatory and fibrotic tissues and improve anatomical distortion, so immunologic perturbations and endometrial receptivity can be recovered.

Keywords: Endometriosis, Implantation, IVF failure, Laparoscopy



The Importance of Having a Psychiatrist During Endometriosis Treatment: The Idea of a Multidisciplinary Clinic

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Abstract

Women who have endometriosis have a higher risk of mental illnesses such as depression, anxiety, personality disorders, and substance use disorders. On the other hand, the studies also revealed that the association may be bidirectional; women who have depression, anxiety, or other mental illnesses may have a higher risk of endometriosis.

Overall, the results show that women with endometriosis face a complex clinical condition that requires a multidisciplinary approach for treatment. Physicians should keep two things in mind when working with women who have endometriosis; first, these patients should be treated in a multidisciplinary way which requires the presence of obstetricians and gynecologists to take family history from the patient in the initial evaluation, working closely with psychiatrists and psychologists and keeping abreast of the medications that the patients take for the treatment of endometriosis and the medications' association with psychiatric disorders. Second, endometriosis can be a terribly difficult disease to live with and the psychologists can be a significant source of compassionate support in treating the psychiatric problems that either coexist or result from the disorder, including assisting patients in seeking diagnosis and treatment despite the difficulties.

Keywords: Anxiety, Depression, Endometriosis, Psychiatry, Psychology



Endometriosis Diet, Foods to Eat and Foods to Avoid

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Abstract

Dietary habits are clearly shown to be related with increased incidence of most chronic inflammatory diseases for several decades. Therefore, it is expected that certain nutritional issues are also associated with endometriosis as an estrogen dependent chronic inflammatory condition in women at childbearing age.

Actually, till now the therapeutic potential of dietary interventions in endometriosis remain unclear in evidence based studies and there are no guidelines to assist physicians on this topic. However, important low cost and safe procedures are becoming more widely popular to be followed by these patients during their life span to reduce inflammatory markers and pain as precursors.

Based on current available systematic reviews, most findings show inverse relationship between endometriosis and the consumption of fruits, vegetables, dairy products, and omega-3 fatty acids and increased risk of endometriosis with higher consumption of trans-unsaturated fatty acids and red meat. Several pieces of evidence do exist regarding higher consumption of B12, vitamin D in patients with endometriosis and few studies have investigated the effect of gluten free diet.

Moreover, imbalances in gut and reproductive tract microbiota composition, known as dysbiosis, disrupt normal immune function, leading to the elevation of proinflammatory cytokines, compromised immunosurveillance and altered immune cell profiles, all of which may contribute to the pathogenesis of endometriosis. Therefore, improving gut microbiota via dietary modifications is worth to be further studied.

With regard to relationship between body mass index and endometriosis, it still remains unclear what role body mass index has in the development of endometriosis but it is speculated that body mass index may be useful for sub-classifying the disease. Some studies have shown obesity is associated with increased disease severity and reduced frequency of stage I endometriosis. However, significant association between weight management protocols in obese and lean endometriosis patients is not established yet. It is argued that clinical categories of the BMI may not provide enough etiological information to reflect the nature of obesity. Other new concepts such as adiposopathy which was defined as adipose tissue dysfunction should be included in any future studies evaluating the association of BMI with endometriosis.

Also, further well-designed randomized controlled trials are needed to accurately determine the short-term and long-term effectiveness of different dietary interventions, prescription of synthetic antioxidants or probiotics in different subtypes of these patients.

Proper personalized nutrition counseling in appropriate multidisciplinary settings with experienced dietitians is warranted to find how specific diet and lifestyle could also influence pathogenesis and the progression of endometriosis.

Keywords: Adiposopathy, BMI, Endometriosis diet, Etiological information



Ovarian Reserve and Its Assessment

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Abstract

Introduction: The term ovarian reserve refers to (1) the size and quality of the remaining ovarian follicular pool and (2) the ability of the ovaries to respond to exogenous gonadotropin stimulation which are related concepts. Since the major effect of aging on a woman's reproductive potential is through a decrease in oocyte number and increase in oocyte aneuploidy, the concept of ovarian reserve is relevant for female reproductive aging.

Materials and Methods: Ovarian reserve tests include both biochemical and ultrasonographic measures of the size and (by inference) the quality of the ovarian follicular pool. Biochemical tests include both basal measurements such as FSH, estradiol, inhibin B, and antimüllerian hormone (AMH), and provocative tests, such as the clomiphene citrate challenge test (CCCT). Ultrasonographic measures of ovarian reserve include the antral follicle count (AFC) and ovarian volume measurement.

Results: With current assays (using IRP 78/549), FSH levels greater than 10 IU/L (10–20 IU/L) have high specificity (80–100%) for predicting poor response to stimulation, but their sensitivity for identifying such women is generally low (10–30%) and decreases with the threshold value.

The basal serum estradiol concentration, by itself, has little value as an ovarian reserve test, but can provide additional information that helps in the interpretation of the basal FSH level. The CCCT is a provocative and possibly more sensitive test of ovarian reserve that probes the endocrine dynamics of the cycle under both basal and stimulated conditions, before (cycle day 3 FSH and estradiol) and after (cycle day 10 FSH) treatment with clomiphene citrate (100 mg/day, cycle days 5–9).

Inhibin B is secreted primarily during the follicular phase by the granulosa cells of smaller antral follicles. Its concentrations increase in response to exogenous GnRH or FSH stimulation and show wide intra- and intercycle variation. Thus, inhibin B is generally not regarded as a reliable measure of ovarian reserve.

Antimüllerian hormone (AMH) is produced by the granulosa cells of preantral and small antral follicles, beginning when primordial follicles start developing into primary follicles and ending when early antral follicles reach a diameter of 2–6 mm. Small antral follicles are likely the primary source because they contain larger numbers of granulosa cells and a more developed microvasculature. The antral follicle count (AFC; total number of antral follicles measuring 2–10 mm in both ovaries) thus provides an indirect but useful measure of ovarian reserve.

Conclusion: Currently, there is no ovarian reserve test that predicts the likelihood of spontaneous conception for a regularly menstruating woman. For the purpose of predicting response to ovarian stimulation, the lack of a uniformly accepted definition of diminished ovarian reserve despite a number of attempts remains a problem. In order to predict success of ART, the ideal ovarian reserve test should yield consistent results and be highly specific, to minimize the risk for incorrectly categorizing normal women as having a diminished ovarian reserve. Currently, AFC and antimüllerian hormone are good alternatives to basal FSH levels as the most commonly used ovarian reserve test in clinical practice.

Keywords: AFC, AMH, FSH, Ovarian reserve



Research Priorities in Endometriosis

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Abstract

Research in endometriosis as a disease with unknown origin needs multi-disciplinary, comprehensive, and also well informative clinical study design to produce conclusive result for clinical practice. The best way reaching these goals is conducting integrated, prospective, and standard studies under coverage of a unique national strategy. Community based surveys produce more useful data regarding the epidemiological aspects of the disease and also its economic burden. Also, designing a laboratory and imaging platform for early diagnose of the disease is a priority. Tissue and blood bio-bank under a predefined standard operating procedure (SOP) provides good opportunities for basic scientists to understand molecular mechanism not only in pathogenesis, but also in geographical, ecological, and gene related distribution of the disease.

Since therapeutic intervention is controversial in endometriosis practice, precise definition of the disease stage and outcomes of treatment (medical/surgical) make the results more valid and also more reproducible both in observational or clinical trial studies. Advanced surgical interventions require expertise of multiple specialists to evaluate all aspects of the disease with standard techniques which subsequently results in focused data collection.

To realize these ambition, multidisciplinary endometriosis research centers should be established and organized with participation of clinicians and basic scientists.

Keywords: Basic scientists, Multidisciplinary endometriosis research centers, Pathogenesis, Standard operating procedures (SOP)



The Role of Informed Consent in Gynecologic Surgical Procedures in Iran

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Abstract

Obtaining informed consent from patients, regardless of medical ethics, has been considered in Iranian laws.

According to Articles 158 and 495 of the Islamic Penal Code of Iran, patient's gender is not considered as a factor in obtaining and signing informed consent forms in Iran. What matters to healthcare providers in providing medical care and medical treatment to patients is mainly competency and incompetency of patients which correspond with general rules governing competent and incompetent patients in Iran.

In obstetrics and gynecology, similar to other medical fields, competent patients sign the consent forms on their own. Therefore, there is no difference between male and female patients.

The important factor is their competency. There are only two exceptions to this rule.

The first one is in Assisted Reproductive Treatment (ART) by married couples in which the consent of each one of couple is required. The second one is in Articles 158 and 497 of the Islamic Penal Code of Iran, which specifies that "the treatments and procedures should not be delayed or avoided in urgent situations". Thus, regardless of patient's gender, medical treatment should be provided without obtaining patient's informed consent.

Keywords: Gender discrimination, Informed consent, Islamic Penal Code of Iran



The Role of Recovery in the Operating Room

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Abstract

Patient care immediately after surgery is usually performed in a space inside the operating room called the recovery room so that the patient is fully conscious and ready to be delivered to the surgical ward.

The anesthesia team is in charge of this room and the care of the patient until complete recovery and delivery to the surgical ward is preferably entrusted to an anesthesiologist or an experienced nurse. Due to the importance of the subject, instructions and protocols in this field have been prepared. The most important areas of patient care in recovery are ensuring that the patient is in the correct position, establishment of airway, checking the level of consciousness, relieving postoperative pain, performing oxygen therapy, treatment with intravenous fluids, assessing cardiovascular problems, shiver control, checking for restlessness and excitement, and control of urinary output, drains, and central venous pressure.

Keywords: Anesthesia team, Operating control, Patient care, Recovery



Sclerotherapy in Endometrioma

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Abstract

Endometriosis is seen in 0.5%-5% of fertile and 25%-40% of infertile women. Ovarian endometriomas (OMAs) are found in 17%-44% of women with endometriosis. Cyst contents include inflammatory factors, proteolytic enzymes, and cellular degrading agents. Endometriosis is a multifactorial disease and more than one pathway needs to be targeted in its treatment. Therefore, a multifactorial approach is applied and laparoscopic ovarian cystectomy is still the standard treatment for OMAs. However, ovarian cystectomy can lead to decreased ovarian reserve due to removal of healthy ovarian tissue adjacent to the cyst wall. Thus, the overall opinion has been shifted toward a more conservative nonsurgical management including sclerotherapy in the treatment of endometrioma. It is indicated that sclerotherapy for ovarian endometrioma may be considered in symptomatic women who plan to conceive.

Surgical treatment is limited to cases with unilateral OMA and good ovarian reserve, whereas, sclerotherapy is applied for patients with bilateral OMA, poor ovarian reserve, advanced age and recurrent OMA.

Some studies reported that the number of oocytes retrieved was higher after endometrioma sclerotherapy compared with laparoscopic cystectomy. But the pregnancy outcomes were similar. An updated systematic review and meta-analysis showed the importance of treatment duration. This study showed that sclerotherapy of more than 10 minutes had a lower recurrence rate than sclerotherapy less than or equal to 10 minutes. There was no significant difference in major complication rates between sclerotherapy of >10 and ≤10 minutes.

In conclusion, ultrasound guided sclerotherapy seems to be an effective and safe therapeutic option regarding recurrence, pain resolution, and pregnancy for patients with ovarian endometrioma.

Keywords: Ovarian endometrioma, Ovarian endometriomas (OMAs), Poor ovarian reserve, Ultrasound guided sclerotherapy



Genetics and Epigenetics of Endometriosis

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Abstract

Endometriosis is a painful disease with a worldwide prevalence of 10% among the females in the reproductive age. Endometriosis is a pathophysiologically heterogeneous disease. Based on twin studies, the prevalence of familial endometriosis seems to be around 50%, and the risk of incidence is 6 to 9% higher in first degree relatives and an overall risk of 1.9% is reported in second degree relatives. Identification of involved genes is very essential for prognosis, diagnosis, and treatment. Genetic factors make the patients vulnerable to ovarian carcinoma. Possible gene involvement is identified in endometriosis pathogenesis and its pathophysiological molecular activities such as sex hormone steroidogenesis, DNA repair, metabolism, immune response, neoangiogenesis, and cell growth. It is documented that mutations in PTEN, KRAS, ARID1A, and P53 are associated with endometriosis and tumorigenesis. Through GWAS and NGS, the gene loci and the rare variants can be explored, respectively. GWAS results show that there is an association between fat distribution and endometriosis and WNT/ β -catenin pathway.

Some heritable changes with no change in DNA sequence are due to epigenetics. As mentioned above, endometriosis is a multifactorial disease and the epigenetic factors can influence endometriosis occurrence. Epigenetic changes are reversible. Epigenetic events include DNA methylation, histone- post- translational modification, and non-coding RNAs. Some investigators had introduced the epigenetic factors as the main aberrations in endometriosis. Several studies show that there are differences between the pattern of DNA methylation in eutopic and ectopic endometrium samples and they consider them as good diagnostic and prognostic tools for endometriosis. Histone code modifications such as acetylation, methylation, ubiquitination and sumoylation can also alter the chromatin status. HDAC inhibitors can be a good choice for improvement of endometriosis symptoms and in vitro studies has confirmed the potency of these kind of treatments. Other factors involved in endometriosis are miRNAs. Micro RNAs are a large class of endogenous, single stranded, short ncRNAs of approximately 22-nucleotides in length. Several studies had introduced the profile of some miRNAs in endometriosis. Circulating miRNAs are known as the biomarkers for diagnosis and disease monitoring. Numerous miRNAs are related with endometriosis pathogenesis such as mir-200 family, mir-20a, mir-143, mir-145, mir-199a, and let-7. Recently, some studies indicated the modification of let-7 and mir-210 as the therapeutic strategy for endometriosis treatment.

Although technological advancements in genetic tools have opened a door in exploring the basis of endometriosis, it is unclear whether using genetic and epigenetic biomarkers are the ideal and cost-effective approach for endometriosis diagnosis, prognosis, and treatment. Although an overview of genetics and epigenetics of endometriosis is provided, yet lots of questions remain to be answered in future.

Keywords: Endometriosis, Epigenetics, Genetics, GWAS



Hysteroscopic Polypectomy

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Abstract

A 56 year old woman with history of breast cancer and tamoxifen usage was referred due to spotting and increased endometrial thickness. Ultrasound revealed an increase in endometrial thickness up to 22 mm. The patient underwent hysteroscopy. Three polyps were observed in the uterine cavity, all of which were resected with scissors and sent for pathology. Also, endometrial biopsy was sent for pathology.



Should AMH Be Prescribed to Every Patient Presenting with Endometriosis?

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Abstract

Endometriosis refers to the implantation of endometrium tissues, which includes stroma and epithelial tissues outside the uterus. It is one of the most common causes of infertility and implantation failure. Indeed, approximately 30% to 70% of infertile women have been reported to have endometriosis.

Ovarian reserve is usually used to refer to the remaining number of dormant primordial follicles in the ovary. The term is often used interchangeably with other indices of ovarian function such as antral follicle count (AFC) or serum anti-mullerian hormone (AMH) level.

AMH plays a pivotal role in ovarian physiology and has been used as a reliable marker of ovarian reserve. It is produced by granulosa cells of early antral and preantral follicles and is a marker that remains stable within and between menstrual cycles since it is gonadotropin independent. Due to the hindering effect of endometrioma, AFC may not be as reliable as AMH in determining the ovarian reserve. Endometrioma per se can reduce AMH level. Primordial follicle density is lower in the ovarian cortex surrounding endometriomas than in contralateral ovaries and in tissue surrounding non- endometriotic benign cysts.

The gold standard for the surgical treatment of endometriomas is laparoscopic excision with the stripping technique that is associated with better results in terms of pregnancy rate, pain control rates, and cyst recurrence rate, compared with fenestration and coagulation/ablation of the cyst wall. One of the disadvantages of stripping technique is the possible damage to the ovarian reserve due to accidental removal of healthy ovarian tissue as evidenced by recent studies.

Therefore, the measurement of AMH is one of the most important factors for decision making prior to therapy in infertile women to choose the best way of treatment.

Keywords: Antral follicle count (AFC), Endometrioma, Implantation failure, Measurement of AMH



Treating the Pain of Endometriosis

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Abstract

Pain is the central symptom in endometriosis and often persists despite treatment of the disease. No study has directly compared medical versus surgical management, and as such, no treatment modality can be recommended as superior to the other. Experimental pharmaceuticals including Gestirone and other aromatase inhibitors have shown promise but are still under scrutiny. Elagolix, a nonpeptide, small-molecule gonadotropin-releasing hormone (GnRH) receptor antagonist, is the first new oral therapy approved for the treatment of endometriosis-associated pain in the United States in more than a decade. Lower body mass index (BMI) had a greater effect on pain relief. Endometriosis is associated with an increased risk of epithelial ovarian cancer; however, the risk is low and currently no preventive screening is recommended.

Keywords: Elagolix, Endometriosis-associated pain, Gestirone



The Influence of Endometriosis on the Oocyte Quality and/or Embryo Development

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Abstract

Endometriosis as a multifaceted systemic gynecological disorder affects approximately 10% to 15% of reproductive aged women. It has been demonstrated that fertilization rate, the number of competent embryos, quality of cleavage stage embryos, blastocyst formation rate, implantation rate, and pregnancy rate are decreased in women with endometriosis. Though Assisted Reproduction Technology (ART) has been suggested an effective tool to manage the endometriosis-associated infertility, a negative effect of endometriosis on ART consequences has been confirmed.

One of the most mystifying challenges of endometriosis is determining which mechanisms associate this spectrum of conditions to infertility. It seems that one of the principal causes for infertility in patients with endometriosis is the restricted number of matured oocytes, related to hormonal imbalances as a result of estrogen synthesis and progesterone resistance. Also, increase of reactive oxygen species (ROS) and a decrease in anti-oxidant levels, chronic inflammatory environment, immune system dysregulation, and cellular architectural disruption constitute the other possible mechanisms that detrimentally affect oocyte quality and embryo development. Also, impaired protein function and dysregulation of gene expression are related to implantation failure in women with endometriosis. On the other hand, very high levels of prostaglandin E2 (PGE2), regulated upon activation, Normal T Cell Expressed and Secreted (RANTES), and vascular endothelial growth factor (VEGF) related to the severity of endometriosis have been demonstrated to inhibit sperm motility, acrosome reaction, and sperm-oocyte interaction in endometriosis patients.

Taken together, it seems that endometriosis negatively affects oocyte quality and/or embryo development, in terms of several relevant clinical and biological outcomes. It appears that future investigations should be focused on discovering sensitive biomarkers for early detection of patients who may profit from receiving adjuvant treatments prior to encounter with endometriosis related infertility. Also, characterization of detailed molecular mechanisms involved in endometriosis-related infertility may help to clarify the complex nature of this pathologic condition and discover a more personalized approach in understanding, diagnosing, and managing endometriosis-related infertility.

Keywords: Assisted reproduction technology, Embryo development, Endometriosis, Oocyte quality



Laparoscopic Ablation for Ovarian Endometrioma

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Abstract

The laparoscopic management of endometriomas is similar to adnexal masses although the complexity of endometriomas observed through ultrasound sometimes makes it difficult to distinguish them preoperatively from a neoplasm. The close attachment of the endometrioma to the ovarian cortex and stroma may make it difficult to find surgical dissection planes, and incomplete removal increases the risk of recurrence. In such instances, there may be a tendency either to compromise the function of the remaining ovary by attempting complete removal or manage recurrence risk by leaving part of the endometrioma in place. A Cochrane review provided good evidence that excisional surgery for endometriomas decreases the recurrence of the endometrioma, decreases the recurrence of pain symptoms, and increases subsequent spontaneous pregnancy in women who were previously subfertile. Consequently, the excisional approach should be the goal where possible. Multifocal endometriosis may be treated by mechanical excision or ablation, using either electrical or laser energy for coagulation or vaporization for the latter option. With proper use, each energy source creates nearly the same amount of thermal injury. Excisional techniques are valuable in many instances regarding endometriosis treatment.

Endometriomas should be excised if they cause pain and/ or become enlarged and increase the risk of torsion; excision is also an option in patients with infertility. In two randomized clinical trials, it was shown that excision (compared to drainage or ablation) results in overall greater pain relief, lower recurrence of endometriosis-associated pain, and lower recurrence of endometrioma formation. A 2008 systematic review revealed that laparoscopic excision of the cyst wall was associated with a lower rate of recurrence of the endometrioma, a decreased requirement of further surgery, reduced recurrence of dysmenorrhea, dyspareunia, and NMPP, and an increased pregnancy rate in women who previously were infertile.

Careful surgical technique is important because ovarian function can be compromised by excision of excess tissue or damage to hilar vessels, as demonstrated by postoperative AMH levels. Regardless of surgical procedure (i.e., complete excision vs. combination of excision and ablation), AMH levels can be adversely affected; however, it does not appear to impair ovarian response/fertility. The risk of ovarian failure after excision of bilateral ovarian endometriomas is approximately 2.5%.

Excision and ablation are equivalent in the hands of a surgeon who does a complete surgical evaluation and treatment of endometriosis. Careful patient counseling regarding exceptions of surgical intervention is important in the management of superficial endometriosis.

Overall, the treatment of endometrioma should be individualized based on the clinical situation. If a patient has symptoms or the diagnosis is in doubt, the removal is indicated. Otherwise, removal of endometrioma is not necessary to proceed forward with fertility treatment and may be detrimental to a patient's ovarian reserve and subsequent treatment success.

Keywords: Ablation, Endometrioma, Laparoscopic management



Laparoscopic Surgery for Endometriosis

Safoura Rouholamin

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Abstract

Endometriosis is defined as the presence of endometrial-like tissue (glands and or stroma) outside the uterus. The disease is estrogen dependent and detected predominantly in women of reproductive age with prevalence of 6 to 10%. The symptoms of the disease include pelvic pain and/or infertility and some cases are even asymptomatic. Symptoms of endometriosis impact many aspects of a woman's life including daily life activities, sexual function, and personal relationships, thereby leading to a loss of work productivity and causing a major economic burden. Surgery should be indicated only in the following situations; patients who present with significant pain such as dyspareunia and dyschezia (VAS >7), patients who present with signs of bowel obstruction, patients who underwent failure in previous in vitro fertilization (IVF) cycles, patients with persistent pain despite medical therapy, patients with contraindications to or refusal of medical therapy, and patients with a need for a tissue diagnosis of endometriosis and exclusion of malignancy in an adnexal mass and obstruction of the bowel or urinary tract are the candidates for surgery. Symptomatic menopausal cases may be treated more conservatively, in comparison to younger patients.

Surgical approach consists of 10 steps:

- 1) Thorough inspection of the pelvis and the abdomen,
- 2) Mobilization of the ovaries,
- 3) Identification of the ureter and ureterolysis,
- 4) Removal of endometriotic cysts,
- 5) Opening of pararectal spaces,
- 5) Opening of the pouch of Douglas,
- 7) Enterolysis,
- 8) Preservation of the hypogastric nerves,
- 9) Careful removal of all endometriotic lesion and nodules,
- 10) Checking uterosacral ligaments, and
- 11) Assessment of both tubes in terms of hydrosalpinx and normalization of anatomy.

Keywords: Asymptomatic cases, Endometriosis, Reproductive aged women



Müllerian Agenesis and Its Management

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Abstract

One of the vaginal agenesis management options is creation of a neovagina. Treatment should be deferred until the patient is emotionally mature and physically ready to give informed consent. Intervention must be performed sooner in the case of vaginal outflow obstruction, abdominal or pelvic pain, or a risk for secondary endometriosis. Non-surgical vaginal dilation therapy is widely considered the first line treatment because success rates are high and associated risks are low.

Surgical intervention should be considered if non-surgical options fail. A variety of surgical techniques are available, each with specific indications, advantages, and disadvantages. With the introduction of laparoscopic assisted procedures, a marked change in surgical practice was observed, which decreased the length of inpatient stay and reduced the morbidity in patients.

Keywords: Dilation therapy, Laparoscopic assisted procedures, Neovagina, Vaginal agenesis



Disc and Segmental Resection of Rectal Endometriosis

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Abstract

Bowel endometriosis refers to the condition in which endometrial glands and stroma infiltrate the bowel wall, involving at least the subserous fatty tissue. Colorectal endometriosis affects around 5.3% to 12% of patients with DIE. DIE affecting the colon and/or rectum has been associated with severe pain symptoms, altered digestive function, decreased fertility, and impaired quality of life in these patients. Surgical excision of deep rectovaginal endometriosis is required when lesions are symptomatic, impairing bowel, urinary, sexual, and reproductive functions. Two surgical approaches are used for the patients, namely radical approach, i.e., colorectal segmental resection, and rectal shaving resection of DIE leaving the bowel mucosa intact, without opening the rectum. Disc excision, removing the nodule along with surrounding rectal wall using full thickness excision, was introduced more than 20 years ago by surgeons who reported rectovaginal DIE removal with bowel lumen opening, followed by the suture of bowel using the transanal end-to-end anastomosis (EEA) stapler (Ethicon Endo-Surgery).

EEA circular stapler removes discs 3 cm in diameter located in the upper rectum and rectosigmoid junction. Then, the rectum is extracted through abdominal wall or vaginal incision, and proximal section is performed above the nodule. Colorectal anastomosis (either end-to-end or side-to-end) is generally carried out using transanal circular staplers. There are two groups of complications including major and minor one; major complications include the need for colostomy, another surgery, transfusion (during or after surgery), presence of postoperative fistula, nerve palsy, renal insufficiency, hospitalization in an intensive care unit, and death. Minor complications are classified as the complications that are not major. Surgeons should first consider rectal shaving to remove DIE. Bowel resection should only be performed in case of major rectal stenosis (>80%), multiple and/ or posterior rectal lesions, and stenotic sigmoid colon lesions.

Keywords: Bowel endometriosis, Bowel resection, DIE, Ethicon Endo-Surgery



Hysteroscopy-Guided Laparoscopic Repair of Cesarean Scar Defect: Video Presentation of a Combined Technique

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Abstract

Introduction: As the rate of cesarean section rises worldwide, so does the prevalence of its complications, such as cesarean scar defect, which can lead to symptoms like postmenstrual spotting, pelvic pain, secondary infertility, and cesarean scar pregnancy.

Case Presentation: A 38-year-old lady (G₄P₂Ab₁EP₁, twice previous cesarean section) came with a history of cesarean scar pregnancy with massive bleeding following D&C six years ago. She was planning for another pregnancy. A saline infusion sonohysterography (SIS) was done and a cesarean scar defect (CSD) of 11mm was detected in the anterior wall of the uterus. The myometrium overlying the CSD was extremely thin and in some parts, there was only uterine serosa covering the defect. Hysteroscopic-guided laparoscopic repair of isthmocele was performed using simultaneous laparoscopy and hysteroscopy. The cesarean scar defect was visualized in hysteroscopy. A colpotomizer was inserted in the vagina and the vesicouterine space was developed by the reflection of the bladder over the lip of the colpotomizer. Methylene blue was instilled in the uterus and a bulging at the site of isthmocele (CSD) was visible in laparoscopy. Hysteroscope was re-inserted to demarcate the limit of the defect by its light. Then, the scar defect was excised and its edges were removed and refreshed. A uterine sound was inserted to prevent the closure of cervical drainage and the defect was closed with Vicryl suture #1 in two layers. Then, hemostasis was ensured and reperitonization was performed. A second look hysteroscopy two months later showed complete repair of the defect.

Discussion: Various methods of treating cesarean scar defects have been introduced so far, such as hysteroscopic resection, vaginal repair, laparoscopy, and combined methods. The laparoscopy has been advocated for larger symptomatic defects with overlying myometrial thickness <3 mm. Hysteroscopy-guided laparoscopic repair is thought to be the superior method because it allows better visualization and localization of the defect site and gives the surgeon the possibility to excise the defect and perform adequate multi-layer closure following excision. This technique has the potential advantage of increased myometrial thickness, which may reduce the risk of isthmocele complications in future pregnancies.

Conclusion: Hysteroscopic-guided laparoscopic excision of cesarean scar defect (isthmocele) is an easy, safe, and effective procedure with a low rate of complications. However, further prospective studies are needed to compare the outcomes with other methods.

Keywords: Cesarean scar defect, Colpotomizer, Hysteroscopic-guided laparoscopic excision, Isthmocele



The Role of CRS and HIPEC in the Management of Ovarian Cancer

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Abstract

Progress in the management of peritoneal metastases from gastrointestinal and gynecological malignancies has continued over the last three decades. Cytoreductive surgery with peritonectomy procedures and visceral resections have become well-defined and are currently completed with minimal morbidity and mortality. The second component of peritoneal metastases treatment is hyperthermic intraperitoneal chemotherapy (HIPEC) surgery.

A reliable group of prognostic indicators, including histopathology, peritoneal cancer index (PCI), and completeness of cytoreduction score (CC score) have been validated in peritoneal metastases. There is one extremely important aspect of peritoneal metastases management that has been lagged far behind the others; that is the accurate preoperative assessment of the extent and distribution of peritoneal surface malignancy. This accurate assessment prior to surgery would be of great benefit.

Epithelial ovarian cancer (EOC) affects over 200000 women, and causes 125000 deaths annually worldwide. It is the 9th most common cause of female cancer, and the 5th most common cause of cancer death in women. Survival in patients suffering from EOC remains extremely poor with standard treatments. Sound theoretical reasons exist for incorporating HIPEC at all natural-history time points of EOC and the evidence suggests that it can be performed safely. The potential benefit of HIPEC must be validated by ongoing and future randomized trials.

We describe indications, preoperative management, and surgical management of cytoreductive surgery and HIPEC for patients with epithelial ovarian cancer, and we also focus on most important trials about use of HIPEC in patients with EOC.

Keywords: Completeness of cytoreduction score, Epithelial ovarian cancer, HIPEC, Peritoneal metastases



Ergonomics in Laparoscopic Surgery

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Abstract

Surgeons should have proper posture to feel comfort, have efficacy in movement, thereby lowering the risk of musculoskeletal injuries. There are many differences between open surgery and laparoscopy, which reduces the surgeon's mental and physical reserves.

Laparoscopy surgeons should follow the below rules to achieve proper ergonomics:

1. Straight line principle (Surgeon, pathology and monitor should be in one straight line),
2. How to place ports (Camera and pathology should be 10 to 15 cm apart, ports should be positioned so that they provide optimal manipulation and elevation angle),
3. Manipulation angle (Normal manipulation angle created by 2 working trocars is about 45 to 75 degrees. The angle less than 45 and more than 75 especially 90 degrees makes the surgery difficult),
4. Elevation angle (It is the angle between trocar and patient's body and it must be about 60 degree),
5. Operating table's height (Surgeon's elbow must be in a relaxed position in 90 to 120 degree and not in flexion position),
6. Foot pedals (It must be in the alignment with surgeon's foot),
7. Gaze down (Surgeon's neck should not be in extended position),
8. Instrument's handle (The appropriate device handle should be selected during surgery).

Keywords: Ergonomics, Laparoscopic surgery, Mental and physical reserves, Musculoskeletal injuries



Laparoscopic Cystectomy

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Abstract

Ovarian pathology can occur at any time from fetal life to menopause. The indications for ovarian surgery versus expectant management of an ovarian cyst depend upon the patient's age, findings on pelvic examination and ultrasound, and laboratory results. When surgery is indicated for benign ovarian diseases, preservation of ovarian tissue via cystectomy or enucleation of a solid tumor from the ovary is generally preferable to complete oophorectomy. Aspiration and fenestration versus cystectomy is not recommended because no tissue is obtained for histopathology and cytology of cyst fluid is not reliable for exclusion of malignancy. Therefore, cystectomy is the preferred operation for a benign ovarian cyst.

Keywords: Aspiration and fenestration, Complete oophorectomy, Ovarian surgery



Endometriosis and Overactive Pelvic Floor

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Abstract

Hypertonicity is when a muscle has high resting tone due to its viscoelastic properties; each muscle is made up of single muscle fibers, and small groups of those fibers form a larger group making up the whole muscle. Around each of them, there is a connective tissue which can be short and responds better to stretch.

High levels of stress, fear or anxiety can cause muscles to reflexively tighten and these factors can lead to a hypertonic pelvic floor. Pelvic and abdominal conditions also may lead to hypertonicity of the pelvic floor. For example, many women with endometriosis may have hypertonic pelvic floor muscles which result in pelvic pain in facing with inflammation, leading to symptoms like sexual pain, constipation, straining.

These complications in endometriosis are usually due to poor muscle coordination, hypertonicity, and overactivity. In case of chronic pelvic pain, in the absence of ovarian cystic lesion or desire for pregnancy, chronic pelvic pain can be managed with hormonal suppression as well as NSAIDs. If symptoms do not improve in 3 to 4 months, diagnostic laparoscopy would be used. Not all gynecologic surgeons have the surgical expertise required to perform complete surgical excision, particularly of deep infiltrative disease, at the time of diagnostic laparoscopy. A major unresolved issue for gynecologists is how to minimize the number of procedures performed per patient with chronic pain while also ensuring that patients with symptomatic endometriosis, in need of surgery, have the optimal surgical treatment. Physiotherapy can be added as an option for betterment of the patient especially those with chronic pelvic pain.

Keywords: Chronic pelvic pain, NSAIDs, Overactive pelvic floor, Overactivity



Video Presentation of a Case with Infiltrative Endometriosis and Subsequent Renal Function Disorder

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Abstract

Background: While endometriosis is a common disease, the urinary tract endometriosis is a rare entity, with a reported prevalence of less than 0.1% to 0.4% of endometriosis cases. Ureteral obstruction resulting in hydronephrosis is a rare manifestation of ureteral endometriosis which can cause silent kidney dysfunction. It occurs as a consequence of intrinsic involvement within the ureter, or from extrinsic compression of the ureter by endometrial tissue in pelvis. In cases of intrinsic ureteral endometriosis, ectopic endometrial tissue is present within the muscularis propria, lamina propria, or ureteral lumen. The type of procedure performed depends on the location and the extent of the lesion. If the lesion is located in the lower third of the ureter, close to the bladder, a ureteroneocystostomy with or without psoas hitch may be performed as lesions in the middle or upper third of the ureter may require a ureteroureteral anastomosis.

Materials and Methods: A 42-year old lady who presented to our office with chief complaint of dysmenorrhea and occasionally flank pain is reported. She underwent unilateral salpingo-oophorectomy (left) 15 years ago. Through vaginal exam, uterus and ovaries were fixed and exam was extremely painful for her. A large endometrial nodule in uterosacral ligament was palpated. Transvaginal sonography revealed right endometrioma of 7 cm size, rectal endometriosis with sub-mucosal involvement and moderate hydronephrosis. Ca-125 level was 58IU/ml. MRI findings confirmed sonography result. Full thickness involvement of distal right ureter and moderate to severe hydronephrosis were also detected. In addition, TC-99m-DTPA showed significant decrease in perfusion and function of right kidney. Right ovariectomy and right salpingo-oophorectomy, ureterolysis, and DIE resection around the ureter were performed. Endometriosis invaded the ureter in some parts and therefore it couldn't be removed by ureterolysis. After dissecting and removing DIE, hysterectomy was done. Obstruction was obvious in ureteroscopy and the intrinsic endometriosis was observed. There was stricture in lumen. The involved part was detected in the middle to distal part of the ureter which was about 3 cm in length. The ureter cut with cold scissor at the level of the healthy tissues and the part which had stricture in 2 sections were removed. The cut ends of each ureteral segment was spatulated in order to perform ureteroureterostomy. Using 4-0 vicryl suture, the apex of one end was anastomosed to the spatulated portion of the other end. Consequently, double J was inserted intra-abdominally. Anastomosis was performed.

Results: Second look surgery after 3 months revealed no hydronephrosis. Recto-sigmoid segmental resection with anastomosis was performed at this stage. MRI showed resolution of hydronephrosis 3 months postoperatively.

Conclusion: Early detection of the disease is very important in this case and can prevent the silent death of the kidney. Multidisciplinary approaches are performed to achieve effective treatment. In addition, timely diagnosis cause better treatment outcomes.

Keywords: Hydronephrosis, Infiltrative endometriosis, Renal function disorder, Ureteroureterostomy



Hysteroscopy Complications

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Abstract

Hysteroscopy is a minimally invasive intervention that involves inserting a rigid or flexible hysteroscope through the cervical canal into the uterus and then using distending media to allow complete visualization of the endometrial cavity. The most common indications for hysteroscopy are intracavitary lesion, abnormal uterine bleeding, abnormal endometrial thickening, postmenopausal bleeding, infertility, Mullerian congenital anomaly, and removal of foreign bodies. Pelvic infection, prodromal symptoms of genital herpes, and confirmed cervical or endometrial cancer are the contradictions for performing hysteroscopy. Pregnancy is also a contraindication to hysteroscopy unless used in the case of retained IUD or removal of products of conception. Although hysteroscopy is regarded as a safe, minimally invasive procedure, some of the complications are uterine perforation, fluid overload, infection, bleeding, and embolism which are elaborated in this presentation. Complications tend to occur mostly when contraindications are ignored and when incorrect surgical techniques or instruments are used. This technique has numerous indications and benefits as well as a wide spectrum of complications. Therefore, complications of hysteroscopic surgery are largely preventable by proper preoperative evaluation using an accurate technique.

Keywords: Complications, Hysteroscopy, Preoperative evaluation, Retained IUD



Bowel and Urinary Involvement in Endometriosis, What Should We See in Ultrasound?

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Abstract

Endometriosis is a common disease among women of reproductive age. The prevalence is almost 10% in general population and may be more in patients referred for pelvic pain or infertility. The current knowledge on diagnosis and treatment of endometriosis is not sufficient.

The first step and imaging modality of choice in diagnosis of endometriosis is transvaginal or transrectal ultrasound. However, the diagnostic performance of this test is highly dependent on the quality of the equipment and the familiarity of the operator with the typical and atypical presentation of endometriosis on ultrasound. In 20% of patients, the diagnosis is especially challenging because there is no cystic lesion in the pelvis and pelvic nodules, adhesions, and involvement of the uterosacral ligament or rectovaginal septum only manifest the disease. This group of patients may remain undiagnosed for decades.

There are multiple steps for detecting the adhesions through applying pressure on the abdominal wall by both the transducer and the other hand simultaneously. In patients without adhesion, mobility of the pelvic organs by these procedures can accurately be observed and is considered as positive sliding sign. On the other hand, the restricted mobility of the pelvic organs is considered as negative sliding sign and reflects possible adhesion. The entire pelvis and the bowels walls should also be scrutinized for the presence of any nodule and the severity of invasion should be reported. It is also possible to find thick uterosacral ligament and its nodule. The dynamic nature of ultrasound scanning provides the opportunity to evaluate the tender points more precisely. There is a 1-2.5 % chance of malignancy in endometriomas, so an ovarian cyst with the imaging appearance in keeping with endometrioma should be accurately evaluated for any sign of malignancy like mural nodule or internal thick septation.

Hereby, we are going to share our experience of diagnosing more than 1000 cases of endometriosis on ultrasound along with presenting multiple pictures and clips from our interesting cases.

Keywords: Bowel walls, Cystic lesion, Endometriomas, Transrectal ultrasound



The Use of Mesh in Gynecologic Surgery

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Abstract

Four kinds of surgical reconstructive materials are available which are different by their source as synthetic mesh, autografts, allografts, and xenografts. Synthetic materials are divided into absorbable (polygalactin) and nonabsorbable mesh (polypropylene). Synthetic materials have the advantages of greater availability (does not require harvesting) and lower cost. Nonabsorbable synthetic materials are generally described by type, a classification based on pore size and weave. The four types are indicated below:

1) Type I – Macroporous (>75 microns), monofilament polypropylene (eg, Prolene, Marlex); 2) Type II – Microporous (<10 microns), eg, expanded polytetrafluoroethylene (eg, Gore-tex); 3) Type III – Macroporous (>75 microns) grafts with either microporous components or multifilament fiber structure (polyethylene [Mersilene]); and 4) Type IV – Submicroscopic pore size (polypropylene sheet [Cellgard]) and these are not commonly used in gynecologic surgery.

Type I macroporous monofilament polypropylene mesh is typically preferred for reconstructive pelvic surgery. It is the only material that has consistently been shown to improve outcomes following abdominal prolapse repairs and midurethral slings. Complications following mesh surgery can occur after both pelvic organ prolapse (POP) and stress urinary incontinence (SUI) surgery, but mesh-related complications are more common following POP surgery, particularly when the synthetic mesh is placed vaginally.

Synthetic mesh is frequently used in transabdominal pelvic organ prolapse (POP) repair. However, transvaginal mesh is more controversial. Concerns have been raised with regard to the security of transvaginal synthetic mesh, which renews debates that attempt to balance the durability of surgical repair with synthetic mesh against the risk of mesh-related complications. In 2019, the US Food and Drug Administration (FDA) prohibited the deal and dissemination of surgical mesh for use in anterior compartment prolapse (cystocele) repair transvaginally since they couldn't affirm that the likely advantages offset the plausible dangers.

The ban followed the 2016 reclassification of transvaginal synthetic mesh from a class II to a class III (ie, high risk) device. The classification change was made in response to increased reporting of adverse events from mesh-based transvaginal POP repairs. FDA mesh ban is not applied to transvaginal mesh used in the treatment of stress urinary incontinence or to transabdominal mesh for prolapse repair. While the 2019 National Institute for Health and Care Excellence (NICE) Guideline did not ban the use of synthetic mesh for transvaginal prolapse repair, the organization advised the use of a decision aid for women considering surgery, detailed counseling for women considering mesh-based procedures, and tracking of data on surgery and complications. In general, native tissue repair without synthetic mesh is the preferred approach for transvaginal POP surgery because of the higher risk of complications and repeat surgery with mesh-based repairs.

For women with a typical risk of recurrent prolapse who are undergoing primary transvaginal POP repair, native tissue reconstruction rather than synthetic mesh repair is recommended (Grade 1B). Although native tissue repairs are associated with higher rates of recurrent prolapse on examination and repeat prolapse surgery compared with synthetic mesh repairs, native tissue surgery does not have synthetic mesh complications and thus has lower overall reoperation rates.

For women who have experienced recurrence after prior reconstructive surgery or who have high future risk of prolapse, transabdominal prolapse repair with synthetic mesh is offered, particularly if the woman has concurrent apical prolapse. The use of transvaginal mesh for POP in clinical trials in lieu of the 2019 US Food and Drug Administration (FDA) ban of these products is not recommended. In countries where transvaginal mesh for POP repair is available, transvaginal mesh repair of POP may be considered by experienced surgeons after counseling patients. Transabdominal synthetic mesh repairs have lower rates of recurrent prolapse and repeat prolapse surgery.

Synthetic mesh should not routinely be used for repair of posterior vaginal prolapse because mesh use in this location does not improve outcomes and is associated with increased risk of complications. Mesh repairs



of anterior prolapse are limited to women with a high risk of prolapse recurrence in whom the potential benefits justify the risks. A detailed informed consent process should be documented before using synthetic mesh. Synthetic mesh midurethral sling procedures are the most commonly performed surgery for stress urinary incontinence (SUI) in women because of their high efficacy and low risk. However, the risk profile differs when synthetic mesh is used to treat SUI compared with pelvic organ prolapse. These different risk profiles have created confusion for clinicians and patients regarding the safety of this material in the surgical treatment of SUI.

Synthetic mesh— Type 1 macroporous monofilament polypropylene mesh is most commonly used for the surgical treatment of SUI because of the lower rates of complication and voiding dysfunction compared with autologous graft, allograft, and xenograft. The type of material chosen is critically important; all slings made of materials other than polypropylene have been recalled because of unacceptably high complication rates. There are multiple statements that midurethral mesh sling procedures (macroporous synthetic mesh, type 1) are the preferred procedures for SUI because of their low morbidity, high efficacy, and high patient satisfaction. Mesh-based sling procedures have largely replaced colposuspension, bladder neck slings (which are typically made of autologous rectus fascia), and suture-only transvaginal procedures (transvaginal needle suspensions).

It is important to note that warnings in transvaginal mesh advisory statements differ for mesh procedures for SUI and mesh-based transvaginal prolapse repairs. Advisory statements differ for transvaginal synthetic mesh-based SUI and pelvic organ prolapse procedures. Synthetic mesh for the surgical correction of SUI is generally considered to have good efficacy with acceptable morbidity.

Prior to any mesh-based surgery, the patient is counseled regarding expected benefit compared with risk of complications with mesh use and that polypropylene mesh is permanent. Alternative nonsurgical options and other surgical treatments should be reviewed as well.

Keywords: Gynecologic surgery, Mesh-based surgery, Stress urinary incontinence (SUI), Transvaginal prolapse repairs



Basic Hysteroscopy Rules

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Abstract

Operative hysteroscopy is a minimally invasive gynecological procedure in which an endoscopic optical lens is inserted through the cervix into the endometrial cavity to direct treatment of various types of intrauterine pathology. Historically, urologists used the resectoscope to perform a transurethral prostatectomy. This instrument was later modified to accommodate gynecological applications. Operative hysteroscopy became popular after improvements in endoscopic technology and instruments in the 1970s and after the introduction of fluid distension media in the 1980s. Since that time, the development of new hysteroscopic instruments, fiber optics, and digital video equipment has continued to provide more varied, efficacious, and less invasive procedures. The introduction of smaller-diameter hysteroscopes has allowed operative hysteroscopy to become a predominately office and outpatient procedure. Modern references to hysteroscopy usually imply a panoramic technique in which the uterine cavity is distended with liquid or gas and evaluated with the hysteroscope. An instrument called a speculum may be inserted into vagina to hold it open, although this is not always needed. The vagina and cervix are cleaned with an antiseptic solution. A hysteroscope (long, thin tube containing a light and camera) is passed into womb and the patient may experience some cramping and discomfort as it passes through cervix. Fluid is gently pumped into the womb to make it easier for doctor to see inside. The camera sends pictures to a monitor so doctor or nurse specialist can spot all abnormalities. In some cases, a small sample of tissue from the womb lining may be removed for further testing. This is known as an endometrial biopsy. In hysteroscopy, to treat a condition such as fibroids or polyps, fine surgical instruments can be passed along the hysteroscope. These are used to cut or burn away the abnormal tissue. Patient is able to go home soon after a hysteroscopy, although may need to stay in hospital for a few hours in case of general anesthesia. Submucous or intracavitary myomas are easily visualized and can be resected or removed using a wire loop or similar device. While submucous myomas can cause significant bleeding and anemia, their management is straightforward with hysteroscopic myomectomy. Hysteroscopic polypectomy is a surgical procedure in which the uterine polyps are removed. This is the non-cancerous overgrowth of cells in the lining or the inner wall of the uterus. It is a routine procedure not only for elimination of polyps and its symptoms but also for cancer detection.

Keywords: General anesthesia, Operative hysteroscopy, Resectoscope, Submucous myomas



Comparison of the Spectrum of Clinical Signs and Symptoms of the Endometriosis Between Adolescents and Adults

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Abstract

Objective: Endometriosis is an aggressive but benign disease of women that is defined as the presence of endometrial tissue outside the uterus. Despite the high prevalence of the disease in adolescence, the diagnosis of endometriosis at this age is usually delayed. In this study, the spectrum of clinical symptoms of the disease in adolescents and adults was compared.

Materials and Methods : The current study was a cross-sectional-analytical study that was performed for 3 years (1397-99) on patients with endometriosis referred to the gynecology clinic of Imam Reza Hospital and Milad Infertility Center. Patients were divided into adolescent (21 years and younger) and young (over 21 years old) groups. Then, the two groups were compared in terms of main clinical symptoms (dysmenorrhea, dyspareunia, dyschesia, non-cyclical pain) and other symptoms and demographic characteristics.

Results: In this study, 300 patients were included, of which 96 were adolescents and the rest (204) were adults. The presence of endometriosis in first and second degree relatives in the adolescent group was significantly higher than adults. BMI was significantly higher in adults than in adolescents. Symptoms such as dysmenorrhea, dyspareunia, dyschesia, non-cyclic pain, pelvic mass, AUB, rectorrhagia, and hematuria during menstruation were not significantly different in the two groups.

Conclusion: In this study, the clinical signs of endometriosis in the two age groups of adolescents and adults were not statistically significant. But the rate of family history of endometriosis in first and second degree relatives in adolescent group was significantly higher than adults. Therefore, in case of endometriosis in the family, more attention should be paid to the symptoms and diagnosis should be started earlier.

Keywords: Adolescents, Adults, Dyschesia, Dysmenorrhea, Dyspareunia, Endometriosis, Non-cyclic pain



Adhesion in Laparoscopy

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Abstract

Laparoscopy in patients with previous surgery is enigmatic and challenging. In fact, we need strategies and rules for doing a safe laparoscopy. Adhesions interfere with visualization of operative area. Care should be taken regarding the surgical anatomy of previous site and intended surgery.

Surgeons should pay attention to some key point such as the number of prior surgeries and must be patient and allocate enough time and energy in order to prevent complications. Moreover, adequate assistance should be provided for successful surgery.

Keywords: Adhesions, Complications, Laparoscopy, Operative area



Tips in Advanced Hysteroscopic Surgeries

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Abstract

Regarding insertion of the hysteroscope, a constant intrauterine pressure aids visualization and is key to technical success. For intracervical advancement of the hysteroscope, lifting and lowering the hands as the hysteroscope is gently held will angle the hysteroscope more anteriorly or posteriorly, and will usually lead to the identification of the cervical canal and redirection of the objective lens into the axis of the canal. The degree of distal lens angulation needs to be appreciated when manipulating the hysteroscope. A fundamental tip and trick to traverse the cervix is that a slight pause at this point will allow time for the inflowing medium to further distend the uterine isthmus. For inspection of the uterine cavity, the surgeon should start with an initial panoramic view of the cavity, obtained with the hysteroscope at the level of the uterine isthmus. It is better inspected in detail on withdrawal, as the canal has been nicely expanded by inflowing distension medium. For obtaining a good view at hysteroscopy, several important notes should be taken into consideration: 1) Menstrual timing which refers to the early proliferative phase of the menstrual cycle; 2) Focusing the hysteroscope which should ideally be done with white balance adjustment prior to commencing the procedure; 3) Ensuring adequate illumination for which dark view may be obtained with larger uterine cavities or bleeding and poor illumination may also arise from damaged light cables, malfunctioning light boxes, or incompatible connections; 4) Avoiding bleeding or fragmentation of endometrial tissue for which the surgeons should avoid cervical dilatation and traumatising the cervical or uterine sidewalls, avoid touching intrauterine abnormalities, such as vascular submucous fibroids or hyperplastic endometrial lesions, until the end of the procedure, avoid unduly high distension pressures that may stimulate endometrial bleeding as pressures fluctuate and the tamponade is lost, use miniature hysteroscopes to reduce inadvertent tissue trauma or the need for cervical dilatation; 5) Ensuring adequate outflow in which tight cervical canals may preclude adequate outflow and hence fluid circulation and cervical dilatation may be required under these circumstances to create a 'natural' outflow in the absence of continuous-flow irrigation.

Keywords: Hyperplastic endometrial lesions, Hysteroscopic surgeries, Submucous fibroids



Ovarian Reserve and Endometriosis: Cryopreservation and the Role of Surgery

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Abstract

Endometrioma is one of the most frequent pathologies in gynecologic surgery. Despite extensive research in endometriosis, there are important controversies in this area. Although laparoscopic cyst excision is considered the best treatment in terms of lower recurrence but the diminished ovarian reserve after surgery is an important factor that affects decision making of the patients. There are three reasons in favor of surgery. The first is lower follicular density in affected ovary due to focal inflammation and fibrosis that is related to the size of endometrioma. The second is gonadotoxic effect of endometrioma on the surrounding follicles. Another persuasive argument favoring surgical excision of endometrioma relates to the dangers of expectant management such as ovarian torsion, cyst rupture, progression of endometriosis, or the threat of ovarian malignancy. The reasons against the ovarian surgery is the presence of ovarian parenchyma in 40% of cases of endometrial cystectomy. Surgical excision of endometriomas leads to damage of healthy cortex and a decline in AMH which is progressive.

The important factors for the amount of ovarian damage after cystectomy is age >35, and size and method of cyst wall removal by stripping. There is much debate over the treatment of these cysts in infertile women, particularly before use of ART.

Nevertheless, evidence shows that presence of endometrioma does not appear to adversely affect IVF outcomes, and surgical excision of endometriomas does not appear to improve IVF outcomes. The advantage of oocytes collection for fertility preservation prior to surgery relates to detrimental effect of surgery on ovarian reserve. Although removing healthy ovarian tissue away from endometriomas can deteriorate ovarian reserve but collection of the cortical tissue, attached loosely to the capsule and ovary, is a good chance for cryopreservation during endometrioma surgery.

Freezing embryos or unfertilized oocytes seems to be the most convenient technique of fertility preservation for women suffering from endometriosis. It does not affect ovarian reserve and offers a real chance of future pregnancy when a good amount of oocytes or embryos has been stored.

Keywords: Cryopreservation, Endometrioma, Freezing, Surgery



The Impact of Lifestyle Changes as Front-Line Treatment for Endometriosis

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Abstract

Background: Endometriosis is a debilitating estrogen- dependent chronic inflammatory disease that can affect 1 in 10 women of reproductive age. It causes long-term inflammatory-induced symptoms such as dysmenorrhea, dyspareunia, dysuria, dyschezia, lower back or abdominal discomfort, chronic pelvic pain and infertility; these severe changes in life quality significantly impacts women's working, confidence, self-esteem, and social life. Etiology of this condition is still unclear, but retrograde menstruation, genetic predisposition, lymphatic spread, immune dysfunction, metaplasia, environmental causes and abnormal differentiation of endometriotic tissue associated with increased estrogen and prostaglandin production, along with resistance to progesterone have been proposed as underlying mechanisms of endometriosis. Despite a variety of medical and surgical therapies commonly used for treatment of endometriosis, their efficacy is limited due to many side effects. Therefore, exploring supplementary therapy strategies for minimizing these adverse effects is needed. Accordingly, it seems that focusing on lifestyle changes as a non-invasive and front-line treatment can improve endometriosis-related symptoms. Indeed, physical activities, healthy nutrition, spiritual growth, interpersonal relations, and sleep and stress management as aspects of lifestyle can promote the patient's health and well-being and prevent further progression of disorder.

Materials and Methods: In this article, evidence-based lifestyle strategies have been reviewed to identify their association with endometriosis and their mechanism of action in reducing inflammation that can contribute to the inhibition of the disease.

Conclusion: Application of health promotion strategies like regular exercise, anti-inflammatory diet and sleep and stress management play essential roles in improving and controlling endometriosis by increasing systemic levels of cytokines with anti-inflammatory and antioxidant properties and endorphin and also reducing estrogen and prostaglandin level.

Keywords: Endometriosis, Endometriotic tissue, Inflammation, Life style changes



Bowel Resection: Is It Feasible When Vagina Is Opened?

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Abstract

Bowel endometriosis is defined as the presence of endometrial-like glands and stroma infiltrating the bowel wall at least the muscularis propria of the intestinal wall. Deep endometriosis is a complex disease affecting different organs like rectum and sigmoid colon; also, there is a large variation in length, width, depth, and height of bowel infiltration, which require an individual surgical approach.

Rectovaginal endometriotic nodules in young women may infiltrate the rectum and sigmoid colon leading to various specific complaints such as dyschezia, constipation, diarrhoea, tenesmus, fecal incontinence, bloating, discharge of mucus with the stool, cyclical rectal bleeding, bowel urgency, feeling of incomplete evacuation, and deep dyspareunia. Colorectal surgery for endometriosis exposes patients to the risk of severe complications such as rectovaginal fistula, anastomotic leakage, anastomotic stenosis, and voiding dysfunction.

Anastomotic leak is the most dreaded complication in colorectal surgery, but most patients do not require reoperation. Patients undergoing surgical removal of deep endometriosis of the rectum and sigmoid should be informed that this can lead to functional troubles. The risk of rectovaginal fistula is increased when bowel and vaginal sutures are juxtaposed. Preventive stoma in patients with concomitant suture of the rectum and vagina may reduce the frequency and the severity of rectovaginal fistula. Other techniques such as shaving technique, double circular stapler technique (DCS), and Rouen technique allow for the treatment of nodule of up to 6 cm in length.

A standardized preoperative assessment for diagnosis of bowel endometriosis, an adequate patient counseling, and establishment of specialized centers with multidisciplinary minimally invasive surgical approaches are beneficial for affected patients. Adequate communication before surgery should be ensured, and patients should be fully informed about the risk of potentially severe complications such as PRF.

Keywords: Bowel resection, Deep endometriosis, Patient counseling, Rectovaginal fistula



Classification/Staging Systems for Endometriosis: The State of the Art

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Abstract

Structured reporting systems for endometriosis are gaining a central role in diagnostic imaging. In this paper, the applicability and the feasibility of the recent ENZIAN score (2020) assessed by MRI was evaluated. A total of 60 patients with suspected tubo-ovarian/deep endometriosis were retrospectively included in our study according to the following criteria: availability of MR examination, histopathological results from laparoscopic or surgical treatment, and not having estrogen-progestin or progestin therapy. Three different readers (radiologists with 2-, 5-, and 20-years of experience in pelvic imaging) separately assigned a score according to the ENZIAN score (revised 2020) for all lesions detected by magnetic resonance imaging (MRI). Our study showed a high interobserver agreement and feasibility of the recent ENZIAN score applied to MRI; on the other hand, our experience highlighted some limitations mainly due to MRI's inability to assess tubal patency and mobility, as required by the recent score (2020). In view of the limitations of our study, a modified MRI-ENZIAN score that provides a complete structured reporting system is proposed which is more suitable for MRI. The high interobserver agreement of the recent ENZIAN score applied to MRI confirms its validity as a complete staging system for endometriosis, offering a shared language between radiologists and surgeons.

Keywords: Deep endometriosis, ENZIAN score, Radiologists, Surgeons



Anatomy in Laparoscopic Surgery

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Abstract

Minimally invasive surgery has enhanced the vision and ability to detail structures and, consequently, has changed the field of pelvic surgery and enabled surgeons to gain much more knowledge of the anatomy and the ability to remove endometriosis or tumor lesion. Surgeons should fully understand the anatomical relation between the ureter and iliac vessels. "Predictive anatomy" helps traverse deeper into the pelvis during dissection. The rules of dissection specify that dissection of tubular structures is done in a parallel direction to the long axis of the structure. Moreover, surgeons should be familiar with pelvic anatomy and anatomical landmarks. For example, they need to be familiar with sacral promontory which is a fixed point of reference for various surgeries and the orientation of pelvis structures. Also, anatomy of the pelvic ureter is very important. The first structure to obstruct during the dissection of the ureter is the uterine artery. Identification of the ureter is a necessary step during PLND for two reasons; the first is to avoid injury and the second is to serve as a medial landmark during PLND. Finally, it is critically important for the surgeons to fully understand the anatomical relation between the ureter and iliac vessels.

Keywords: Anatomical landmarks, Iliac vessels, PLND, Ureter



What Are Short/Long Term Outcomes of Endometrioma Excision?

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Abstract

Ovarian endometrioma are found in up to 40% of women with endometriosis and 50% of infertile women. The best surgical approach for endometrioma and its impact on pregnancy rates is still controversial. Therefore, a literature review was conducted on surgical management of ovarian endometrioma and its impact on pregnancy rates and ovarian reserve, assessed by anti-Müllerian hormone (AMH) serum levels. Ovarian cystectomy is the preferred technique, as it is associated with lower recurrence and higher spontaneous pregnancy rate. However, ablative approaches and combined techniques are becoming more popular as ovarian reserve is less affected and there are slightly higher pregnancy rates. Preoperative AMH level might be useful to predict the occurrence of pregnancy. In conclusion, AMH should be included in the preoperative evaluation of reproductive aged women with endometriosis. The surgical options for ovarian endometrioma should be individualized. The endometrioma ablation procedure seems to be the most promising treatment.

Keywords: Anti-Müllerian hormone (AMH), Endometrioma ablation procedure, Infertility, Ovarian cystectomy



Endometriosis Centers, Why and How?

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Abstract

Endometriosis is a protean disease, and its manifestations, associated clinical problems, and possible treatments are numerous. Deep endometriosis that infiltrates multiple pelvic organs should be considered the most severe type that poses the most difficult therapeutic uncertainties in both infertility and pelvic pain symptoms, thereby aggravating the quality of life in patients. The available evidence demonstrates that endometriosis is not only a gynecologic disorder but, contrary to previous belief, its impact extends into pregnancy, delivery, and the post-partum period. The old medical belief that pregnancy is a cure for endometriosis may be revealed as fallacious. Safe and effective modalities to reduce the risk of the recurrence of symptoms and lesions after conservative surgery for endometriosis are now available. These treatment options should be offered post-operatively to women not immediately seeking conception. Endometriosis is associated with a moderate increase in ovarian cancer risk. However, as there are no definitive demonstrations that endometriosis constitutes per se a pre-neoplastic condition, it seems unwise to set up a screening program to detect undiagnosed endometriosis in asymptomatic women. Endometriosis is not a cancer; therefore, a paradigm shift from treatment of lesions to treatment of symptoms is warranted. Management should be shaped based on the main clinical problem, taking into consideration a woman's preferences and priorities. Quantitative information should be provided to describe the potential benefits, potential harms, and costs of each treatment alternative. Transparent and thorough counseling should be established for the patient, and the duty of the caring gynecologist is to inform the woman on the pros and cons of each option and support her in the shared decision-making process. The physician should be able to explain in detail all the available treatments, not only those that the physician prefers or is able to offer.

Keywords: Counseling, Deep endometriosis, Effective modalities, Therapeutic uncertainties



How to Manage Large Ovarian Endometriosis in Premenopausal Patients? Oophorectomy or not?

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Abstract

Objective: The primary objective of this study was to identify risk factors of endometriotic-cyst associated ovarian cancer (EAOC) and the secondary objective was to evaluate the clinical characteristics of EAOC patients.

Materials and Methods: A retrospective case-control study was conducted by analyzing data of patients from 1999 to 2014. Cases had endometriotic-cyst associated ovarian cancer with pathologically confirmed diagnosis. Controls were randomly selected with year-matched patients with benign ovarian endometriotic cyst. Univariate and multivariate logistic regression analyses were used to identify patients' characteristics which could be risk factors for endometriotic-cyst associated ovarian cancer.

Results: Altogether, 158 controls and 79 EAOC cases were recruited. Mean age of the EAOC group was 13 years older than that of the control group (49 vs. 36 years). The most common stage of EAOC was stage I (59.74%). Clear cell subtype was the most common type in this population (60.76%). Univariate analysis showed that age of 42 years, menopause, weight loss, cyst diameter of 8.33 cm, presence of bilateral solid mass, and CA 125 level higher than 117.6 units/ml were significant factors for EAOC. Multivariate analysis showed that patients with age of 42 years (OR 7.69, 95% CI: 2.47, 23.87), menopause (OR 33.19, 95% CI: 2.37, 465.12), weight loss (OR 11.94, 95% CI: 1.52, 94.08), cyst diameter of 8.3 cm (OR 10.56, 95% CI: 4.39, 25.35), and presence of solid area detected by ultrasonography (OR 6.70, 95% CI: 2.19, 22.35) were significant risk factors for EAOC.

Conclusion: Advanced age, menopause, weight loss, cyst diameter of 8.33 cm, and presence of solid area detected by ultrasonography were important risk factors for EAOC.

Keywords: EAOC, Oophorectomy, Premenopausal patients, Risk factors



Hysteroscopy Complications

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Abstract

Complications of hysteroscopy occur more frequently in operative than in diagnostic cases. Problems related to uterine distension are common, usually preventable, and potentially extremely serious. Perforation of the uterus may occur during hysteroscopy but does not always cause significant problems. In high risk procedures for perforation, the use of mechanical energy is safer than either laser or electrical energy. Laparoscopy and ultrasonography have some limited use in facilitating operative hysteroscopic procedures. Most complications occur during the hysteroscopic surgical procedure. However, some problems may not be apparent until the post operative period.

Keywords: Complications, Hysteroscopy, Perforation, Post operative period



Basic Hysteroscopy

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Abstract

Hysteroscopy is performed for evaluation or treatment of different pathologies of the endometrial cavity, tubal ostia, or endocervical canal for diagnosis or treatment; the indications of diagnostic or operative hysteroscopy are as follows: abnormal pre-menopausal or post-menopausal uterine bleeding, endometrial polyps, submucosal and intramural fibroids, intrauterine adhesions, Müllerian anomalies (eg, uterine septum), retained intrauterine devices (retained IUD or other foreign bodies, retained products of conception), desire for sterilization, and endocervical polyps.

Techniques for diagnostic or office hysteroscopy include using small-caliber hysteroscope, oval-shaped instruments, not using anesthesia or sedation when it is not necessary to dilate the cervical canal, using 0.9% physiological saline solution for diagnostic and surgical vaginal hysteroscopy, provided that only the bipolar (not the unipolar) technique will be used.

Hysteroscopy is a safe and highly efficient procedure; therefore, it is changing to a widespread procedure in dealing with many gynecologic and obstetrical conditions. Proper hysteroscopic evaluation requires perfect knowledge of the technique and accurate patient screening for choosing the right moment to perform the examination. In procedures which are performed without any sedation or anesthesia, the patient discomfort should be decreased to a minimum.

Keywords: Basic hysteroscopy, Intrauterine adhesions, Small-caliber hysteroscope



Laparoscopy Complications

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Abstract

Laparoscopic surgery is a very common and widely established technique. Benefits include decreased post-operative pain, improved patient satisfaction (including cosmetic results), reduced hospital stays, and fewer postoperative complications compared with open techniques. The range of surgical techniques and types of patients undergoing the procedures is increasing (pluripathological patients, associating co-morbidity). Moreover, the number of emergency operations performed laparoscopically has been increased as well. Complications of laparoscopic surgery are mainly divided into three groups: complications derived from pneumoperitoneum, complications caused by the operative procedure, and postoperative complications. Apart from the alterations caused by the pneumoperitoneum (raised intra-abdominal pressure and physiological effects especially within cardiovascular and respiratory systems), which have significant effects on the patient, especially in case of elderly or patients with associated morbidity, it may cause some complications such as severe hypercarbia, cardio-pulmonary compromise, air embolism or gas migration (subcutaneous emphysema, pneumomediastinum, and pneumothorax).

Complications of the operative procedure can be grouped into two categories: complications of access and complications of technique. Complications of access or trocar entry include hollow or solid viscus perforation, abdominal wall or major vessel injury, incisional hernia and peritoneal tumor cell implantation. When complications rise as a result of surgical technique several cases such as hemorrhage, vascular injury, retroperitoneal hematoma, bile leak, bile duct injury, bile peritonitis (with or without a bile duct injury) can be observed. Postoperative complications include intestinal perforation, bile leak, retroperitoneal hematoma, pancreatitis, subhepatic abscess and postoperative air embolism. In this paper, complications occurring in the postoperative period are discussed.

Keywords: Incisional hernia, Laparoscopy complications, Peritoneal tumor cell implantation



Pelvic Anatomy in Cancer Surgery

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Abstract

Minimally invasive surgery has enhanced the vision and ability to detail structures and, consequently, has changed the field of pelvic surgery and enabled surgeons to gain much more knowledge of the anatomy and the techniques to remove a tumor. "Predictive anatomy" helps traverse deeper into the pelvis during dissection.

The classical surgical anatomy of the female pelvis is limited by gynecological and oncological aspects of parametrium and surgical treatment of pelvic diseases, and requires extra-regional procedures and a thorough pelvic anatomical knowledge. A thorough knowledge of pelvic anatomy such as vessels, potential spaces, and nerves is essential for the management of most gynecological malignancies and helps guide the surgeon toward achieving the required outcome. Anatomical landmarks such as the ureter are one of the most important points for the surgeons manage the malignancies.

Keywords: Anatomical landmarks, Malignancies, Parametrium, Predictive anatomy



Surgical Treatment of Adenomyosis

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Abstract

The appropriate surgical treatment of adenomyosis, a benign invasion/infiltration of endometrial glands within the underlying myometrium, remains a subject of discussion. Since 1990, in place of the classical V-shaped resection method, various kinds of surgical management techniques have been attempted, including a uterine muscle flap method that emphasizes fertility preservation, an asymmetric dissection method, and various modified reduction methods. Laparoscopic adenomyomectomy has also become an alternative to laparotomy for surgically managing the focal type of adenomyosis, although it seems to be associated with a higher risk of uterine rupture than laparotomy. In this research, the surgical treatment of adenomyosis, including 23 uterine rupture cases that occurred during post-adenomyomectomy pregnancies, is reported and an updated picture of the state of the field is presented.

Keywords: Adenomyosis, Laparotomy, Uterine muscle flap method, Uterine rupture



Clinical Outcomes of Different Laparoscopic Techniques for Colorectal Deep Endometriosis; A Single Center Experience Including 877 Patients

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Abstract

Objective: Management of colorectal deep infiltrating endometriosis (DIE) remains a dilemma to the endometriosis surgeons. Several laparoscopic approaches, including rectal shaving, disc resection, and segmental resection are available for the management of these lesions. The purpose of the current study was to report single-center outcomes of laparoscopic management of patients with colorectal DIE.

Materials and Methods: This prospective study was conducted during a six-year period (2015-2021) in two governmental and private hospitals affiliated to Shiraz University of Medical Sciences (SUMS).

All the patients with confirmed diagnosis of the gastrointestinal DIE with histopathologic data were prospectively included. All the medical charts were reviewed and the demographic information, the preoperative imaging files, surgical approach, intraoperative, and postoperative findings were recorded. A six- and twelve-month interview was conducted in order to evaluate the functional outcomes of all the procedures.

Results: Out of 3111 patients who underwent endometriosis surgery, 877 (28.19%) with the mean age of 34.2 ± 5.9 years and mean ASRM score of 102.1 ± 36.8 had gastrointestinal endometriosis. Laparoscopic rectal shaving or peeling was performed in 263 (30.0%) patients while 326 (37.2%) subjects underwent segmental bowel resection and re-anastomosis, and 248 (28.30%) were treated with disc excision. Additionally, there were 40 cases (4.6%) with appendectomy due to endometriosis involvement, six (0.46%) with cecal involvement, and two (0.23%) with small intestine involvement. Prophylactic ileostomy was performed in six (0.68%) patients and peritonitis was reported in four (0.45%) patient. Five subjects (0.58%) developed rectovaginal fistula and 1 (0.11%) was diagnosed with bladder atonia. The recurrence rate was 3.8%, 1.2%, and 0.3% in rectal shaving, disc, and segmental bowel resection techniques, respectively. Dysmenorrhea, dyspareunia, and dyschezia were improved after surgery by 7.3, 10.2, and 12.5 times, respectively. The total pregnancy rate following the operation was 25.2%, the majority of which occurred in the first year after the surgery.

Conclusion: In this study, with a large sample size, the perioperative and postoperative, short and long term complications were much lower than those reported in other studies in this particular field, with the lowest number of prophylactic ileostomy. All endometriosis related pain was improved immediately after surgeries. The recurrence rate was not significantly different in all three groups as well as pregnancy rate after operation. Thus, the laparoscopic resection of the colorectal DIE could be suggested as a feasible and safe method associated with a low complication rate and favorable functional outcomes, when done in the right group and by a skilled surgeon.

Keywords: Clavien dindo classification, DIE, Endometriosis, Rectal endometriosis



Clinical Outcome of Laparoscopic Resection of Urinary System Deep Infiltrating Endometriosis: A Six Year Experience

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Abstract

Objective: Management of urinary system deep infiltrating endometriosis (DIE) remains a dilemma to the endometriosis surgeons due to a small number of patients in each study, and conducting uncontrolled or not randomized trials besides short-term follow-ups. Several laparoscopic approaches including the ureterolysis, segmental resection, and reanastomosis, and ureteroneocystostomy are available for management of these lesions. The aim of the current study was to report the single center outcomes of laparoscopic management of patients with urinary system DIE.

Materials and Methods: This cross-sectional study was conducted during a 6-year period (2015-2021) in two governmental and private hospital affiliated to Shiraz University of Medical Sciences (SUMS).

All the patients with confirmed diagnosis of the urinary system DIE were retrospectively included. All the medical charts were reviewed and the demographic information, the preoperative imaging files, surgical approach, intraoperative, and postoperative findings were recorded. A six and twelve month interview was conducted to evaluate the functional outcomes of all procedures.

Results: Among 357 patients with mean age of 37.03 ± 6.17 years, 326 patients had ureteral involvement (extrinsic and intrinsic), 25 had bladder endometriosis, and 14 patients had ureteral and bladder endometriosis simultaneously. Laparoscopic ureterolysis was performed in 334 (93.6%) patients while 12 (3.4%) patients underwent segmental ureteral resection and reanastomosis, and 9 (2.5%) were treated with ureteroneocystostomy. Also, 10 patients had post operative urinary leakage in the first group; in general, 3 of them were treated with boari flap, 1 of them treated with ureteroneocystostomy, and 6 of them with ureteral resection and reanastomosis. In total, JJ stent was inserted for only 189 patients and was not routinely administered to all. Of the 11 ureteral injuries, 8 cases had a history of previous endometriosis surgery that was statistically significant ($p=0.019$). There were 12 patients with intrinsic ureteral lesion. Urinary tract symptoms were significantly improved after operation ($p=0.045$). The reduction in urinary symptoms such as dysuria, pollakiuria, hematuria, and flank pain did not differ depending on the type of operation. Dysmenorrhea, dyspareunia, and dyschezia were improved after surgery 7.3, 10.2 and 12.5 times, respectively.

Conclusion: Although less invasive surgeries are associated with fewer complication rates, the chance of recurrence of disease should be considered. In this study, with a large sample size, the perioperative and postoperative complications were much lower than other studies in this special field, with the lowest number of JJ stent insertions, lowest rate of leakage, and also fistula formation. Therefore, the laparoscopic management of the urinary tract DIE is a feasible and safe method with low complication rate and favorable functional outcome.

Keywords: Clavien dindo classification, Endometriosis, Laparoscopic management, Rectal endometriosis



Surgery of Endometrioma

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Abstract

Endometriosis occurs in approximately 8.1 to 12.8% of the women at their reproductive age; the involvement of ovary in endometriosis is one of the most common areas of study. About 20 to 40% of women with endometriosis have superficial or deep ovarian involvement and 30-50% of those suffering from endometriosis are infertile. Significant follicular damage and atresia ensue ovarian endometriosis which leads to progressive loss of ovarian reserve with both direct and indirect cytotoxic effects on the follicular content in the ovarian cortex. Ovarian endometrioma (OMA) surgery also negatively affects fertility by reducing ovarian reserve. Cystectomy is the treatment of choice for endometrioma because it is associated with a very low recurrence rate and more improved symptoms; however, there is concern that it may cause more damage to healthy ovarian tissues and further reduce the ovarian reserve; thus, there is still controversy surrounding whether the ovarian endometrioma surgery can promote fertility or not. Given the importance of preserving the ovarian reserve in women with endometriosis, particularly in infertile women of reproductive ages, it is important to opt for a method that minimizes damage to healthy ovarian tissues. In this regard, vasopressin, bipolar desiccation, hemostatic sealant, and suturing techniques have been utilized to control the bleeding points, and many attempts have been made to minimize the damage to ovarian tissues in different techniques suggested for endometrioma surgeries. Different types of endometrioma surgery are discussed here.

Keywords: Endometrioma, Infertility, Surgery, Vasopressin



Fertility Outcome in Patients Referring to a Tertiary Endometriosis Clinic

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Abstract

Background: Endometriosis is one of the most common gynecological diseases, affecting approximately 176 million women of reproductive age. There is a growing body of research linking endometriosis to adverse maternal and fetal outcomes. As a result, the goal of this study was to evaluate the relationship between endometriosis and abortion, antepartum hemorrhage, pre-eclampsia, preterm birth, small for gestational age (SGA), gestational diabetes mellitus (GDM), and gestational hypertension (GHTN) in pregnant women with endometriosis referred to Avicenna endometriosis clinic.

Materials and Methods: A cross-sectional study was performed on patients with confirmed endometriosis (by clinical and paraclinical evaluation) referred to Avicenna endometriosis clinic between the years 2013 - 2020. All patients who got pregnant during these years were followed prospectively and maternal/fetal complications were collected from medical records or by phone visits.

Results: From 248 followed patients, 180 patients underwent laparoscopic surgery. In general, 24 pregnancies (12.09%) led to abortion, 31 patients (12.9%) experienced antepartum hemorrhage and 27 (11.2%) of neonates were admitted in NICU. The frequency of other complications were as following: GDM =9.27%, SGA=6.45%, PROMs=6.45 %, GHTN=2.01%, preterm labour = 1.61%, preeclampsia= 0.8 %, ectopic pregnancy = 0.8%, and placental abruption= 0.8%. There was no case of stillbirth.

Conclusion: The relatively high rate of hemorrhage and abortion in pregnant women with endometriosis indicates that endometriosis may be involved in pregnancy complications. Further studies are needed to better understand the disorder.

Keywords: Abortion, Endometriosis, Fertility outcomes, Hemorrhage



The Comparison of Accuracy of Transvaginal Sonography Results with Surgical Findings and Pathologic Reports in Woman with Endometriosis

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Abstract

Background: Transvaginal ultrasonography (TVS) is a low-cost, non-invasive, and effective tool that is considered as the first line technique in detecting endometriosis, especially when laparoscopic removal of lesions is needed. The identification of diverse locations of endometriotic lesions is critical in preoperative planning for the gynecologist since in specific sites such as bowels or ureter, the surgery is particularly challenging. The aim of this study was to investigate the diagnostic performance of TVS for pre-surgical evaluation of endometriosis.

Materials and Methods: A retrospective cross-sectional study including one hundred and seventy symptomatic women with advanced endometriosis referred to the endometriosis clinic of Avicenna Fertility Center was performed. Pre-surgical TVS findings for the presence of ovarian endometrioma (OMA), ovarian adhesions, cul de sac, bowel and ureter nodules were compared with intraoperative (IO) measurements and histopathological reports. Ultimately, the percentage of agreement and kappa coefficient between TVS and IO were calculated using Stata software.

Results: Among all the 170 patients, the percentage of agreement between TVS and IO was 86.76% for left OMA (K= 0.60), 70.86% for right OMA (K= 0.47), 93.90% for left ovary adhesion (K= 0.60), 88.90% for right ovary adhesion (K= 0.36), 88.90% for cul de sac (K= 0.24), and 84.82% for bowel (K= 0.53).

Conclusion: In this study, TVS and IO were compared and it was observed that there is a good agreement between the results. In conclusion, TVS could be beneficial for dedicated mapping of ovarian endometriosis and adhesions before surgery.

Keywords: Endometriosis, Intraoperative measurements, Transvaginal ultrasonography



Treatment of Endometriosis-Associated Pain

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Abstract

Non steroidal anti-inflammatory drugs are the first-line therapy in endometriosis as a chronic inflammatory disease. Hormonal treatment is another choice and is designed to suppress estrogen synthesis, atrophy of ectopic endometrial implants, and interrupt the cycle of stimulation and bleeding. OCP, danazol, gestrinone, medroxyprogesterone acetate, and GnRH agonists are all equally effective but their side effects and cost profiles differ.

Oral contraceptives inducing a decidualized endometrium, through estrogenic component, may stimulate endometrial growth and increase pelvic pain in the first few weeks. Progestins cause initial decidualization of endometrial tissue followed by atrophy. In two randomized trials, treatment during 6 months was performed by dienogest 2 mg per day orally and the outcomes demonstrated equivalent efficacy similar to depot leuprolide acetate (3.75 mg of depot intramuscular injection, every 4 weeks) or intranasal buserelin acetate (900 µg per day, intranasally) in relieving the pain associated with endometriosis.

The levonorgestrel-releasing intrauterine system, releasing 20 mg/24 h levonorgestrel is another choice. GnRH agonists bind to pituitary GnRH receptors and stimulate LH and FSH synthesis and release. Administration of GnRH antagonist Cetrorelix provided symptomatic relief and regression of the endometriotic implants as visualized on laparoscopy with lower degree of hypoestrogenemia and better tolerance than the GnRH agonists.

Keywords: Cetrorelix, GnRH agonists, Levonorgestrel-releasing intrauterine system, Oral contraceptives



Severe Menorrhagia and Dyschezia as Two Main Complications: A Case Report

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Abstract

A woman (48y G1p1L1), who had a previous cesarean section, presented to our center. She had large nodule in vaginal exam in posterior cul-de-sac and she also complained of constipation and problems in defecation. In her ultrasound, a large nodule 70*25 mm with severe adhesion to rectosigmoid was reported which interfered with muscularis and submucosal layer. She also had subserosal myoma with size of 68 mm. During her surgery, I released the adhesion and did bilateral ureterolysis, opened pararectal and rectovaginal septum and performed total laparoscopic hysterectomy with bilateral salpingo-oophorectomy and segmental bowel resection by linear stapler. All specimens showed endometriosis in pathology and during her post operation follow up, all her pain significantly decreased and she was satisfied with her better quality of life.

Keywords: Dyschezia, hysterectomy, Menorrhagia, Salpingo-oophorectomy



TVUS as the First-Line Diagnostic Imaging Method

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Abstract

MRI is considered the second alternative if TVUS result is inconclusive (when conservative surgery was selected). Imaging features are variable and in many instances very subtle. Three (some say four) types of adenomyosis can be distinguished. The most common type is diffuse adenomyosis and the second type is focal adenomyosis which is identified when more than 25% of the lesion is surrounded by normal myometrium. The third type is adenomyoma when the focal lesion is completely surrounded by hypertrophic myometrium. The fourth type is cystic adenomyosis and adenomyotic cyst as a rare variant. Globular uterine enlargement, generally up to 12 cm in uterine length with regular external contour and not explained by the presence of leiomyomata, is a characteristic finding. The uterine wall thickening can show anteroposterior asymmetry, especially when the disease is focal. Typically of the posterior wall, diffuse asymmetric or symmetric widening of the myometrial wall(s) is secondary to myometrial hypertrophy and mainly related to deep diffuse internal adenomyosis form of uterus.

The sign was present when the uterine corpus was flexed backward, fundus of the uterus was facing the posterior pelvic compartment and the cervix was directed anteriorly towards the urinary bladder. Invasion of the myometrium by the glands also obscures the normally distinct endometrial/myometrial border. Invasion of the endometrial glands into the subendometrial tissue induces a hyperplastic reaction, which appears as echogenic linear striations fanning out from the endometrial layer (heterogeneous myometrial echotexture). There is a lack of homogeneity within the myometrium with evidence of architectural disturbance. This finding has been shown to be the most predictive sign of adenomyosis. Diffuse myometrial heterogeneity is a common incidence and has a high sensitivity (80.8%–100%), but low specificity (30%–65%).

The cystic anechoic spaces within the myometrium are variable in size and can occur throughout the myometrium. The cystic changes in the outer myometrium may on occasion represent small arcuate veins rather than adenomyomas. The application of color Doppler imaging at low velocity scales may help in this differentiation. Tiny myometrial cysts (2 mm–9 mm) corresponding to cystic or hemorrhagic endometrial glands, mainly located in the superficial myometrium, are highly specific (98%), but are of low sensitivity (50%–65%). This zone is a layer that appears as a hypoechoic halo surrounding the endometrial layer (3D). A thickness of 12 mm or greater has been shown to be associated with adenomyosis. Elastography is another emerging US technique in which slight external tissue compression is used to quantify the strain produced in the structures examined. Two recent studies suggest significant differences in strain distribution between adenomyosis and leiomyomas. All current commercial elastography systems need to measure tissue displacement. For example, strain elastography differs in how the displacement is used; it may be imaged directly and converted to strain. As another example, shear wave elastography is used to detect the time of arrival of shear waves and hence their speed. B-mode imaging is based on subjective evaluation alone. In shear wave elastography, it seems possible to obtain statistically significant objective information whilst reducing inter-operator variability.

Keywords: Adenomyosis, B-mode imaging, Shear wave elastography, Strain elastography



Endometriosis Ultrasound

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Abstract

Endometriosis is a common disease involving about 10% of women in reproductive ages. Diagnostic laparoscopy is used for diagnosis and planning of this problem for many years but nowadays, ultrasound is the method of choice for this aim with more than 90 % sensitivity and specialty. Uterus is assessed to evaluate its size, position, adenomyosis and myoma incidence, and for endometrial invasion. Different dynamic maneuvers for evaluation of organs moving in anterior, middle, and posterior compartments have been used (Negative and positive sliding signs). Also, ovaries are observed for cyst characterization and uterosacral ligaments to detect thickened ligaments and nodules beside rectosigmoid for the presence and depth of invasion and nodules. Doppler is also used for evaluation of cyst and solid component vascularity and malignant transformation. All of these issues are discussed with different pictures and US as a perfect technique for pre-surgical evaluation is introduced here.

Keywords: Adenomyosis, Diagnostic laparoscopy, Endometriosis, Ultrasound



Pelvic Floor and Urogynecology

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Abstract

The pelvic floor consists of a group of muscles that stretch like a hammock from the pubic bone at the front, to the coccyx (tailbone) at the back and from one ischial tuberosity (sitting bone) to the other (side to side). A female's pelvic floor muscles support her bladder, bowel, and uterus (womb). Pelvic floor dysfunction is the inability to correctly relax and coordinate the pelvic floor muscles to have a bowel movement.

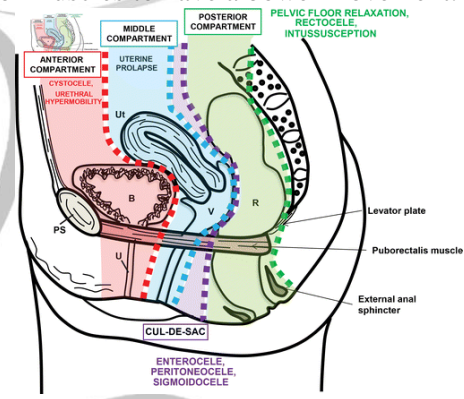
Pelvic floor is divided into three anatomic compartments: anterior, middle, and posterior. The anterior compartment contains the bladder and the urethra, the middle compartment contains the uterus, cervix, and vagina and the posterior compartment includes the rectum, anus, and anal sphincter.

PFDs (Pelvic Floor Disorders) occur when women have weakened pelvic muscles or tears in the connective tissue, which may cause pelvic organ prolapse, bladder control problems, or bowel control problems.

There are a lot of etiologies such as congenital problems, trauma, multigravida, surgery, endometriosis for pelvic dysfunction. There is no cure for pelvic floor dysfunction as it is a muscle

problem but there are many laparoscopic procedures for pelvic floor syndromes such as laparoscopic anterior paravaginal or bladder repair to fix anterior prolapse, laparoscopic colposuspension (also for incontinence) to fix anterior prolapse, laparoscopic posterior paravaginal or enterocele and rectocele repair to fix posterior prolapse, laparoscopic uterine suspension to fix middle compartment prolapse to lift the cervix, laparoscopic hysterectomy to fix middle compartment cervical prolapse, laparoscopic sacral colpopexy with or without hysterectomy to fix prolapse in every compartment and also rectopexy and surgeries for urine dysfunction. Some etiologies and laparoscopic surgeries and treatments for PFDs are discussed here.

Keywords: Laparoscopic colposuspension, Laparoscopic sacral colpopexy, Pelvic floor disorders, Urogynecology





A Step by Step Guide to Sonographic Evaluation of Deep Infiltrating Endometriosis

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Abstract

Ultrasound is a reliable first-line imaging modality for the assessment of patients with gynaecological concerns. Transvaginal sonography (TVS) is a valuable primary imaging tool for the initial evaluation and management of endometriosis, a complex multifocal disease process with a varied spectrum of clinical and morphologic features that can substantially affect quality of life. The high accuracy of TVS for the detailed mapping of disease is well documented. The dynamic nature of US provides added value, revealing information that is not easily addressed with other imaging modalities.

In patients with suspected endometriosis, ultrasound serves three purposes. First, it is used to evaluate the etiology of the patient's symptoms. Second, it has the potential to map the disease location. Lastly, it can ascertain the extent of disease. From a clinical perspective, these products of ultrasound may benefit patients by ensuring a thorough understanding of disease by both the patient, who needs to provide informed consent to treatment options, and the physician, who may adequately prepare for potentially advanced surgical procedures. In many cases, when deep endometriosis (DE) exists, physicians need to consider referral to an appropriate gynecologic surgeon with advanced skill. The multidisciplinary input of other specialists such as colorectal or urologic surgeons or fertility specialist may also be necessary.

In 2018 the International Deep Endometriosis Analysis (IDEA) group published a systematic approach to sonographically evaluate the pelvis in patients with suspected endometriosis. This consensus statement was developed to standardise anatomical landmarks, nomenclature of disease and the components of an ultrasound seeking to identify DE.

A four-step system was introduced, including routine evaluation of the uterus and adnexa, evaluation of soft markers such as site-specific tenderness (SST), assessment of the pouch of Douglas (POD) using the 'sliding sign' and, finally, assessing the presence of DE nodules compartmentally throughout the pelvis.



Tip and Tricks in Laparoscopic Hysterectomy

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Abstract

Laparoscopic technique is one of the latest surgical methods described as seeing the inside of the abdomen through the camera. This minimally invasive technique has revolutionized the world of surgery with many benefits. Today, with the help of laparoscopy, the most complex and difficult surgeries can be performed with minimal complications and maximum safety. One of the most important surgeries in the field of gynecology is hysterectomy, which has always had challenges. With the help of laparoscopy, this surgery can be performed easily and with minimal complications, but it is necessary for surgeons to have accurate knowledge of pelvic anatomy and skills in using surgical instruments. Generally, standard laparoscopic hysterectomy is performed in several stages. Initially, entrance into the abdomen is done through a main trocar, pneumoperitoneum is made, secondary trocars are placed in the right place under direct vision and then the uterine manipulator is inserted. After the entrance of laparoscopic surgical instruments through the trocars, the round ligament on both sides are coagulated and cut and therefore, the uterus is mobilized. In the next step, broad ligament dissection is performed and the two posterior and anterior leaves are separated from each other. Then, the peritoneal dissection continues downwards towards the bladder, and the serous layer between the uterus and the bladder is completely separated, and then broad ligament dissection is performed towards the IP ligament. In the next stage, according to the patient's condition, the IP ligament (attention to the ureters) or the utero-ovarian ligament is coagulated and then cut. Skeletonization of the uterine arteries on both sides (attention to the ureters) is then performed by suture or bipolar or ligature method. Colpotomy is then performed using a monopolar or harmonic device and the uterus is removed to the middle of the vagina to avoid pneumoperitoneum loss. Finally, the vaginal cuff is repaired by continues suturing. Then, ureters are checked and the abdomen and pelvis are cleared. The secondary trocars are taken out under direct vision and the gas is discharged and umbilical fascia is repaired. Sometimes, due to some previous diseases such as endometriosis or adhesions in the abdomen, pelvis becomes abnormal and the possibility of damage to organs increases, so the surgeon's knowledge of anatomy and skill during laparoscopy is very important. First, the adhesion must be released, the organ repaired, and then surgery will be continued. One of the sensitive organs during laparoscopic hysterectomy is ureter and it is necessary to pay attention to it while using thermal instruments. The most common site of ureteral injury is the cardinal ligament during division, but there is a possibility of ureteral injury in 4 other areas. It seems that the gold standard for protecting ureter is visualization. By learning the principles of laparoscopic technique and being skillful in using new surgical instruments, the most advanced surgeries can be performed by laparoscopy with the least complications.

Keywords: Adhesion, Colpotomy, Laparoscopic hysterectomy, Skeletonization



Laparoscopic Surgery For Large Presacral Tumor

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Abstract

Introduction: Presacral tumors are a rare group of heterogeneous lesions located in a potential space referred to as retrorectal or presacral space. The estimated incidence is about 1 case in every 40,000 hospital admissions. About two thirds of all the presacral tumors are congenital and most of them are cystic and benign. Laparoscopy may be an alternative to the anterior approach.

Case presentation: A 40 year old woman was referred to the hospital with complaints of infertility and pelvic pain for 2 years, and a large (12.5cm*11cm) solid cystic presacral mass was detected by MRI and CT. The spinal involvement was not detected by MRI. Physical examination of the abdomen showed a surgical scar due to previous ovarian cystectomy about 2 months ago without palpable masses. Rectovaginal examination showed a large mass between the posterior vaginal wall and rectum. Laboratory analyses were normal , including tumor markers. The laparoscopic mass resection was performed, and final pathology indicated well – differentiated carcinoid tumor .

Conclusion: Presacral tumors are quite rare. Recently, minimally invasive surgery gains more acceptance for resection of benign presacral lesions.

Keywords: Laparoscopy, Minimally invasive surgery, Presacral tumors, Resection



How to Design the Operating Room for Advanced Laparoscopic and Hysteroscopic Surgeries

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Abstract

The "Safe Surgery Saves Lives" initiative was established by the World Alliance for patient safety as part of the World Health Organization's efforts to reduce the number of surgical deaths across the world. The aim of this initiative is to harness political commitment and clinical will to address important safety issues, including inadequate safe anesthetic practices, avoidable surgical infection, and poor communication among team members. These have proved to be common, deadly, and preventable problems in all countries and settings. To assist operating teams in reducing the number of these events, the Alliance in consultation with surgeons, anesthesiologists, nurses, patient safety experts, and patients around the world has identified a set of safety checks that could be performed in any operating room. A person must be in charge of checking the items in the list. This designated checklist coordinator is often a circulating nurse, but a clinician or healthcare professional participating in the operation room can do the activity as well.

The checklist divides the operation into three phases:

A) Sign in phase which is before induction of anesthesia and includes the following: 1) Has patient confirmed identity?, 2) Does the patient consent to the bowel resection or laparotomy?, 3) Does the patient consent to vaginal examination?, 4) Did the patient have surgery previously on her abdomen and if yes what type of incision has been made?, 5) Does the patient consent to salpingectomy?, 6) Were the anesthesia machine and medication checked out?, 7) Was pulse oximeter connected on the patient?, 8) Do airway and history of patient increase the risk of surgery?, 9) Has patient got pacemaker, metal prosthesis and dentures as well as nail polish?, 10) Is BHCG negative?, 11) Are CBC, PLT, CROSS MATCH, PCR, HBS, HCV, HIV checked?, 12) Has antibiotic prophylaxis been given within the last 60 minutes?, 13) Has the patient worn compression stockings?, and 14) Are the IDs of all team members written?

The next phase is time out and before surgical incision in which the following items should be checked: 1) Surgeon, anesthesiologist, and nurse verbally confirm the patient ID, type of surgery, incision site, and the procedure; 2) CO₂ capsule is accurately checked; 3) Did pneumatic pump start?; 4) Confirming the correct site of attaching grounding pad on patient; 5) Preparing IV fluids and irrigation solutions; 6) Confirming the Lloyd Davies position; 7) Confirming the connection of warmer on patient; 8) The sterility of surgical set, equipment, and instruments is checked by nurses; and 9) Video recording should be ready to perform.

The last phase is sign out before the patient leaves the operating room. The following steps should be done in this phase and the nurses verbally confirm with other members of team: 1) Verifying the name of the procedure; 2) Confirming the number of instruments, sponge(s) and needle(s); 3) Verifying the specimen type which must be labeled (including patient ID); 4) Is there any problem in operating room equipment's functions?; 5) Surgeon, anesthesiologist and nurse should consider the concerns for extubation and entering to the recovery department; 6) Does the patient needs ICU?, 7) Does the patient need pneumatic pump?; 8) Does the patient need warmer?; 9) Does the patient need enoxaparin sodium (CLEXANE)?, 10) Is there any problem during patient transfer from recovery department to another ward?

Moreover, in the check list of hysteroscopy surgery, the team needs to pay attention to the following items: 1) Using the suitable infusion connected to the hysteroscope (injectable normal saline), 2) Checking out that the electrosurgical pads, glycine, and/or dextrose would be used for monopolar resectoscope, 3) Adjusting the pressure less than 200 mmHg and the flow less than 500 ml/min, and 4) Continuous calculation of hysteroscopy input and output liquid and reporting the differences greater than 1 liter to the surgeon and the anesthesiology team.

Keywords: Anesthesia, Operating room, Patient safety, Surgery



Laparoscopy and Hysteroscopy, Preoperative and Postoperative Nursing Care

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Abstract

Hysteroscopy is the examination of the inside of the womb using a fine telescope. A small telescope is inserted through the vagina and cervix into the cavity of the womb. Generally, this is done under general anesthesia. The surgeon then carefully inspects the lining of the womb; the images from a camera attached to the telescope are projected onto a TV screen and the pictures can be shown. It is likely that the surgeon will need a biopsy of the lining of the womb. This is performed by inserting a small sampler at the end of the procedure. This sampling only takes 10-20 seconds but can cause a cramp-like pain, which quickly disappears. It is possible to detect a polyp (an overgrowth of the lining of the womb). This can be removed at the time of the hysteroscopy.

A gynecological laparoscopy, also called a minimally invasive surgery (MIS), is a procedure that allows a surgeon to look inside the pelvis, for example, the fallopian tubes, ovaries, and uterus (womb). It can be used either to diagnose a condition or for treatment purposes. Laparoscopy is almost always performed under general anesthesia. In other words, the patient is unconscious during the procedure. However, the patient may still be able to go home the same day. Once asleep, a small tube called a catheter will be inserted to collect the urine. A small needle will be used to fill the abdomen with carbon dioxide gas. The gas keeps the abdominal wall away from the organs. It reduces the risk of injury. Next, the surgeon will make a small cut in the navel and insert the laparoscope, which transmits images to a screen. This gives the doctor a clear view of the organs. What happens next depends on the type of procedure. For diagnosis, the doctor might take a look and examine the organs. If the patient requires surgery, other incisions will be made. Instruments will be inserted through these holes and then surgery is performed using the laparoscope as a guide.

In conclusion, it is not possible to decide which surgical approach is better, because it totally depends on the needs of the patients. If the disease is detected only in the area of the uterus and appendages, hysteroscopy usually provides better outcome because there are no incisions or stitches, but in case of other abdominal diseases, laparoscopic surgery is suggested, because it controls and examines more parts. One of the most important nursing care services after laparoscopy is to put patient in OBB (out of bed) position immediately after full consciousness in order to expel carbon dioxide gases faster. Regarding hysteroscopy, is it important to check for vaginal bleeding after the surgery.

Keywords: Carbon dioxide, Gynaecological laparoscopy, Hysteroscopy, Vaginal bleeding



Is There Any Association Between Endometriosis and (Recurrent) Miscarriage?

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Abstract

Endometriosis is more frequently diagnosed in patients with infertility; however, there is some epidemiological evidence to support the association of endometriosis with (recurrent) pregnancy loss and recurrent implantation failure after ART.

Some studies show that pregnant women with endometriosis may be at higher risk of adverse pregnancy outcomes such as placenta previa, preterm birth, and ectopic pregnancy; however, its association with (recurrent) miscarriage is less observed. The association with miscarriage and implantation failure can possibly be explained by alterations in humoral and cell-mediated immunity in peritoneal and follicular fluid as well as possible negative effect of these immunological changes on folliculogenesis, ovulation, oocyte quality, early embryonic development, and implantation in women with endometriosis. Therefore, infertility and also early miscarriages may be related to these alterations resulting in both low quality of embryos and also impaired implantation. Based on controlled prospective studies, there is no evidence that endometriosis is associated with (recurrent) pregnancy loss or that medical or surgical treatment reduces the rate of recurrent miscarriage; however, some uncontrolled and / or mostly retrospective studies have demonstrated the possible link between endometriosis and miscarriage. Moreover, patients with endometriosis may suffer from adenomyosis which results in implantation failure or adverse pregnancy outcomes such as recurrent miscarriage. Due to lack of proper studies, more future investigations are needed to focus on understanding the potential mechanisms of association and the effect of early interventions and more monitoring on improvement of outcomes.

Keywords: Adenomyosis, Folliculogenesis, Pregnancy loss, Surgical treatment



Diagnose and Treatment of Pelvic Pain

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Abstract

Chronic pelvic pain in women is defined as persistent, noncyclic pain perceived to be in structures related to the pelvis, lasting more than six months. Often no specific etiology can be identified, and it can be conceptualized as a complex regional pain syndrome or functional somatic syndrome. It is typically associated with other functional somatic syndromes (e.g., irritable bowel syndrome, nonspecific chronic fatigue syndrome) and mental health disorders (e.g., posttraumatic stress disorder, depression). Diagnosis is based on findings from the history and physical examination. Pelvic ultrasonography is indicated to rule out anatomic abnormalities. Referral for diagnostic evaluation of endometriosis by laparoscopy is usually indicated in severe cases. Curative treatment remains elusive, and evidence-based therapies are limited. Patient engagement in a biopsychosocial approach is recommended, with treatment of any identifiable diseases such as endometriosis, interstitial cystitis/painful bladder syndrome, and comorbid depression. Potentially beneficial medications include depot medroxyprogesterone, gabapentin, nonsteroidal anti-inflammatory drugs, and gonadotropin-releasing hormone agonists with add-back hormone therapy. Pelvic floor physical therapy may also be helpful. Behavioral therapy is an integral part of treatment. In select cases, sacral neuromodulation may be appropriate. Hysterectomy may be considered as a last resort if pain seems to be of uterine origin, although significant improvement occurs in only about one-half of cases. It seems that chronic pelvic pain should be managed through a collaborative and patient-centered approach.

Keywords: Chronic pelvic pain, Functional somatic syndrome, Hormone therapy, Pelvic ultrasonography



ART Outcomes in Patients with Endometrioma Undergoing Sclerotherapy Versus Laparoscopic Cystectomy: A Clinical Trial

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Abstract

Objective: The purpose of the current study was to evaluate assisted reproductive technique (ART) outcomes and recurrence rate of endometrioma among patients undergoing sclerotherapy and laparoscopic cystectomy.

Materials and Methods: This clinical trial was conducted in a private and university hospital on 116 infertile patients with endometrioma who were divided in two groups. The first group underwent ART after one year of unsuccessful spontaneous pregnancy following laparoscopic ovarian cystectomy, and the second group had ethanol sclerotherapy following oocyte retrieval. In this study, number of oocytes and cumulative pregnancy rate were considered as the primary outcomes and recurrence of endometriomas as the secondary outcome.

Results: Thirty patients were analyzed in the laparoscopic cystectomy group and 34 in sclerotherapy group. Fourteen patients had been excluded (not meeting inclusion criteria; n=8, and no oocytes; n=6), 9 had no embryos, 18 lost to follow-up, and 11 did not return for embryo transfer in the study period. Cumulative pregnancy rate was higher in the first (33.3%) than the second group (29.4%), but it was not statistically significant ($p=0.95$). The rate of recurrence was 10.7% in the first group, and 16.7% in the second group, which was not statistically significant ($p=0.51$).

Conclusion: No significant differences were detected in ART outcomes and recurrence rate comparing laparoscopic cystectomy and sclerotherapy of endometriomas.

Keywords: ART outcome, Endometrioma, Ethanol sclerotherapy, Laparoscopic cystectomy, Recurrence rate



Endometriosis and Sexual Pain

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Abstract

Endometriosis is a common gynecological condition affecting one in 10 reproductive-aged women. One of the most important consequences of the disease is infertility that may exacerbate the psychological, relational, and sexual dimensions of quality of life in patients.

Endometriosis is a complex situation which affects various aspects of mental and social health in addition to threatening physical health. Family relationships and interaction with spouse and children, problems in sexual relations, job capabilities and the issue of absenteeism, infertility-induced psychosocial effects, and restricted participation in social activities are the typical complications of the disorder. More than half of affected women report moderate-to-severe deep dyspareunia. The pain begins at different points in the sexual encounter, including arousal, initial penetration, climax, and after sexual intercourse.

Psycho-emotional factors, such as lack of emotional awareness and/or presence of negative emotions, have an important role in sexual dysfunction. These factors could be associated with higher pain perception and worse sexual outcomes in women with endometriosis. Women with endometriosis experience more negative emotions toward sexuality and a tendency to somatization comparing to healthy women. In addition, comorbid conditions (eg, interstitial cystitis and bladder pain syndrome) and central sensitization underlying genito-pelvic pain/penetration disorder can complicate the situation.

Four types of deep dyspareunia are proposed in women with endometriosis: type I occurs directly as a result of endometriosis, type II is related to a comorbid condition, genito-pelvic pain/ penetration disorder is primary in type III, and type IV is secondary to a combination of types I to III. This classification can be used as a framework in research studies and in clinical practice.

Therapeutic interventions typically include surgery and hormone therapy (Combined estrogen-progestin contraceptives, progestin, and GnRH antagonists). However, based on placebo-controlled evidence for standard surgical and hormonal therapies in endometriosis, the origin of sexual pain remains unclear. Pain in patients with endometriosis is associated with complex mechanisms, compared with outcomes such as dysmenorrhea which may justify the unclear origin of pain. Therefore, treatments should involve an integrated and multidisciplinary approach, including medical interventions, sex therapy, psychotherapy, physical therapy, and pain management.

Keywords: Dyspareunia, Endometriosis, GPPPD, Sexual pain



Management of Ureteral Endometriosis Associated with Hydronephrosis

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Abstract

The main location of the implants of the endometrial tissue is the pelvis; also, they can exceptionally be located in urinary tract. While endometriosis is a common disease, the urinary tract endometriosis is a rare incidence. The rate of involvement is higher in bladder and ureter and lower in kidney. In ureter, left involvement is more common, especially the involvement of the distal segment of the left ureter. The clinical characteristics of ureteral endometriosis are typically marked by non-specific symptoms, and as many as 50% of patients are often asymptomatic. Therefore, ureteral endometriosis can potentially lead to serious consequences, such as urinary tract obstruction and finally silent loss of renal function. The risk of silent renal loss is reported to be as high as 25-50%.

Because of non-specific symptoms, insufficient preoperative evaluation, misinterpretation of imaging techniques or non-specific imaging findings, ureteral endometriosis is suspected before surgery in only 40% of patients. The diagnosis of ureteral endometriosis is elusive and depends heavily on clinical suspicion as the extent of the disease varies. Therefore, one optimal strategy is to raise the attention of urologists and gynecologists in order to be highly suspicious of ureteral endometriosis in women of reproductive age having hydronephrosis without signs of urolithiasis in order to make an early diagnosis and thus avoid renal loss. The management alternatives are dependent on the extent of the disease, the degree of hydronephrosis, and the renal function compromise. Earlier diagnosis makes the treatment easier and the prognosis better.

Keywords: Hydronephrosis, Renal function, Symptomatic patients, Ureteral endometriosis



Laparoscopic Complications

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Abstract

Surgical procedure has been improved to reduce trauma to the patient, morbidity, mortality, and hospital stay with consequent reduction in health care costs. Starting in the early 1970s, various pathologic gynecologic conditions were diagnosed and treated using laparoscopy. The pneumoperitoneum and the positioning of patients for laparoscopic gynecologic surgery induce pathophysiologic changes that complicate anesthetic management.

CO₂ pneumoperitoneum results in changes of respiratory system. In fact, PCO₂ increases (15% to 25%) when CO₂ is absorbed from the peritoneal cavity. In medically compromised patients, cardiorespiratory disturbances aggravate the increase in PaCO₂ and the gradient between PaCO₂ and PETCO₂. Any increase in PETCO₂, larger than 25% or occurring later than 30 minutes after the beginning of peritoneal CO₂ insufflation indicates CO₂ subcutaneous emphysema. The pathophysiologic hemodynamic changes can be attenuated or prevented by optimizing preload before pneumoperitoneum and by vasodilating agent.

Keywords: Laparoscopic complications, Peritoneal CO₂ insufflation, Pneumoperitoneum, Vasodilating agent



Total Laparoscopic Hysterectomy

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Abstract

Background: Laparoscopic hysterectomy is one of the most commonly performed major surgical procedures in gynecology. Laparoscopy compared to abdominal surgeries is associated with well-documented benefits such as decreased blood loss, shorter hospitalization and recovery periods, and lower rates of abdominal wall infections. Therefore, technical aspects of this procedure are detailed here.

Materials and Methods: Standardizing surgical steps of total laparoscopic hysterectomy for benign diseases based on the available scientific evidence is reviewed by experienced surgeons in this research.

Results: The correct surgical positioning and appropriate setting of operating room lead to optimal surgical outcome. The surgical procedure should be performed in three steps. Firstly, abdominal access is achieved with pneumoperitoneum, a diagnostic laparoscopy is performed, trocar is inserted, and inspection of the pelvic is done. Next, round ligaments are divided, the adnexal mass is treated, dissection of the vesicouterine pouch is done, posterior peritoneum is opened, uterine vessels are ligated, colpotomy is carefully performed, and uterus retrieval and vaginal closure are performed. Finally, inspections are done, trocar is removed, and skin is sutured.

Conclusion: It seems that following all surgical steps in total laparoscopic hysterectomy as a minimally invasive surgery is associated with reduced complication rate.

Keywords: Benign diseases, Laparoscopic hysterectomy, Minimally invasive surgery, Surgical outcome, Surgical procedure



Laparoscopic Management of Dermoid Cysts

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Abstract

Dermoid cysts are the most common ovarian tumors generally occurring in the second and third decade of life. Laparoscopic cystectomy for ovarian dermoids (teratomas) is a minimally invasive approach.

The advantages of laparoscopic management in ovarian cysts include lesser postoperative pain, shorter hospitalization and recovery periods, and better cosmetic consequences, as compared to laparotomy. Standardization of laparoscopic cystectomy for ovarian dermoid could make this procedure easier and safer to perform. These steps including lifting and immobilization of the ovary, incision of the ovarian cortex, and prevention of peritoneal spillage and dissection can help to perform each part of the surgery in a logical sequence, making the procedure ergonomic and easier to adopt and learn. Moreover, the standardization of the surgical techniques could reduce the learning curve. The standardization and description of the technique are the main objectives of this section, which could help make this procedure easier and safer.

Keywords: Dermoid cysts, Laparoscopic cystectomy, Minimally invasive approach, Standardization



Medical Treatment of Adenomyosis

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Abstract

Hysterectomy is the definitive treatment for adenomyosis. So, all hormonal medications are alternative treatments. Levonorgestrel (LNG)-releasing intrauterine device (IUD) is the preferred medical treatment for adenomyosis, due to its direct action on the uterus, low systemic levels of steroid hormones, and long-acting user-independent administration. The LNG-IUD has been shown to improve adenomyosis-associated heavy menstrual bleeding and dysmenorrhea. There is little data on the efficacy of oral contraceptives specifically for adenomyosis. Concomitant use of both combined oral contraceptives and the LNG-IUD was no more effective for reducing pain and bleeding than use of the LNG-IUD alone. Daily administration of oral dienogest, gonadotropin-releasing hormone (GnRH) analogs, and aromatase inhibitors is another hormonal therapeutic option. When hormonal medications are discontinued, enlargement of the uterus and recurrence of symptoms are usually documented within six months after discontinuation. Uterine artery embolization which is contraindicated in patients who plan for future pregnancy and uterus sparing surgery of adenomyosis, related with increased risk of uterine rupture and abnormal placentation in further pregnancies, are less invasive surgical procedures for treatment of adenomyosis.

Keywords: Adenomyosis, Contraceptives, GnRh, Heavy menstrual bleeding, LNG-IUS



Urinary Tract Complication in Laparoscopy

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Abstract

Operative laparoscopy becomes more widely accepted and new techniques are being developed. Complication rate, however, is expected to rise. The incidence of laparoscopic complications in major procedures is 1.1% to 5.2%. One of the laparoscopic complications is the urinary tract complication which includes bladder and ureteral injuries. Bladder injuries are more common than ureteral injuries and increase with the complexity of the technique (1-2.3% in advanced laparoscopy). The most common laparoscopic procedure associated with bladder injury is laparoscopic-assisted vaginal hysterectomy that involves dome of the bladder. The complication rates of the techniques are as follow: 0.027% for minor laparoscopic procedure, 1.6% for major laparoscopic procedures, and 3% for hysterectomies.

Bladder pathology, previous surgery (history of previous myomectomy or cesarean section), inflammation, endometriosis, and adhesions are the most common risk factors of bladder injury. Pneumo sac-swollen bladder-entrapped CO₂, hematuria, presence of urine in abdominal pelvic cavity, and post-operative anuria can help diagnosing the bladder injury. Bladder catheterization and secondary trocars inserted under direct vision can prevent bladder injury. Bladder injury can be treated by the conservative treatment or laparoscopic repair. Ureter injury is the serious complication of gynecologic surgery. The rate of this complication is approximately 0.2–2% and it happens in 0.025%-0.44% of laparoscopic gynecologic procedures. In fact, 70 % of ureteral injuries are diagnosed postoperatively, and fistula formation (uretero-vaginal and vesicovaginal) is the major type of injury.

Ureteral injuries can be prevented by meticulous surgical technique and adequate visualization. Laparoscopically assisted vaginal hysterectomy, oophorectomy, pelvic lymphadenectomy, sterilization, pelvic inflammatory disease, radiation therapy, advanced stage of malignancy, pelvic endometriosis (65% ureteric injuries), and diathermy are the ureteral injury risk factors. Ureteral injury is diagnosed by fever, flank pain, nausea and vomiting, acute peritonitis, paralytic ileus, watery discharge from the wound or vagina, IVP (intravenous urogram), and retrograde urethrogram. Awareness of risk factors and good experience in laparoscopy are the main factors in preventing and reducing ureteric injuries.

Immediate and early diagnosis of ureteral injuries gives excellent outcome and minimal morbidity, while delayed diagnosis may result in prolonged morbidity. Stent placement, ureteroneocystostomy, ureteroureterostomy, psoas hitch, boari flap, and others are the ureteral injury treatments modalities.

Keywords: Stent placement, Surgery, Ureteral injury, Urinary tract complication



New Classification in Myoma and Laparoscopic Surgery of Large Myoma

Elham Akbari

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Abstract

Myomas are smooth muscle tumors arising from myometrium. It occurs in 20-50% of woman of reproductive ages. FIGO classification is the newest classification that divides myomas in eight subgroups. Treatment of myomas are medical, surgical, and radiation therapy (embolization). One of the best surgical treatments is laparoscopic myomectomy which is important because of difficulties in removal of myoma, closure of incision, and prevention of uterine rupture. It has many advantages and every surgeon must learn how to do it carefully.

For any surgeon especially laparoscopists, it is necessary to learn pelvic anatomy to avoid visceral injuries during surgery. Understanding the interrelationship of ligament, nerves, blood vessels, and pelvic viscera for safe surgery is recommended. Location of ureter and rectum is very important. After complete knowledge of normal anatomy, all difficult pelvic surgeries even in case of advanced endometriosis can be performed.

Keywords: Endometriosis, Laparoscopy, Myomas, Pelvic surgeries



Endometriosis and Tubo-Ovarian Abscess

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Abstract

A 25-yr lady (G0P0) with 8 years of primary infertility referred to our clinic. She had a history of induction and IVF procedure. After embryo freezing, she was referred for endometriosis surgery. In the imaging, the following were observed: Uterine adenomyosis and myomatous uterus, 10 mm left, endometrioma and adherence, 12 mm right endometrioma and adherence, 28 mm/rectal nodule and nodule on both uterosacral ligaments, ca125=94, AMH=2.4

The operation was scheduled one month after embryo freezing, but during the surgery, abscess in both ovaries was observed. So, the procedure was stopped, and after treating the abscess, the surgery was performed after six months.

The procedure was as follows; adhesiolysis and ureterolysis, both ovarian cystectomy and salpingectomy, were done and rectal shaving of nodule was performed. After the surgery, embryo transfer was done, and the patient became pregnant. In the patients with embryo freezing and surgery, tubo-ovarian abscess should be evaluated before surgery with lab testing (ESR,CRP) and CT scan.

Keywords: Adhesiolysis, CT scan, Endometrioma, Tubo-ovarian abscess, Ureterolysis



Laparoscopic Surgery in Endometriosis

Camran Nezhat

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Abstract

The video-laparoscope has allowed endometriosis to be diagnosed and managed much better than laparotomy. Video-laparoscope provides significant magnification and access to all the small spaces in the human body. Better vision allows better exposure and better exposure allows for better treatment of the disease and thus, better results. During this video presentation, we will demonstrate some of these advantages. The other advantage of the video-laparoscope is avoiding laparotomy and its associated outcomes.

These include large incisions, poor visibility, long hospital stays, long recovery times, adhesion formation, more bleeding, and more complications. All these complications could be avoided with proper use of minimally invasive surgery technology.

Keywords: Laparotomy, Minimally invasive surgery, Video-laparoscope



How to Standardize and Democratize Surgery

Camran Nezhat

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Abstract

In this keynote lecture, the past, present, and future of surgery and how to standardize and democratize medicine and surgery by combining artificial intelligence, data analytics, robotics, and using the concept of $E=\gamma mc^2$ are all discussed. This lecture will cover topics discussed in the preface of the 5th edition *Nezhat's Textbook of Minimally Invasive Surgery: Including Hysteroscopy, Vaginoscopy and Robotic-Assisted Procedures*.

Keywords: Data analytics, $E=\gamma mc^2$, Robotics, Surgery



Bowel and Urinary Involvement in Endometriosis, What Should We See in Ultrasound?

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Abstract

Endometriosis is a common disease among women of reproductive age. The prevalence is almost 10% in general population and may be more in patients referred for pelvic pain or infertility. The current knowledge on diagnosis and treatment of endometriosis is not sufficient.

The first step and imaging modality of choice in diagnosis of endometriosis is transvaginal or transrectal ultrasound. However, the diagnostic performance of this test is highly dependent on the quality of the equipment and the familiarity of the operator with the typical and atypical presentation of endometriosis on ultrasound. In 20% of patients, the diagnosis is especially challenging because there is no cystic lesion in the pelvis and pelvic nodules, adhesions, and involvement of the uterosacral ligament or rectovaginal septum only manifest the disease. This group of patients may remain undiagnosed for decades.

There are multiple steps for detecting the adhesions through applying pressure on the abdominal wall by both the transducer and the other hand simultaneously. In patients without adhesion, mobility of the pelvic organs by these procedures can accurately be observed and is considered as positive sliding sign. On the other hand, the restricted mobility of the pelvic organs is considered as negative sliding sign and reflects possible adhesion. The entire pelvis and the bowels walls should also be scrutinized for the presence of any nodule and the severity of invasion should be reported. It is also possible to find thick uterosacral ligament and its nodule. The dynamic nature of ultrasound scanning provides the opportunity to evaluate the tender points more precisely. There is a 1-2.5 % chance of malignancy in endometriomas, so an ovarian cyst with the imaging appearance in keeping with endometrioma should be accurately evaluated for any sign of malignancy like mural nodule or internal thick septation.

Hereby, we are going to share our experience of diagnosing more than 1000 cases of endometriosis on ultrasound along with presenting multiple pictures and clips from our interesting cases.

Keywords: Bowel walls, Cystic lesion, Endometriomas, Transrectal ultrasound



Ovarian Reserve and Endometriosis: Cryopreservation and the Role of Surgery

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Abstract

Endometrioma is one of the most frequent pathologies in gynecologic surgery. Despite extensive research in endometriosis, there are important controversies in this area. Although laparoscopic cyst excision is considered the best treatment in terms of lower recurrence but the diminished ovarian reserve after surgery is an important factor that affects decision making of the patients. There are three reasons in favor of surgery. The first is lower follicular density in affected ovary due to focal inflammation and fibrosis that is related to the size of endometrioma. The second is gonadotoxic effect of endometrioma on the surrounding follicles. Another persuasive argument favoring surgical excision of endometrioma relates to the dangers of expectant management such as ovarian torsion, cyst rupture, progression of endometriosis, or the threat of ovarian malignancy. The reasons against the ovarian surgery is the presence of ovarian parenchyma in 40% of cases of endometrial cystectomy. Surgical excision of endometriomas leads to damage of healthy cortex and a decline in AMH which is progressive.

The important factors for the amount of ovarian damage after cystectomy is age >35, and size and method of cyst wall removal by stripping. There is much debate over the treatment of these cysts in infertile women, particularly before use of ART. Nevertheless, evidence shows that presence of endometrioma does not appear to adversely affect IVF outcomes, and surgical excision of endometriomas does not appear to improve IVF outcomes. The advantage of oocytes collection for fertility preservation prior to surgery relates to detrimental effect of surgery on ovarian reserve. Although removing healthy ovarian tissue away from endometriomas can deteriorate ovarian reserve but collection of the cortical tissue, attached loosely to the capsule and ovary, is a good chance for cryopreservation during endometrioma surgery.

Freezing embryos or unfertilized oocytes seems to be the most convenient technique of fertility preservation for women suffering from endometriosis. It does not affect ovarian reserve and offers a real chance of future pregnancy when a good amount of oocytes or embryos has been stored.

Keywords: Cryopreservation, Endometrioma, Freezing, Surgery



Screening Tests for Ovarian Cancers

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Abstract

In the field of gynecological malignancies, screening for ovarian cancers is recommended at the age of 30 to 35 years or 5 to 10 years before the minimum age at which the cancer was detected in the family. Performing ca125 test and pelvic ultrasound are the most important screening tests.

Although there is no gold standard among laboratory tests, the ca125, as a valuable test, is measured every two to four months in the first two years of cancer development. Other tumor markers with lower predictive value and sensitivity may be helpful in screening for ovarian malignancies. Routine tests, including complete blood counts and biochemical profiles, and especially liver function tests, can also help assess the probability of the disease.

Although other less specific laboratory tests such as TP53, TRAF, and KRAS are categorized among the laboratory tests for the probability of the disease, none of them serve as definitive indicators in the diagnosis of this disease.

Another valuable test that is helpful in screening for this abnormality is the cytological testing of cervical specimens, which may be a good indicator for ovarian involvement with the possibility of malignant cell proliferation.

Keywords: ca125, Cytological testing, KRAS, Ovarian cancer, TP53, TRAF



Clinical Outcome, Surgical Details, Complications, Pregnancy Rate, Recurrence, Pain Relief and Follow-up After Laparoscopic Treatment of Endometriosis at Avicenna Fertility Center from March 2015 till September 2020

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Abstract

Objective: The purpose of the current study was evaluation of surgical outcomes of laparoscopic treatment for bowel endometriosis at Avicenna Fertility Center.

Materials and Methods: This was a cohort study of 1464 women who underwent laparoscopic surgery for excision of deep infiltrating endometriosis from 2015 through 2020 at Avicenna Fertility Center in Iran. Data collected included demographics, baseline characteristics, surgery report sheet, and intraoperative and post-operative data sheet.

Result: Totally, 1464 patients were analyzed who underwent laparoscopic surgery for excision of DIE. The mean age of patients who had underwent surgery was 35±6 years. Data from 1464 consecutive patients, who underwent radical laparoscopic excision of visible DIE, were analyzed. It was revealed that 71% of our patients had stage IV endometriosis. Segmental bowel resection was performed in 210 (13%), disc resection in 134 (9%), and rectal shave in 171 (11%) cases. Ureteroneocystostomy was done in 11 cases (1%) and ileocecal resection in 11 cases. Vagina was opened in 171 cases (11%). Ileostomy was done in 7 cases. Two rectovaginal fistulae nodules and one vesicovaginal fistula were seen after surgeries. Joint surgery by a gynecologist and colorectal and/or urological colleague was required in 39% of cases. The mean surgery time was 199.06 minutes (± 78 standard deviation, range of 40–400 min). The conversion to laparotomy was done in 2 cases.

Conclusion: A combination of different laparoscopic surgical techniques are required to completely excise visible DIE, within the context of a tertiary referral center offering multi-disciplinary approach; by doing this procedure, safe outcomes with low complication rates can be obtained.

Keywords: Complication, Deep endometriosis, Endometriosis laparoscopy, Outcome



Ergonomics in Minimally Invasive Surgery

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Abstract

Ergonomics is the study of human actions during different works; minimally invasive surgery is a difficult procedure because of long instruments, optics, operating room conditions, the surgeon body position, and workload. Proper ergonomics in operating room increases safety and efficacy and has better outcomes for patients. The important issues are operating table height which must be about 64-77 cm above the floor. MIS instruments should be below the level of surgeons elbow and the angle between the lower and upper arm, nearly 90 and 120 degrees. The monitor should be about 15 degrees downward than the surgeons eye. Foot pedals should be placed near the foot and theater lighting should only be dimmed, not completely switched off. Arms should be tucked along the body and legs spread apart; MIS instruments are very important. Laparoscopic instruments with axial handle lead to a more ergonomic posture and trocar placement should be adjusted based on the surgeons' preference.

Keywords: Efficacy, Ergonomic posture, Ergonomics, Minimally Invasive Surgery



The Classification of Systems and Laparoscopic Hysterectomy

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Abstract

Reich first reported total laparoscopic hysterectomy in 1989. Since that time, many variations of the procedure have been described, that vary principally by the relative portions of the surgery performed via the vaginal and laparoscopically directed routes. The variations have potential impact on clinical outcomes such as complication rates and resource utilization outcomes such as the cost of surgical care.

A good classification system should allow investigators and clinicians to compare different outcomes among and between the existing types of procedures. In considering the optimal classification system, the following goals were considered to be important: 1. The AAGL classification system should more clearly define what is meant when a laparoscope is included as a tool to accomplish hysterectomy, 2. One generic name should be selected that encompasses all hysterectomy procedures performed partly or totally under the guidance of the laparoscope, 3. The system should be linked to clearly defined anatomic landmarks eliminating subjective interpretation as much as possible, and 4. The system should allow detailed sub-classification of different components of laparoscopic hysterectomy for investigative purposes, but possess the capacity of abbreviation for day-to-day use. The complete system further stratifies each type of LH into subgroups by virtue of laparoscopic dissection of the bladder and the posterior cul-de-sac. Subgroup "A" denotes cases limited to the division of the pedicle(s) containing ovarian or uterine artery (ies). Subgroup "B" indicates dissection of the bladder, and is further substratified according to the amount of the dissection. Subgroup "C" denotes the performance of a posterior culdotomy. Subgroup "D" refers to dual dissection of the bladder and the performance of the posterior culdotomy, with substratification determined by the amount of dissection as for subgroup B. Finally, the subtype "E" is used only in type IV procedures, when the entire uterus is removed under laparoscopic direction. The suffix "o" is used to denote the performance of either unilateral or bilateral oophorectomy.

Keywords: AAGL classification, Laparoscopic Hysterectomy, Posterior culdotomy, Subgroups



New Classification in myoma and Laparoscopic surgery of big myoma

Elham Akbari

MD-OB-GYN-Laparoscopic surgeon

Abstract

Myomas are most common smooth muscle tumors arising from myometrium. It occurs in 20-50% of women in reproductive ages – FIGO classification is the newest classification that divides myomas in eight subgroups. Treatment of myomas are medical, surgical and radiologic (embolization). One of the best surgical treatments are laparoscopic myomectomy which is important because of difficulties in removal of myoma, closure of incision and prevention of uterine rupture. It has many advantages and every surgeon must learn how to do it carefully.



Anatomy in Laparoscopy

Elham Akbari

MD-OB-GYN-Laparoscopic Surgeon

Abstract

For any surgeon specially laparoscopists, it is necessary to learn pelvic anatomy to avoid visceral injuries during surgery. Understanding of interrelationship of ligament, nerves, blood vessels and pelvic viscera for safe surgery is recommended. Location of ureters and rectum are very important. After complete knowledge of normal Anatomy, We can operate any hard pelvic surgery and advance endometriosis.



Laparoscopic surgery for endometriosis

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Abstract

Endometriosis is defined as the presence of endometrial-like tissue (glands and or stroma) outside the uterus. The disease is estrogen dependent and found predominantly in women of reproductive age with prevalence ranges from 6 to 10%. The symptoms of the disease include pelvic pain and/or infertility, and also asymptomatic cases. Symptoms of endometriosis impact on many aspects of a woman's life including daily life activities, sexual function, and personal relationships, thereby leading to a loss of work productivity and causing a major economic burden. Surgery should be indicated only in the following situations, patients who present with significant pain such as dyspareunia and dyschezia (VAS > 7), patients who present with signs of bowel obstruction; and patients who have failed previous in vitro fertilization (IVF) cycles, Persistent pain despite medical therapy, Contraindications to or refusal of medical therapy, Need for a tissue diagnosis of endometriosis, Exclusion of malignancy in an adnexal mass and Obstruction of the bowel or urinary tract. Symptomatic menopause patients may be treated more conservatively, in comparison to younger patients.

Surgical approach consisted of 10 steps. (1) Thorough inspection of the pelvis and the abdomen. (2) Mobilization of the ovaries. (3) Identification of the ureter and ureterolysis. (3) Removal of endometriotic cysts. (4) Opening of pararectal spaces. (5) Opening of the pouch of Douglas. (6) Entrolysis. (7) Preservation of the hypogastric nerves. (8) Careful removal of all endometriotic lesion and nodules. (9) Check of uterosacral ligaments. (10) Assessment both tubes in terms of hydrosalpinx and normalization of anatomy.



Myomectomy and Infertility

Leili Hafizi

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Abstract

There has been significant controversy regarding the impact of uterine myomas on fertility and pregnancy outcomes. As a result, the benefit of myomectomy (likelihood of conception and live birth, reduction of pregnancy loss) in women with asymptomatic myomas has also been uncertain. There is insufficient evidence to conclude that myomas reduce the likelihood of achieving and maintaining pregnancy.

There is fair evidence that hysteroscopic myomectomy for cavity distorting fibroids improves clinical pregnancy rates, but there is insufficient evidence regarding the impact of this procedure on the likelihood of early pregnancy loss or live birth.

Myomectomy is generally not advised to improve pregnancy outcomes in asymptomatic infertile women with non-cavity-distorting myomas. However, myomectomy may be reasonable in some circumstances including but not limited to severe distortion of the pelvic architecture complicating access to the ovaries for oocyte retrieval.

No association between a specific number, size, and location of myomas (excluding submucosal myomas or intramural myomas impacting endometrial cavity contour) and pregnancy outcomes has been found.

Keywords: Intramural myomas, Myomectomy, Submucosal myomas



Factors Influencing ICSI Outcomes in Women with Advanced Endometriosis

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Abstract

Endometriosis is an estrogen-dependent disease found in women of childbearing age and affects about 20 to 50 percent of infertile women with endometriosis. Therefore, endometriosis is considered as an important factor in fertility. Causes of infertility in patients with endometriosis can range from anatomical abnormalities due to adhesions and fibrosis to endocrine disorders, inflammation, immune disorders, ovulatory, folliculogenesis dysfunction, and defective implantation. In some cases, pathophysiological disorders appear to occur through mechanisms that are not yet fully clear. The common choice for patients with endometriosis is ICSI and most of patients need several cycles of treatment. The impact of advanced endometriosis (stage III, IV) is related to poor ovarian response, which is the decrease in follicle count. Studies show that mature MII oocytes produce significantly fewer good-grade embryos. Patients with peritoneal endometriosis had lower fertilization rates and live embryo rates per recovered egg than patients with ovarian endometrioma. Patients who underwent laparoscopic cystectomy had fewer MII oocytes than patients with intact endometrium, but there was no significant difference in pregnancy outcomes between ovarian endometrioma patients. Endometriosis at advanced stages is a worse prognosis for ICSI treatments compared to milder stages or tubal factors. Patients with advanced endometriosis have lower clinical pregnancy rate, poorer ovarian response, lower egg retrieval rate, and higher gonadotropin demand than those with tubal infertility. Also, data show that advanced endometriosis has negative effect on clinical pregnancy per oocyte pick up cycle. Despite the wide use of assisted reproductive technique by endometriosis patients, endometriosis is highly associated with poor outcomes in ICSI and patients with advanced endometriosis have lower success with ART.

Keywords: Advanced endometriosis, ICSI outcomes, MII oocytes, Pathophysiological disorders



Endometriosis

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Abstract

Endometriosis, an estrogen-dependent inflammatory disease characterized by the ectopic presence of endometrial tissue, has been the topic of renewed research and debate in recent years. The concept that endometriosis is a disease that only affects women of reproductive age has prevailed since 1942, when the first case of endometriosis in a postmenopausal patient was reported by Edgar Haydon. The incidence of postmenopausal endometriosis reported in literature is approximately 2–5%. It commonly represents a side effect of HRT, rarely occurring in patients without a history of HRT or tamoxifen treatment. In a few cases, postmenopausal endometriosis has been described in women who had no history of endometriosis on imaging or surgery prior to menopause (de novo appearance). Pathophysiology of postmenopausal endometriosis is complex. Excess estrogen, in general, represents a risk factor for endometriosis. Peripheral estrogen production from conversion of androgens (especially in the adipose tissue and skin), in situ aromatization in endometriotic implant, external sources (HRT, phytoestrogen, and soy isoflavones), estrogen threshold theory, genetics and epigenetics are all involved in the incidence of endometriosis. The clinical presentation of endometriosis in menopausal patients is unspecific, and pelvic pain, and ovarian cysts can be the symptoms. The ovaries are the most common location of endometriotic lesions in postmenopausal patients (79.2% of cases). The risk of malignant transformation of endometrioma into an ovarian cancer is estimated to be 2% or 3% and may be higher in patients receiving estrogen therapy. Postmenopausal women with symptomatic endometriosis should be managed surgically with removal of all visible endometriotic tissues because of the higher risk of recurrence and the risk of malignancy. Medical therapy can be used in case of pain recurrence after surgery or if surgery is contraindicated. Medical therapy includes the use of aromatase inhibitors, and conjugated estrogen and bazedoxifene. In summary, endometriosis lesions in the postmenopausal period seem to be less common, less extensive, and less active in most cases. Despite its relatively low incidence, physicians should consider endometriosis in cases of obscure pelvic pain in postmenopausal patients, even if the patient has no prior history of endometriosis lesions.

Keywords: Endometrial tissue, Estrogen, Genetics and epigenetics, Postmenopausal patients



A Case Report of Heterotopic Pregnancy

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Abstract

Introduction: Ectopic pregnancy is a pregnancy that occurs outside the uterus and fertilized egg is implanted in the fallopian tube in 98% of cases. Heterotopic pregnancy occurs when there are coexisting intrauterine and ectopic pregnancies. The prevalence of heterotopic pregnancies is increasing due to the use of assisted reproductive technologies (ARTs).

Case presentation: The patient was a 29-year-old woman (G1Ab1) who had experienced primary infertility for 4 years. She had undergone intrauterine insemination (IUI) procedure at this center. In the uterus and appendages ultrasonography, on June 19, 2019, a gestational sac with the fetal heart rate, symptoms of ectopic pregnancy, and fluid in cul-de-sac were reported. Therefore, the patient was a candidate for exploratory laparoscopy. During the procedure, the walled-off gestational sac was seen by the omentum, the intestines, and the right ovary that after the release of the right ovary, the gestational sac was completely evacuated. After surgery, the patient was discharged with appropriate general conditions. Two days after laparoscopy, ultrasonographic evaluation revealed normal ovaries and adnexa with gestational age of 7 weeks. Subsequently, ultrasonography was performed on July 6, 2019 that reported an intrauterine gestational sac with fetal heart rate, and gestational age of approximately 8 weeks and 4 days. There was also a decidual reaction in the left and fundal region of the uterus, which refers to the possibility of another gestational sac with the fetal heart rate in the left adnexa. Pelvic MRI was performed to confirm this diagnosis considering the patient's clinical condition. Imaging report confirmed an ectopic pregnancy, in size of approximately 32×30 mm in the upper posterior part of the left cornua. The patient's vital signs were normal at the time of the second hospitalization. Hemoglobin level was 10.2 g / dl, hematocrit 31%, blood urea nitrogen 14 mg / dl, and creatinine 0.7 mg / dl. The patient underwent laparotomy under general anesthesia due to diagnosis of ectopic pregnancy in uterine cornua at the left side. The cornual and tubal regions were restored locally and externally. Restoration performed after sac evacuation and abdominal washout.

Conclusion: The reason of difference and importance of this case report of heterotopic pregnancy is concurrency of two ectopic pregnancies (abdominal and corneal) with intrauterine pregnancy that makes it unique and novel compared with similar articles.

Keywords: Assisted reproductive technologies, Case report, Ectopic pregnancy, Heterotopic pregnancy



Recurrence Rate of Endometrioma After Laparoscopic Bilateral Cystectomy and Unilateral Cystectomy and Drainage in Opposite Side

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Abstract

Introduction: Laparoscopic cystectomy of ovarian endometriosis (endometrioma) can be associated with reduction in fertility and ovarian reserve. However, unilateral cystectomy with drainage of opposite side could lessen these negative outcomes, but it might be associated with increased recurrence rate. Therefore, this study was performed with the aim to compare disease recurrence rate between these two methods of laparoscopy.

Materials and Methods: This retrospective study was conducted on patients with bilateral cystectomy and unilateral cystectomy with drainage of opposite side in Arash Women's Hospital affiliated to Tehran University of Medical Sciences in 2013-2015. Two groups were compared in recurrence rate following surgery. Relative frequency of recurrence in two groups was compared by Chi-square and multiple logistic regression (to control the effect of confounding factors).

Results: In all analyses, 75 patients were available. Ultrasound revealed the recurrence of the disease after 1 year in 31 (41.4%) cases among whom 17 (34%) were in group A and 14 (56%) in group B. According to the results of Chi-square test, postoperative recurrence of the disease was not significantly different between the two groups ($p=0.58$), although recurrence rate in group B was higher. However, after controlling the confounding effect of age and additional drug therapy, the odds ratio for recurrence in group B compared to group A was 2.82 higher (95% CI:0.99-8.01) that was not statistically significant ($p=0.051$)

Conclusion: Recurrence rate was lower in bilateral cystectomy compared to unilateral cystectomy with drainage of opposite side, although the difference was not significant. Studies with higher sample size are suggested to confirm the findings.

Keywords: Drainage, Endometriosis, Laparoscopy, Ovarian cyst, Recurrence



Endometriosis and Oocyte Quality: A Literature Review

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Abstract

Introduction: Endometriosis affects 10–15% of all women of reproductive age. Approximately, 25–50% of infertile women may be affected by endometriosis and 30–50% patients with endometriosis may suffer from infertility. Several mechanisms have been proposed for the association of endometriosis and infertility, including distorted pelvic anatomy, impaired ovary function, altered microenvironment, affected endometrial receptivity, and reduced oocyte/embryo quality. IVF and ICSI are often used to improve fertility in women with endometriosis; however, the implications of endometriosis on oocyte quality are unresolved. A literature review was conducted to evaluate current clinical studies in which the effect of endometriosis on oocyte quality was assessed.

Materials and Methods: Electronic searches were performed in PubMed/ MEDLINE, SCOPUS and Web of Science up to October 2021. The primary outcome was number of metaphase II (MII) oocytes retrieved, and number and quality of oocytes.

Results: The number of oocytes and the number of MII oocytes retrieved were significantly lower in women with endometriosis versus controls. Lower oocyte yield was found in women with stage III and IV endometriosis compared with both the stage I/II endometriosis and controls. Also, several studies revealed statistically significant increase in the number of immature oocytes of metaphase MI and immature oocytes at the GV germinal vesicle (GV) stage in patients with endometriosis compared with the control group.

Conclusion: Even though women with endometriosis had a reduced number of oocytes and retrieved MII oocytes in comparison to controls, no differences in fertilization rate and other ART outcomes were identified.

Keywords: Endometriosis, IVF/ICSI, Oocyte, Reproductive outcomes



A Review of the Effect of Endometriosis on Pregnancy

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Abstract

Introduction: Endometriosis, which is defined as the presence of endometrial glands and stroma outside the uterine cavity, is one of the most common diseases of reproductive age and can affect fertility in various ways. The aim of this study was to determine the effect of endometriosis on pregnancy and maternal and fetal outcomes.

Materials and Methods: In this review article, Persian and English language studies available in PubMed, SID and Google scholar databases using the keywords endometriosis, endometrioma, fertility, pregnancy and infertility from 2000-2021 were examined. Finally, according to the inclusion and exclusion criteria, 24 articles were selected and reviewed.

Results: The results of a number of studies show that the prevalence of endometriosis in infertile women is between 30-50% and this disease reduces the rate of conception, implantation and fertility among women. In patients with endometriosis, the level of inflammatory interleukins in endometrioma tissue and cervicovaginal fluid increases and the number of antral follicles, antimullerian hormone, and ovarian susceptibility index decrease, which are considered risk factors for infertility. Several studies have shown that patients with endometriosis are more likely to develop complications such as abortion, miscarriage, preterm delivery, gestational hypertension, placental abruption, and cesarean delivery. A number of studies have suggested that infants may be younger than their gestational age, but it does not seem that endometriosis will have effect much effect on fetal and neonatal outcomes.

Conclusion: Endometriosis is one of the important causes of reduced rate fertility and in case of pregnancy, patients with this disease encounter adverse consequences such as abortion, miscarriage, preterm delivery, gestational hypertension, placental abruption, cesarean section and low birth weight at birth and need special midwifery care.

Keywords: Endometriosis, Fertility, Pregnancy, Preterm delivery



4th Congress on Endometriosis and Minimally
Invasive Gynecology (EMIG 2022)



Tehran-Iran, 27-28 January & 3-4 February 2022



**Poster
Presentations**



Preventing Infertility with Endometriosis Education in Women Aged 15-40 Years in Golestan Province During 9 Months of 2021-2022

Zahra Ordoni, Zahra Vafaei, Samrareh Khari, Khadijeh Kurdi

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Abstract

Introduction: Fertility is one of the most important occurrences in marital life for any couple and having a child adds to the strength of the family. Endometriosis is a disease seen in about 10% of women at their reproductive age. Therefore, to promote fertility and prevent acquired infertility due to endometriosis, the study was conducted in the target group of women aged 15-40 in Golestan province.

Materials and Methods: This study is a descriptive-analytical study. The target group of the study was women aged 15-40 years old (single and married). The instruments were the educational instructions of the Ministry of Health and Medical Education. At first, endometriosis, including symptoms, diagnosis, treatment, and preventive measures were taught by the family health group of the provincial headquarters and the provincial health centers to health workers, midwives and health care workers working in comprehensive urban and rural health centers and health houses. During the training, the women in the target group were trained regarding endometriosis in their area. Due to the changing conditions of the COVID-19 disease crisis in the province, the trainings were conducted in person or by phone. Pre-test and post-test were taken from 10% of the trainees and the information was recorded and analyzed in the Nab electronic system of Golestan province.

Results: In this study, 36,588 women in the age group of 15-40 year olds were given endometriosis training. In general, 344047 of the participants were married, 2156 were single (never married) and the others were unmarried due to death, divorce and separation. Next, 28,457 people were trained in person and 8,131 were trained by phone due to the COVID-19 disease crisis in different regions of the province. Due to the active pursuit of colleagues in rural areas, most of the trainees lived in rural areas and 428 people lived in urban areas. Prior to training, individuals were unaware of endometriosis, but the mean score of the subjects after the training was 80.

Conclusion: Women need education and knowledge about endometriosis in order to be able to seek timely medical care and preventive actions in case of infertility.

Keywords: COVID-19, Education, Endometriosis, Infertility



Medical Treatment After Surgery for Endometriosis: Comparison of Dienogest and Continuous Combined Oral Contraceptive Pills

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Abstract

Objective: The purpose of the study was to compare the effects of dienogest and combined oral contraceptive (COC) pills on pain, quality of life (QOL), and recurrence of endometrioma in women with endometriosis after laparoscopic conservative surgery.

Materials and Methods: This prospective randomized clinical trial study was conducted in an academic tertiary referral center. The participants were women with endometriosis confirmed by surgery recruited from April 2016 to June 2018. In general, eighty patients who had undergone operative laparoscopy received dienogest or COC pills daily for six months.

Results: Treatment with dienogest was associated with improved self-reported pelvic pain and QOL after 6 months of treatment ($P < 0.05$). Improvement of these parameters was also observed in COC groups ($P < 0.05$) except for dyspareunia ($p=0.089$). Both pills significantly improved the scores of QOL and sexual function, but no remarkable differences were detected between the two groups in this regard ($P < 0.05$). About recurrence of endometrioma, there were no differences between dienogest and COC users ($p=0.1$).

Conclusion: Postoperative administration of dienogest or COC pills after operative laparoscopy reduced pain and improved QOL in women with endometriosis. Therefore, the choice of regimen can be adjusted according to the patients' symptoms, needs, and preferences.

Keywords: Combined oral contraceptive pills, Dienogest, Endometriosis, Pelvic pain, Quality of life, Surgery



The Effect of Endometriosis on Quality of Life

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Abstract

Introduction: One of the most common diseases in reproductive aged women that is typically associated with chronic pelvic pain is endometriosis. Endometriosis refers to the abnormal growth of endometrial tissue outside the uterine cavity. This disease reduces the patients' quality of life due to its destructive psychological, physical, occupational, social, and economic effects. Therefore, the purpose of this study was to systematically review the articles on the impact of endometriosis on quality of life.

Materials and Methods: The present systematic review was conducted by reviewing the articles available in the reputable scientific databases such as Scopus, PubMed, Science Direct, and web of Science during 2002-2020. The keywords related to endometriosis, quality of life, and psychosocial parameters were used to search in the databases. A total of 32 articles from among the reviewed ones were finally examined.

Results: Evidence from reviewing the studies suggested that the symptoms of endometriosis affected many aspects of the patients' lives. The stress resulting from reduced fertility, the anxiety about responding to treatments, and the recurrence of the disease caused distress, decreased self-confidence, and isolation of the patients. The cyclic or persistent pain caused by endometriosis disrupted the patients' daily activities, and on the other hand, dyspareunia and dysmenorrhea reduced their sexual function and sexual satisfaction. In addition, the patients had an increased risk of depression and poor sleep.

Conclusion: According to the findings of the present study, the women with symptomatic endometriosis had significantly lower quality of life than those with asymptomatic disease. Furthermore, increasing the awareness and knowledge of the women, physicians, and medical staff had a significant impact on improving and enhancing the patients' quality of life.

Keywords: Distress, Endometriosis, Psycho-social parameters, Quality of life



The Relationship Between Endometriosis and Diet

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Abstract

Introduction: One of the self-care intervention for the women who are suffering from endometriosis is organizing a well-designed diet. Furthermore, proper diet has an indubitable effect on the severity of dysmenorrhea.

Materials and Methods: The relevant literature (2013 until 2021) was reviewed to identify the association between nutrients and endometriosis and to find the probable therapeutic effects of the nutrients and foods on endometriosis and dysmenorrhea.

Results: An extensive study (n=70,709) revealed a relatively strong association between endometriosis and trans-fatty acid consumption, and a lower risk of endometriosis with increased consumption of long-chain omega-3 fatty acids. The latter finding was also supported by small scale studies. Despite various findings, several of the prior studies demonstrate an inverse relationship between endometriosis and the consumption of fruits, vegetables, dairy products, and omega-3 fatty acids. No further dietary recommendations for reducing the risk of endometriosis were found, and results for intake of vegetable, fiber, and fruit were equivocal. The relationship between diet and dysmenorrhea was investigated in 11 trials with different designs, including a total of 1433 women. Intake of fish oil seemed to reduce dysmenorrhea. It can be concluded that fish oil capsules in combination with vitamin B 12 have been associated with a positive effect on endometriosis symptoms (particularly, dysmenorrhea). Alcohol and increased consumption of red meat and trans fats are associated with a negative effect on endometriosis symptoms.

Conclusion: Currently, there are no clear correlations between particular food products and the risk of endometriosis. Further research is needed in order to fully understand the influence of consumed food products on the risk of development of this disease.

Keywords: Diet, Endometriosis, Nutrition, Risk factors



Quality of Life in Women with Endometriosis

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Abstract

Background: Endometriosis is an estrogen dependent disorder and one of the chronic gynecological diseases with negative effects on psychological and social health and quality of life among patients. The prevalence of the disorder is 176 million women in the whole population worldwide and its financial burden is 110 billion dollars every year. The purpose of this study was to review and examine the factors involved in quality of life among patients with endometriosis.

Materials and Methods: The data from many relevant articles in the field of endometriosis and quality of life were reviewed in this paper.

Results: Many studies in Canada, USA, Spain, and Iran show that quality of life of women with endometriosis has decreased and their psychological, mental, and social health was severely affected; moreover, the most common complaint among these women was pain and infertility. Based on recent researches, there is a relation between increase in prevalence of endometriosis and environmental pollution and vitamin D deficiency. Consuming antioxidants, selenium, beta carotene, vitamin D and gluten free foods, plant-based diets including grains, fruits and vegetables, omega-3, fatty acids derived from plants and animal sources as well as turmeric because of anti-inflammatory properties is recommended. Conversely, a diet high in trans-fats in fried foods, fast foods, processed red meat, and consumed alcohol and caffeine is not recommended due to high levels of estrogen in the blood that increases severity of the disease.

Conclusion: Various studies have shown that in addition to psychological therapy, the quality of life in women with endometriosis should be improved, especially its psychological dimension. Changing life style and regular physical activity and doing exercises like yoga for controlling the pain, use of healthy and balanced diet, consumption of calcium, zinc, vitamin D, magnesium supplements, foods rich in iron, antioxidants and essential fatty acids are the best actions to improve the quality of life which may culminate in increased chances of pregnancy as well.

Keywords: Antioxidants, Diet, Endometriosis, Quality of life



Quality of Life in Women with Endometriosis: A Cross-Sectional Study

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Abstract

Introduction: Increased prevalence of endometriosis and the need for treatment and frequent visits can affect the quality of life of women. The quality of life of women with endometriosis is a relatively new field of research, in which health researchers have recently paid special attention. The aim of this study was to evaluate the quality of life of women with endometriosis.

Materials and Methods: The present study was a cross-sectional study on 120 women with endometriosis in Sari Infertility Center. Available sampling was performed on women who had the characteristics of the research unit. Quality of Life Questionnaire SF-36 was used to collect data. The information of this section was entered into SPSS software version 22 for analysis and descriptive and analytical statistics were used.

Results: The results showed that the quality of life of women with endometriosis was moderate. The lowest score was related to the role limitation due to emotional reasons and social functioning and the highest score was related to general health and physical function.

Conclusion: Considering the average score of women's quality of life and obtaining the lowest score in the dimensions of emotional and social performance, it seems that these dimensions need serious attention and planning for intervention.

Keywords: Endometriosis, Infertility, Quality of Life Questionnaire SF-36, Social performance



The Effect of Surgery in Treatment of Infertile Women Diagnosed with Endometriosis

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Abstract

Introduction: Endometriosis is a chronic disease in women and is associated with pain, disability, and infertility. It affects fertility by creating a harmful environment for the egg and embryo, and surgical treatment can create a more favorable environment for successful fertilization. The purpose of the present study was to evaluate the effect of surgery and assisted reproductive techniques on improving fertility in women with endometriosis.

Materials and Methods: In this systematic review, the studies in Scopus, PubMed, Science Direct, and web of Science databases during 2000-2020 were examined using the keywords of endometriosis, endometrioma, surgery, assisted reproductive therapy, infertility, and laparoscopy. A total of 38 articles were finally examined from among the reviewed ones.

Results: Evidence from the reviewed studies showed the importance of proper use of laparoscopy. According to the articles, endometriosis could be detected at mild and moderate stages through laparoscopy. In severe cases with deep penetration, surgery could be used to correct the anatomy of the affected organs. The removal of small lesions and adhesions in mild endometriosis would increase spontaneous pregnancy rates. Assisted reproductive techniques should be a priority in women over the age of 35. Although the effectiveness of surgical treatment in severe and moderate endometriosis is still unknown, this method is recommended for the pelvic correction.

Conclusion: The findings of the present study indicated that decisions on surgical treatment for infertile women diagnosed with endometriosis should be made by considering the causes of infertility, associated symptoms, and possible risks of reoperation, and the treatment process should be followed with consent and awareness of the patients. On the other hand, the surgeon's skill in the selected surgical method is of great importance.

Keywords: Assisted reproductive therapy, Endometrioma, Endometriosis, Laparoscopic surgery



Evaluation of Treatments Used in Patients with Endometriosis

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Abstract

Introduction: To treat chronic condition of endometriosis, conventional medical and surgical approaches are dominant; however, there are some non-pharmacological therapies including complementary and alternative medicine. The aim of this study was to determine the treatments used in patients with endometriosis.

Materials and Methods: A cross-sectional study was conducted in Australia using an online web-based survey. All data were entered and analyzed using STATA (version 14/1). A total of 903 responders completed an online survey in Australia.

Results: Total participants comprising 903 cases with self-reported diagnosis of endometriosis and 86.5% of participants whose endometriosis was confirmed by surgery completed the online survey. Treatments in patients with endometriosis included pain killers (96.01%), hormonal medication (e.g. the contraceptive pill or implant)(84.71%), surgical treatments (84.49%), complementary treatments (e.g. naturopathy or acupuncture) (45.62%), hormonal IUD (e.g. the Mirena) (37.54%), use of psychologist (25.47%), nutritionist (21.7%), physiotherapist (16.16%), sexual therapist (2.9%), and others (11.6%).

Conclusion: Based on current online survey in Australia, pain killers, hormonal medication, and surgical treatments were among the most commonly used treatments among women with endometriosis.

Keywords: Endometriosis, Surgical treatments, Treatment, Woman



Cyclic Peritoneal Dialysis and Endometriosis

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Abstract

Introduction: Hemoperitoneum (HP) during peritoneal dialysis is a complication with an incidence ranging between 6.1%-8.4%. It can occur at any time during peritoneal dialysis. The most common cause of hemoperitoneum is exclusively observed in women and is related to gynecological problems, including retrograde menstruation, and ovulation.

Case presentation: A 27-year-old woman with a past medical history of chronic kidney disease as a result of FSGS started peritoneal dialysis. After 3 years, she came back with abdominal pain and bloody peritoneal dialysate lasted for 2 days and with the start of menstruation, all signs ended. The patient stated that her bloody bags appeared 7 days before menstrual periods and disappeared completely on the second day of her menstrual period without the use of any antibiotics. Upon gynecologist consultation and clinical diagnosis of endometriosis, the patient was started endometriosis treatment, and no episode of abdominal pain occurred again.

Conclusion: Studies show that gynecologic problems may result in severe bloody peritoneal dialysate. For instance, retrograde menstruation could be the reason, or similar to our case, endometriosis could be the cause of recurrent bloody peritoneal dialysate.

Keywords: Chronic kidney disease, Endometriosis, Hemoperitoneum, Peritoneal dialysate



Dislocated Intrauterine Devices: Clinical Presentations, Diagnosis, and Management

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Abstract

Objective: Intrauterine devices (IUDs) are globally one of the most popular methods of contraception. Uterine perforation is one of the most significant complications of IUD use and commonly occurs at the time of IUD insertion rather than presenting as delayed migration. In this paper, a series of 13 cases showing displaced IUDs and requiring retrieval by laparoscopy or laparotomy is reported. All the IUDs were copper bearing and most perforations occurred immediately after IUD insertion.

Case presentation: In two patients with sigmoid colon injury and IUD penetration of the appendix, laparoscopic management had failed and laparotomy was necessary owing to severe obliteration of the pelvic cavity. In one patient laparotomy was the preferred surgical approach owing to acute bowel perforation. In the remaining patients, the displaced devices were successfully removed by laparoscopy.

Conclusion: Uterine perforation and IUD migration to the organs in the abdominopelvic cavity are serious complications of IUD insertion and can be successfully managed by laparoscopy, or by laparotomy in the presence of severe pelvic adhesions or unexpected complications.

Keywords: Intrauterine devices, IUDs, Laparoscopy, Uterine perforation



Endometriosis and Oocyte Quality: A Literature Review

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Abstract

Introduction: Endometriosis affects 10–15% of all women of reproductive age. Approximately, 25–50% of infertile women may be affected by endometriosis and 30–50% patients with endometriosis may suffer from infertility. Several mechanisms have been proposed for the association of endometriosis and infertility, including distorted pelvic anatomy, impaired ovary function, altered microenvironment, affected endometrial receptivity, and reduced oocyte/embryo quality. IVF and ICSI are often used to improve fertility in women with endometriosis; however, the implications of endometriosis on oocyte quality are unresolved. A literature review was conducted to evaluate current clinical studies in which the effect of endometriosis on oocyte quality was assessed.

Materials and Methods: Electronic searches were performed in PubMed/ MEDLINE, SCOPUS and Web of Science up to October 2021. The primary outcome was number of metaphase II (MII) oocytes retrieved, and number and quality of oocytes.

Results: The number of oocytes and the number of MII oocytes retrieved were significantly lower in women with endometriosis versus controls. Lower oocyte yield was found in women with stage III and IV endometriosis compared with both the stage I/II endometriosis and controls. Also, several studies revealed statistically significant increase in the number of immature oocytes of metaphase MI and immature oocytes at the GV germinal vesicle (GV) stage in patients with endometriosis compared with the control group.

Conclusion: Even though women with endometriosis had a reduced number of oocytes and retrieved MII oocytes in comparison to controls, no differences in fertilization rate and other ART outcomes were identified.

Keywords: Endometriosis, IVF/ICSI, Oocyte, Reproductive outcomes



The impact of lifestyle changes as front-line cure of endometriosis

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Abstract

Background: Endometriosis is a debilitating estrogen- dependent chronic inflammatory disease that can affect 1 in 10 women of reproductive age. It causes long-term inflammatory-induced symptoms such as dysmenorrhea, dyspareunia, dysuria, dyschezia, lower back or abdominal discomfort, chronic pelvic pain and infertility, severely changes life quality and significantly impact on women's work, confidence, self-esteem and social life. Etiology of this condition is still unclear, but retrograde menstruation, genetic predisposition, lymphatic spread, immune dysfunction, metaplasia, environmental causes and abnormal differentiation of endometriotic tissue associated with increased estrogen and prostaglandin production, along with resistance to progesterone have been proposed as underlying mechanisms of endometriosis. Despite, a variety of medical and surgical therapies commonly used for treatment of endometriosis, but their efficacy is limited due to many side effects. Therefore, exploring supplementary therapy strategies for minimizing these adverse effects, is needed. Therefore, it seems that focusing on lifestyle changes as a non-invasive and front-line cure can improve endometriosis-related symptoms. Indeed, physical activities, Healthy nutrition, spiritual growth, interpersonal relations and sleep and stress management as aspects of lifestyle, can promote the patient's health and well-being and prevent further progression of disorder.

Method: In this article, evidence-based lifestyle strategies have been reviewed to identify their association with endometriosis and their mechanism of action in reducing inflammation that can contribute to the inhibition of the disease.

Conclusion: Application of health promotion strategies like regular exercise, anti-inflammatory diet and sleep and stress management play essential roles in improving and controlling endometriosis by increasing systemic levels of cytokines with anti-inflammatory and antioxidant properties and endorphin and also reducing estrogen and prostaglandin level.



A Systematic Review of Endometriosis and Sexual Satisfaction

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Abstract

Introduction: Endometriosis is a chronic disease of women and an important cause of chronic pelvic pain that affects the physical, mental, social, and sexual health of patients. Dyspareunia causes changes in desire, arousal, orgasm and the frequency of sexual intercourse. The aim of this study was to determine the effect of endometriosis on sexual satisfaction.

Materials and Methods: In this review study, articles published in Persian and English in SID, Google Scholar, PubMed, Science Direct databases with the keywords of endometriosis, sexual satisfaction, sexual health, sexual desire, and sexual arousal were evaluated from 2010-2020 and 20 articles were selected and reviewed according to the inclusion and exclusion criteria.

Results: The results of studies indicate that dyspareunia resulted from endometriosis causes frequent cessation of sexual intercourse, reduced frequency of sexual intercourse and reduced orgasm. Together, these problems lead to a gradual decrease in sexual desire and sexual satisfaction in the affected person and her spouse. The consequences of these sexual dysfunctions are endometriosis dyspareunia, decreased patient self-esteem, gradual cool-off in marital affairs, separation of couples, and mental health disorders.

Conclusion: Sexual health in patients with endometriosis is one of the issues that is less addressed in the treatment process. Attempts to treat couples' sexual problems and counseling and guidance in this regard, improve marital affairs and increase sexual satisfaction; therefore, it is necessary to pay attention to this issue in order to strengthen the foundation of the family and increase the health of the community.

Keywords: Endometriosis, Sexual arousal, Sexual desire, Sexual health



A Systematic Review of the Relationship Between Endometriosis and Breast Cancer

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Abstract

Introduction: Endometriosis is an estrogen-dependent disease that leads to inflammatory and hormonal changes in the body. Numerous studies have addressed the relationship between endometriosis and gynecological cancers, such as endometrial and ovarian cancers, but the results of studies on breast cancer are contradictory. The aim of this study was to determine the relationship between endometriosis and breast cancer risk.

Materials and Methods: In this review article, Persian and English language studies available in SID, PubMed, Springer, Science Direct and Google Scholar databases using the keywords of endometriosis, cancer, breast cancer and breast cancer, from 1997-2021 including 15 articles were selected and reviewed according to the inclusion and exclusion criteria.

Results: The results of various studies indicate that endometriosis increases the average risk of tumors and benign breast diseases, but in general the risk of breast cancer is not increased by that; only in patients over 40 years of age and in pre- and post-menopausal ages, there is a slight increase in breast cancer. Endometriosis is also associated with a variety of breast tumors that are estrogen receptor positive and progesterone negative, and in these cases the risk of breast cancer is doubled. Importantly, having a history of breastfeeding reduces the chances of developing endometriosis as well as breast cancer.

Conclusion: Endometriosis does not generally increase the risk of breast cancer, but in patients who have risk factors for breast cancer, special attention should be paid to the presence of estrogen receptor-positive breast tumors.



Laparoscopic Excision of Deeply Infiltrative Endometriosis: A Prospective Observational Study Assessing Perioperative Complications in 244 Patients

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Abstract

Objective: The purpose of this study was to examine peri-operative complications in patients undergoing laparoscopic excision of deeply infiltrating endometriosis (DIE).

Materials and Methods: This was a prospective study of a case series of women having laparoscopic excision of deeply infiltrating endometriosis from September 2013 through August 2016 in a tertiary referral center for endometriosis and minimally invasive gynecologic surgeries in Iran. Data collected included demographics, baseline characteristics, intraoperative and postoperative data up to 1 month following surgery.

Results: Data from 244 consecutive patients, who underwent radical laparoscopic excision of all visible DIE, were collected. Major postoperative complications occurred in 3 (1.2%) and minor complications in 27 (11.1%) of patients. It was revealed that 80.3% of our patients had stage IV endometriosis. Segmental bowel resection was performed in 34 (13.9%), disc resection in 7 (2.9%), and rectal shave in 53 (21.7%) of cases. Joint operations between a gynecologist and colorectal and/or urological colleague was required in 29.6% of cases. The mean operating time was 223.8 minutes (\pm 80.7 standard deviation, range of 60–440 min) and mean hospital stay was 2.9 days (\pm 1.5 standard deviation, range of 1–11). The conversion to laparotomy rate was 1.6%.

Conclusion: A combination of different laparoscopic surgical techniques is required to completely excise all visible DIE, within the context of a tertiary referral center offering multi-disciplinary approach in order to have safe outcomes with low complication rates.

Keywords: Deep infiltrative endometriosis, Endometriosis, Laparoscopic treatment, Multi-disciplinary team, Recto-vaginal endometriosis, Surgical complications