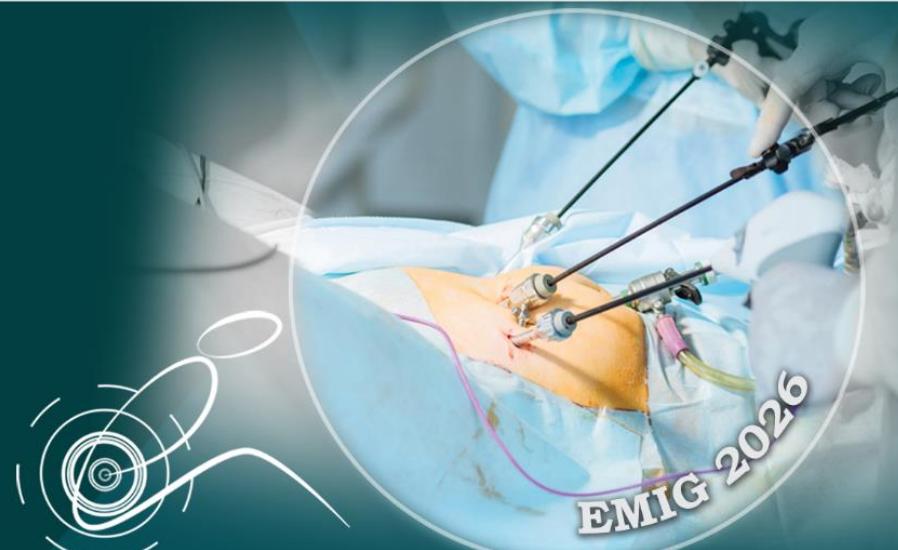




اندومتریوز و جراحی کم تهاجمی زنان

(روش های نوین در درمان بیماری اندومتریوز و بررسی آخرین
تحقیقات در بیماری اندومتریوز و جراحی کم تهاجمی زنان)

Endolnновate: Cutting-Edge Laparoscopy and Research in Endometriosis



عنوان مورد بحث کنگره

زمان برگزاری
۱۷ الی ۱۹ دی ماه ۱۴۰۴



دانشگاه شهید بهشتی
تالار ابوریحان بیرونی



شناخته: ۲۴۰۵۰۱



اسکن کنید

- اندومتریوز: اپیدمیولوژی، ژنتیک و اپی ژنتیک
- اندومتریوز و درمان جراحی
- باروری و حفظ باروری در اندومتریوز
- آناتومی در جراحی لپاراسکوپی
- کیفیت زندگی در بیماران اندومتریوز
- نکات اخلاقی و قانونی در درمان اندومتریوز و اعمال جراحی کم تهاجمی زنان
- ارائه جدیدترین تحقیقات در زمینه درمان اندومتریوز و اعمال جراحی کم تهاجمی زنان
- نقش تصویربرداری در تشخیص اندومتریوز
- اندومتریوز و سرطان
- اندومتریوز و درمان دارویی
- میوم و آندومیوز
- هیستوکوئمی بطريق لپاراسکوپی
- مدیریت عوارض احتمالی جراحی لپاراسکوپی

همکاران:



6

Endolnновate:
Cutting-edge
Laparoscopy and
Research in
Endometriosis



تهران- بزرگراه شهید چمران، اوین، دانشگاه شهید بهشتی، پژوهشگاه فناوری های نوین علوم زیستی جهاد دانشگاهی - این سینا

تلفن: ۰۲۱-۲۲۴۳۲۰۲۰-۰۵۶۴۵۵۰۵۵۰ داخلي ۰۲۱-۲۲۴۳۲۰۲۱ نمبر:

In the Name of God

Endometriosis and Minimally Invasive Gynecology



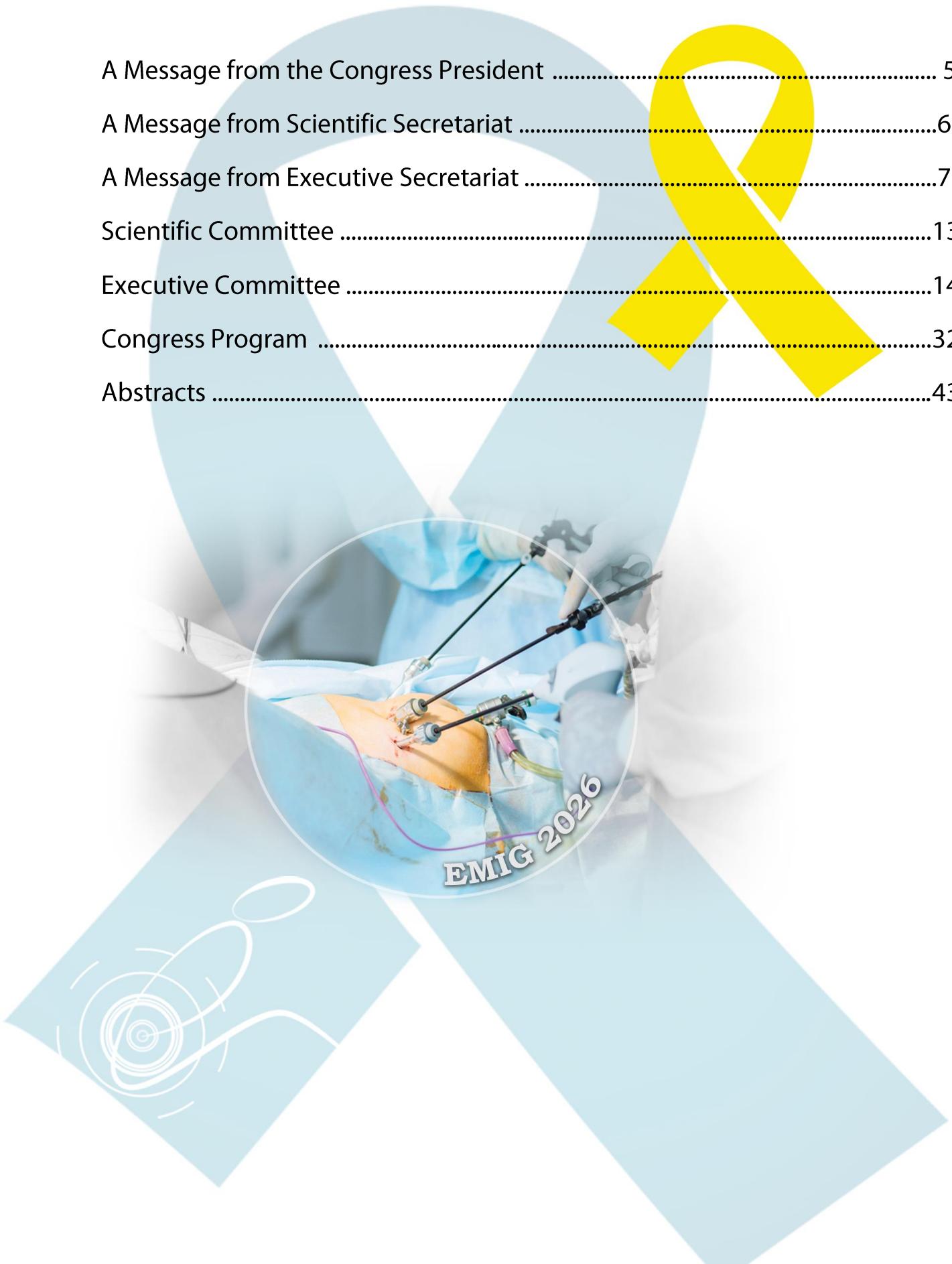
Avicenna Research Institute, ACECR

Tehran-Iran

7-9 January 2026

Contents

A Message from the Congress President	5
A Message from Scientific Secretariat	6
A Message from Executive Secretariat	7
Scientific Committee	13
Executive Committee	14
Congress Program	32
Abstracts	43



The Message from Congress President

It is our honor and privilege, on behalf of Avicenna Research Institute (ARI), to host our esteemed guests at the 3rd International and the 6th National Congress on Endometriosis and Minimally Invasive Gynecology (EMIG 2026), to be held from 7–9 January 2026. This program goes beyond a purely scientific event; rather, it represents a shared commitment to advancing knowledge, treatment, understanding, and public awareness, particularly among women affected by endometriosis, a condition that remains challenging due to its often occult clinical and psychological dimensions.

Since its inception in 1999, consecutive congresses have been organized by ARI to facilitate the exchange of knowledge and experience in the fields of endometriosis and minimally invasive gynecology. In parallel with these efforts, we have witnessed notable advancements in both general and specialized knowledge, strengthened interdisciplinary collaboration, and the achievement of cutting-edge developments in diagnostic and therapeutic approaches. ARI has consistently aimed to integrate scientific excellence with social responsibility and to redefine the boundaries of knowledge through innovative perspectives. We hope that this event will provide a valuable opportunity for dialogue, collaboration, scientific critique, and the construction of a promising future in the field of minimally invasive surgery.

With a firm belief in the vast capacity of collective wisdom and the strength of international scientific exchange, we invite professors, specialists, and students to participate in this congress as a dynamic conduit for extending the frontiers of science, knowledge, and the improvement of women's health care. We aspire that, through this event and its extensive scientific activities, more effective treatments and a better quality of life will be achieved for our patients.

Dr. Mohammad Reza Sadeghi

*Chairman of ARI and
President of EMIG 2026*



EMIG 2026

The Message from Scientific Secretariat

In the universe of knowledge and therapy, every step toward cognition, innovation, and improvement of patients' lives has an esoteric and enduring impact. Avicenna Research Institute (ARI) is honored to host the 3rd International and the 6th National Congress on Endometriosis and Minimally Invasive Gynecology (EMIG 2026), to be held from 7–9 January 2026; an event intended to provide a favorable platform for scientific exchange, sharing of clinical experience, and presentation of recent research achievements.

Endometriosis, as one of the most challenging health concerns among women, requires a multidimensional and up-to-date perspective. This includes all aspects from prevention and timely diagnosis to medical treatments, novel laparoscopic techniques, postoperative care, and the integration of therapeutic approaches. In line with these objectives, topics such as advanced imaging, epidemiology, surgical management across different stages of the disease, the role of genetics and future research in personalized medicine, evaluation of the role of assisted reproductive technologies (ARTs) in treatment, as well as ethical and psychological considerations alongside quality of life in patients with endometriosis, will be discussed and exchanged. In this congress, with the collaboration of prominent professors, specialists, and researchers from within the country and abroad, we will endeavor to attain a comprehensive and applied approach in this field and to provide a foundation for interdisciplinary and innovative research.

I invite all distinguished scholars in the fields of gynecology, surgery, research, and health to contribute to the scientific enrichment of this congress through their informed and motivated participation.

Dr. Roya Padmehr

Scientific Secretariat of EMIG 2026



EMIG 2026

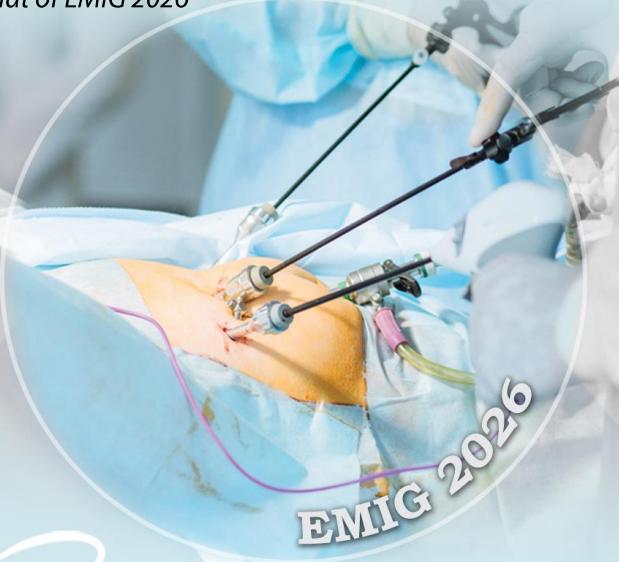
The message from Executive Secretariat

With great pleasure, we hereby inform you that Avicenna Research Institute (ARI) will host the 3rd International and the 6th National Congress on Endometriosis and Minimally Invasive Gynecology (EMIG 2026), from 7-9 January 2026.

This event goes beyond a conventional scientific meeting. It is designed as a strategic initiative to promote the integration of knowledge, encourage meaningful engagement between generations of researchers and clinicians, and enhance interdisciplinary collaboration within the domain of women's health. The Executive Committee is deeply committed to thoughtful organization, honoring the time and academic standing of all participants, and ensuring an environment that is both intellectually stimulating and professionally welcoming, such elements that we consider fundamental to a successful international congress. Our main goal is to provide an inclusive and supportive forum where distinguished experts can share insights, address specialized challenges, and engage in constructive dialogue, ultimately creating a rewarding and memorable experience for all attendees. We sincerely invite your scholarly, intellectual, and organizational participation and trust that, with your valued support, this congress will serve as a significant landmark in the advancement of scientific collaboration at the national and international levels.

Safoura Soleimani Fakhr

*The Education Deputy of ARI and
Executive Secretariat of EMIG 2026*



EMIG 2026



Dr. Mohammad Reza Sadeghi
Congress Chair



Roya Padmehr
Scientific Secretariat

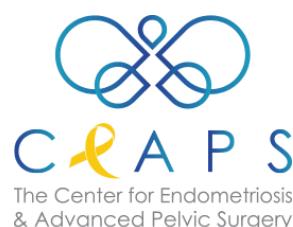


Safoora Soleimani Fakhr
Executive Secretariat



Reyhaneh Karimi
Executive Secretariat Deputy

Intellectual Supports





Sponsors



Perarin Pars Co.
www.perarin.com



Scientific Committee

Ehsan Abbasi
Dr. MalekMansoor Aghsa
Dr. Elham Akbari
Dr. Setareh Akhavan
Dr. Saeed Alborzi
Dr. Ashraf Alyaseen
Dr. Soheila Amini Moghaddam
Dr. Naser Amir Jannati
Dr. Shahrzad Ansari
Dr. Saeed Arasteh
Dr. Soheila Arefi
Dr. Hossein Asefjah
Dr. Zahra Asgari
Dr. Hossein Ashegh
Dr. Elham Askari
Dr. Ayeh Baghizadeh
Fatemeh Bahiraei
Dr. Sara Bahramzadeh
Dr. Zeinab Barzegar
Dr. Aliahmad Bayat
Dr. Mehrdad Bohlooli
Dr. Shahla Chaichian
Dr. Alireza Chamani
Dr. Nasrin Changizi
Dr. Maryam Deldar Pasikhani
Dr. Tahereh Eftekhar
Dr. Aryan Forouhi
Dr. Azadeh Ghahari
Dr. Ramin Ghahremanzadeh
Dr. Zinat Ghanbari
Dr. Parand Gheshlaghi
Dr. Behzad Ghorbani
Dr. Atefeh Gorgin Karaji
Dr. Leili Hafizi
Dr. Ameneh Sadat Haghgoo

Mahnaz Haji Aghaeipoor
Dr. Hamid Hamzehzadeh
Dr. Maryam Hashemi
Dr. Razieh Sadat Hashemi
Dr. Bahareh Hatami
Dr. Reyhaneh Hosseini
Dr. Roghayeh Hosseinian
Dr. Mahdi Jafarnia
Dr. Atiyeh Javaheri
Nasim Kalantari
Dr. Roxana Kargar
Dr. Atoosa Karimi
Dr. Mania Kaveh
Dr. Soudabeh Kazemi
Dr. Mohammad Kazemian
Dr. Mehra Ketabi
Dr. Ghazal Kharraji
Dr. Niknam Lakpoor
Dr. Robab Maghsoudi
Dr. Azamsadat Mahdavi
Dr. Aliakbar Mahdavi
Dr. Mahrooz Malek
Dr. Narjes Marjani
Dr. Abolfazl Mehdizadeh
Dr. Alireza Milanifar
Dr. Alireza Mirbagheri
Dr. Ashraf Moeini
Dr. Fatemeh Mohammad Najjar
Dr. Saman Mohammadipoor
Dr. Afsaneh Mohammadzadeh
Dr. Arash Mohazzab
Dr. Hamzeh Moosavi
Dr. Mohammad Mehdi Naderi
Dr. Nasim Naseri
Mahdi Nezami Foroud
Dr. Behnaz Noori

Dr. Roya Padmehr
Dr. Jalil Pakravesh
Dr. Ebrahim Parsanejad
Dr. Reyhaneh Pirjani
Dr. Tahereh Poordast
Dr. Mahroo Rezaei Nejad
Dr. Samaneh Rokhgireh
Dr. Safoora Rooholamin
Razieh Saber
Dr. Mohammadreza Sadeghi
Dr. Ali Sadeghitabar
Dr. Ali Salimi
Dr. Soheila Sarmadi
Dr. Khadijeh Shadjoo
Faezeh Shafiei Rad
Dr. Naghi Shahabi Majd
Dr. Shadab Shahali
Dr. Afsaneh Shahbakhsh
Dr. Adel Shervin
Dr. Elham Shirali
Safoora Soleimani Fakhr
Dr. Haleh Soltan Gharaee
Dr. Kaveh Soltanzadeh
Dr. Robabeh Taheri Panah
Dr. Banafsheh Tajbakhsh
Dr. Azadeh Tarafdar
Dr. Sharareh Vaezi
Dr. Mina Vardiani
Dr. Farhad Yaghmaee
Dr. Poopak Yahyavi
Dr. Hossein Yousef fam
Dr. Simin Zafardoost
Dr. Ziba Zahiri

Executive Committee

Maryam Aghayari
Sara Ahamadi
Zahra Akbarzade Pasha
Iman Alizadeh
Dr Neda Amin
Shahzadeh Amirkiani
Maryam Armand
Davood Arzehgar
Azar Ashjaee
Azar Ashjaee
Oreinab Azimi
Farnoosh Azizi
Dr. Mohammadmahdi Barfar
Dr Ali Ahmad Bayat
Mehdi Bayat
Behnam Bokaei
Maryam Chegini
Yahya Ebrahimi
Somayeh Ebrahimian
Dr Neda Ebrahimian
Sadaf Eghtedari
Sajedeh Eghtesadi
Davood Ejlali
Dr Javad Emamizadeh
Mohsen Eslamifar
Dr Alireza Farasat
Fatemeh Fazlali Nezhad
Fereshteh Feizabadi
Amir Ghaderi
Haniyeh Ghafoori Daryani
Dr Ramin Ghahramanzadeh
Abbas Gholami
Hoda Ghorban Dolati
Azadeh Hajiparvaneh
Sepideh Hanifehzadeh
Vahid Hasanpoor
Azim Jarahi
Fatemeh Karaminasab
Reyhaneh Karimirozbahani

Leila Katoziyan
Zhila Keshani
Mohammad Khoshghadam
Mehdi Khodaparast
Arnavaz Kia
Hosein Koochakimanesh
Niknam Lakpoor
Dr Niknam Lakpoor
Vahid Lorvand
Nima Madani
Samira Mahfam
Haleh Maleki
Niloofer Maryami
Marjan Mehri
Nazanin Mehdigholi
Mostafa Mohseni
Mahta Montazer
Ali Moradzadeh
Dr Mohammad Mahdi Nadri
Abdolrasoul Negravi
Fatcheh Nejat Sabet
Jalal Oshaghzadeh
Mohammadreza Pazoki
Mohammad Alipoorian
Mostafa Pornorali
Azadeh Rezaee Golshanabadi
Akram Roozbahani
Arefeh Sabzipour
Mahmood Sadeghinik
Ali Salimi
Abolfazl Sameni
Dr Zahra Sehhat
Dr Shahrzad Sepehri
Sharareh Shafiee
Safoora Soleimanifakhr
Mina Valaei
Moosa Yousefpoor
Abolfazl Zare

Scientific Committee



Prof. Farr Nezhat

Clinical professor of obstetrics and gynecology at Weill Cornell Medical College of Cornell University, New York
 Chief of the Division of Minimally Invasive Gynecologic Surgery and director of the Minimally Invasive and Robotic Gynecologic Surgery Fellowship at NYU Grossman Long Island School of Medicine, New York
 Adjunct professor at NYU Grossman Long Island School of Medicine, Mineola, New York
 Medical Director of Nezhat Surgery for Gynecology Oncology



Prof. Aleksander Popov

Head of Gynecology and Robotic Surgery Department in the Moscow Regional Scientific Research Institute of Obstetrics and Gynecology
 Vice president of the Russian Association of Human Reproduction (RAHR)
 Member of Russian Association of Endoscopic Gynecologists (RAEG), Russian Association of endometriosis (RAE), the American Association of Gynecologists laparoscopy (AAGL), 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), the Asian Society of Endometriosis (ACE)



Prof. Nicholas Leyland

Professor and Chair of the Department of Obstetrics and Gynecology at McMaster University, Canada
 Nationally recognized leader in women's health and gynecological surgery



Dr. Khashayar Shakiba

Assistant Professor at Hackensack Meridian School of Medicine at Seton Hall University in the Department of Obstetrics and Gynecology
 2018-Present



Prof. Shaheen Khazali

Consultant gynecologist and endopelvic surgeon at Center for Endometriosis and Minimally Invasive Gynecology (CEMIG)
 Practicing at HCA The Lister Hospital, Chelsea, London
 Affiliated with Royal Holloway, University of London



Prof. Togas Tulandi

Past president of the Council for Gynecologic Endoscopy, the Society of Reproductive Surgeons, the Canadian Fertility and Andrology Society, and the Fellowship Board of the American Association for Gynecologic Laparoscopists
 Professor and Chair of Obstetrics and Gynecology, and Milton Leong
 Chair in Reproductive Medicine at McGill University, Canada
 Editor-in-Chief of Gynecologic Obstetric Investigation



Prof. Yulia Sopova

Gynecologist and sonographer at the Operative Gynecology Department, Moscow Regional Research Institute of Obstetrics and Gynecology
 Specializes in preoperative ultrasound diagnostics of Endometriosis, including deeply infiltrative forms
 Experienced in intraoperative ultrasound evaluation of Gynecological pathologies
 Skilled in performing ultrasound-guided surgical procedures
 Focused on the surgical treatment of various gynecological conditions



Prof. Hélder Ferreira

Coordinator of minimal invasive gynecology surgery unit of the gynecology department of Centro Hospitalar do Porto
 Faculty member at IRCAD Laparoscopic Training Center since 2009
 Coordinator of the gynecology laparoscopic courses at Minho University since 2011
 Chairman of YEP (Young Endoscopy Platform) of ESGE (European Society of Gynecologic Endoscopy)



Prof. Mehrnoosh Aref-Adib

Consultant gynecologist (MBBS, MA, FRCOG) at Whipps Cross University Hospital, London Special interest in laparoscopic and robotic myomectomy
Member of International Relations Committee, BSGE
Member of ESGE-Vision Editorial Team



Prof. Anton Fedorov

Obstetrician and gynecologist at the Moscow Regional Research Institute of Obstetrics and Gynecology Senior surgeon and scientific researcher at Operative Gynecology Department Renowned expert in robotic surgery and uterine reconstruction, including fibroids, adenomyosis, niche repair, and cerclage Interested in laparoscopy, hysteroscopy, robotic-assisted gynecologic surgery, pelvic organ prolapse (POP) surgery, reconstructive uterine surgery, and endometriosis



Prof. Rabbie Kriakoss Hanna

He graduated from Al-Nahrain College of Medicine in 1999 and migrated to USA in 2000.
He completed his residency in Obstetrics and Gynecology from 2004-2008 from Wayne State University in Michigan and earned his American Board certification in this specialty in 2010.
This was followed by an intense fellowship training in Gynecologic Oncology at the University of North Carolina from 2008 to 2011 and earned his American Board certification in Gynecologic Oncology in 2011 making him dual board certified.

He is an expert in laparoscopic and robotic surgery with many awards of teaching surgical skills and has trained many senior staff, residents, and fellows.

He is also a Certified Executive Coach for which he earned his certification in this matter in December 2021. He followed this certification, in addition to that of becoming a Genos Emotional Intelligence Practitioner, because of his passion in improving the lives of medical students, physicians, and surgeons to lead better careers and work life balances.

He served as Chief Medical Officer at Warith International Cancer Institute (WICI) in Karbala Iraq for the entire years of 2023-2024 and currently he is the CEO of Warith Robotic Center of Excellence and the Surgical Oncology Division Head at Warith International Cancer Institute and a member of the Administrative Board of Warith International Cancer Institute in addition to his full-time job as a Gynecologic Oncologist



Prof. 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 John 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



Prof. Gaby Moawad

MD, FACOG, clinical associate professor of Obstetrics and Gynecology at School of Medicine and Health Sciences, George Washington University
Founder and CEO of the Center for Endometriosis and Advanced Pelvic Surgery (CEAPS)



Prof. Angela Aguilar

Obstetrician and gynecologist at Cardinal Santos Medical Center, Philippines University scientist and professor at Department of Obstetrics and Gynecology, University of the Philippines
The president of the Philippine Society for Gynecologic Endoscopy Subspecialty in Reproductive Endocrinology and Infertility, Laparoscopy, Hysteroscopy, Pediatric and Adolescent Gynecology



Prof. Hooman Soleymani Majd

Honorary senior clinical lecturer in Gynaecological Oncology Surgery at Oxford University Skilled consultant in gynecological oncology at the Churchill cancer center in Oxford A BSCCP-accredited colposcopist and trainer Member of the British Gynecological Cancer Society (BGCS), International Society for Placenta Accreta Spectrum (IS-PAS), and the European Society of Gynecological Oncology (ESGO)



Prof. Taner Usta

M.D., professor of Obstetrics and Gynecology at Acıbadem Mehmet Ali Aydınlar University, Istanbul Executive board member of European Endometriosis League (EEL) Advisory board member of European Society for Gynaecologic Endoscopy (ESGE) Board member of Turkish Endometriosis & Adenomyosis Society Board member of International Society for Education and Research on Women's Health



Dr. Brad Sullivan

Minimally invasive gynecologic surgeon
Specialized in endometriosis, chronic pelvic pain, and surgical infertility
Fellowship in minimally invasive gynecology, McMaster University, Canada
Fellow of Dr. Mathew Leonardi, McMaster University
Training under a world leader in endometriosis ultrasound and diagnosis of superficial endometriosis

Scientific Committee Biography



Dr. Mohammad Reza Sadeghi

Embryologist
Chairman of Avicenna Research Institute



Dr. Atousa Karimi

Obstetrician and Gynecologist
Fellowship in Infertility
Faculty Member of Avicenna Research Institute



Dr. Tahereh Pourdast

Obstetrician and Gynecologist
Fellowship in Laparoscopy
Associate Professor of Shiraz University of Medical Sciences



Dr. Behzad Ghorbani

Psychiatrist, Research Assistant, and Professor at Avicenna Research Institute
Manager of Reproduction Health Research Group



Dr. 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
Member of Society of Endometriosis and Uterine Disorders (SEUD)



Dr. Saeed Alborzi

Full professor of Obstetrics and Gynecology at Shiraz University of Medical Sciences (SUMS)
Fellowship in Infertility and Gynaecological Endoscopy from Imperial College of London, UK
Head of the Gynecology Endoscopy Division at SUMS
Board Member of Asian Society of Endometriosis and Adenomyosis
Member of Society of Endometriosis and Uterine Disorders (SEUD)



Dr. Abolfazl Mehdizadehkashi

President of the Iranian Society of Minimally Invasive Gynecology
Director of Minimally Invasive Surgery in Gynecology Fellowship Program
Head of Obstetrics and Gynecology Ward of Rasool-Akram Hospital
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



Dr. Shahla Chaichian

Professor of Obstetrics and Gynecology at Islamic Azad University of Medical Sciences
Fellowship in Minimally Invasive Surgeries
Secretary of Iranian Society of Minimally Invasive Gynecology (ISMIG)
Member of Iranian Academy of Medical Sciences
Deputy for Science at Endometriosis Research Center of Iran University of Medical Sciences
Deputy for Science at Pars Advanced and Minimally Invasive Medical Manners Research Center (PAMIN)



Dr. Robabeh Tahiripanah

Obstetrician and Gynecologist
Fellowship in Infertility
Faculty Member of Shahid Beheshti University of Medical Sciences (SBUMS)
Research Deputy of Infertility and Reproductive Health Research Center at SBUMS



Dr. 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



Dr. Mohammad Ebrahim Parsanezhad

MD, Obstetrician and Gynecologist
Fellowship in Infertility
Professor of Shiraz University of Medical Sciences



Dr. Ashraf Alyasin

Obstetrician and Gynecologist
Professor of Obstetrics and Gynecology at Tehran University of Medical Sciences



Dr. Mahroo Rezaeinejad

Obstetrician and Gynecologist
Completed a fellowship in Minimally Invasive Gynecologic Surgery at Tehran University of Medical Sciences
Faculty Member of Tehran University of Medical Sciences



Dr. Soudabeh Kazemi

Obstetrician and Gynecologist
Fellowship in Perinatology
Associate Professor of Gilan University of Medical Sciences



Dr. Soheila Arefi

Scientific Secretariat of the Congress
Obstetrician and Gynecologist
Fellowship in Infertility
Associate Professor of Avicenna Research Institute



Dr. Ashraf Moeini

Faculty Member at Tehran University of Medical Sciences
Fellowship in Infertility
Member of Specialized Team at Royan Institute



Dr. Elham Askari

Obstetrician and Gynecologist
Assistant Professor of Obstetrics and Gynecology at Shiraz University of Medical Sciences
Fellowship in Laparoscopic Surgery and Endometriosis from Shiraz University of Medical Sciences
Member of Iranian Association of Endoscopic Surgeons



Dr. 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



Dr. 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



Dr. Alireza Mirbagheri

PhD in mechanical engineering from Sharif University of Technology
Associate Professor at the School of Medicine, Tehran University of Medical Sciences (TUMS)
Deputy of Research Affairs and Director of the Robotic Surgery Lab (RSL) at TUMS
Founder and Director of the Iran Advanced Clinical Training Centers (IACT)
Founder and CEO of Sina Robotics and Medical Innovators, Iran



Dr. Arash Mohazzab

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



Dr. Zeynab Barzegar

PhD in Computer Engineering (AI) from Sharif University of Technology
Assistant professor and head of AI Group at Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences



Dr. 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



Dr. Mina Vardiani

PhD in Reproductive Biology
Clinical embryologist at Avicenna Fertility Center
Lab Director at IVF Center of Parsa Hospital, Tehran
Director of Imam Zain El Abidine Hospital Infertility Treatment Center, Karbala, Iraq



Dr. Ali Sadeghitabar

PhD MLD,
Manager of Avicenna Fertility Center
faculty Member of Immunochemistry Research Group at Avicenna Research Institute (ARI), Tehran, Iran
Technical director of medical diagnostic laboratory of Avicenna Fertility Center



Dr. Simin Zafardoust

Gynecologist
Fellowship in Infertility
Assistant Professor and Faculty Member at Avicenna Fertility Center, Tehran, Iran
Founder of Cell Therapy Clinic for Treatment of Patients with Poor Ovarian Reserve



Dr. Naser Amirjannati

Urologist
Faculty Member of Avicenna Research Institute, ACECR, Tehran, Iran



Dr. Alireza Milanifar

MD, LLB, MPH
PhD in Medical Ethics and Law
Faculty Member of Biolaw and Ethics Research Group at Avicenna Research Institute (ARI)



Dr. Atefeh Gorgin

Obstetrician and Gynecologist
Fellowship in Advanced Laparoscopic Surgery and Endometriosis
Member of the Specialized team at Avicenna Fertility Center, Tehran, Iran



Dr. Mohammad Kazemian

Forensic Medicine Specialist
Chairman of Association of Forensic Physicians of Iran
Treatment Deputy of Ebnesina Hospital, Tehran, Iran



Dr. Bahareh Hatami

Radiology Resident at Tehran University of Medical Sciences, Tehran, Iran
Earned the Doctor of Medicine (M.D.) Degree from Islamic Azad University of Medical Sciences, Tehran, Iran
Graduated with a GPA of 3.5 out of 4 and ranked second among 92 students in her class



Dr. Roxana Kargar

Obstetrics and Gynecology Specialty Board from Shahid Beheshti University of Medical Sciences in 2012
Fellowship in Advanced Laparoscopic Surgery and Endometriosis from Avicenna Research Institute in 2016
Member of Specialized team of Avicenna Fertility Center since 2017



Dr. Fatemeh Mohammad Najjar

Obstetrician and Gynecologist
Vice President of National Association of Iranian Gynecologists and Obstetricians



Dr. Elham Shirali

Associate Professor at Department of Gynecology Oncology, Yas Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran
Fellowship in Gynecology Oncology



Dr. Narjes Marjani

Fellowship in Laparoscopy and Hysteroscopy at Tehran University of Medical Sciences, Tehran, Iran
Member of National Association of Iranian Obstetricians and Gynecologists (NAIGO)



Dr. Kaveh Soltanzadeh

Urologist
Male Infertility Specialist
Member of Iranian Urological Association (IUA)
Member of Avicenna Fertility Center, ACECR, Tehran, Iran



Dr. Mehra Ketabi

Obstetrician and Gynecologist at Day Hospital, Tehran, Iran
The IVF Section Supervisor of Mehr Hospital, Tehran, Iran



Dr. Soheila Aminimoghaddam

Gynecologist Oncologist
Professor of Iran University of Medical Sciences, Tehran, Iran



Dr. Aryan Forouhi

Obtained MD degree from Azad University of Medical Sciences, Tehran, Iran
Completed his residency in Anesthesiology at Shahid Beheshti University of Medical Sciences
Iranian Board Certified in Anesthesiology
Completed a training course in regional anesthesia at University of Toulouse, Purpan Hospital, France
Participated in a training course in hyperbaric and underwater medicine at Medical Faculty of HHU, Düsseldorf
Completed a training course in Total Intravenous Anesthesia (TIVA) in Istanbul
Attended an academic course on hybrid coagulation as part of the Empowerment Network in Istanbul



Dr. 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)



Dr. Reihaneh Pirjani

Obstetrician and Gynecologist
Subspecialist in Perinatology
Full Professor of Obstetrics and Gynecology
Department, Tehran University of Medical Sciences

Board member of Iranian Society of Perinatology



Dr. Jalil Pakravesh

Obstetrician and Gynecologist



مرکز همایش های مهنداد

برگزار کننده تخصصی
رویدادهای علمی و کنفرانس های
داخلی و بین المللی

www.mahnadco.ir

۰۲۱-۸۸۲۴۹۷۷۵

۰۹۱۲۷۱۴۹۳۵۶

دبيرخانه اجرایی و هماهنگی نمایشگاه : مرکز همایش های مهنداد
تهران، شهرک قدس، بلوار پاکنژاد، نبش ورودی یادگار شمال، ساختمان زند، واحد ۲۰۳
تهران، بزرگراه جلال آل احمد، رو بروی شهر آرا، خیابان چهارم، شماره ۹، واحد ۶

PRESS PAUSE ON THE DISCOMFORT OF MENOPAUSE

Gynati®
Estradiol hemihydrate
Vaginal tablet 10 mcg

- » *Indicated for treatment of GSM
(Vulvar and vaginal atrophy)
due to menopause*
- » *The First Estradiol Hemyhydrate 10 mcg
produced in Atipharmed Company*
- » *Produced by Atipharmed Company,
The First Iranian GMP Certified Company
Focused on Sex Hormones*



No. 58, 8th St., Kooye Nasr (Gisha St.), Tehran, IR Iran,
Postal Code: 1446863914, Telefax: +98 (21) 41637000
ATI.MKT.GYN.09.1404.3802
www.atipharmed.com



ACTOVIT[®] FERRIC MALTOL

- The first and only FDA approved oral iron to treat IDA
- Highly absorbable, effective resulting in excellent patient adherence
- The best GI tolerability due to Unique Maltol Shield

Dosing:

Twice Daily, 1 capsule, empty stomach, for at least 12 weeks



Actofol[®]

- Optimum 40 : 1 ratio of MI/DCI replicates physiological ovarian environment
- Formulated based on the latest International PCOS Guidelines
- Promoting fertility & metabolic health in both genders

Dosing:

Twice Daily, 1 sachet, dissolvable in any simple liquids



femstyle[®] Healthy Pregnancy 1

- Early pregnancy, for pregnant women 1-12 weeks of pregnancy

Dosing:

1 tablet daily with a meal



femstyle[®] Pregnancy + Lactation 2

- Pregnancy and lactation, from the 13th week of pregnancy

Dosing:

1 tablet & 1 capsule (DHA) daily with a meal

Supplement facts

Serving size: 1 tablet
Serving per container: 30 tablets

Amount per 1 tablet	Daily value %
Vitamin E (as dl-Alpha Tocopherol)	13 IU 39 %
Vitamin B1 (as Thiamine Mononitrate)	1.20 mg 86 %
Riboflavin	1.60 mg 114 %
Niacinamide	15 mg 82 %
Pantothenic Acid	6 mg 100 %
Vitamin B6 (as Pyridoxine HCl)	1.90 mg 100 %
Biotin	60 mcg 200 %
Vitamin B12 (Cyanocobalamin)	3.50 mcg 135 %
Vitamin C (as Ascorbic Acid)	110 mg 138 %
Folate	800 mcg 133 %
*Folic Acid	400 mcg
**L-Methylfolate (equivalent to 400 mcg folic acid)	416 mcg
Iodine	150 mcg 68 %

Supplement facts

Serving size: 1 tablet + 1 capsule
Serving per container: 30 tablets + 30 capsules

Amount per 1 tablet	Daily value %
Vitamin E (as dl-Alpha Tocopherol)	13 IU 39 %
Vitamin B1 (as Thiamine Mononitrate)	1.20 mg 86 %
Vitamin B2 (Riboflavin)	1.60 mg 114 %
Vitamin B3 (Niacinamide)	15 mg 83 %
Vitamin B5 (Pantothenic Acid)	6 mg 100 %
Vitamin B6 (as Pyridoxine HCl)	1.90 mg 100 %
Vitamin B7 (Biotin)	0.06 mg 200 %
Vitamin B12 (Cyanocobalamin)	3.50 mcg 135 %
Vitamin C (as Ascorbic Acid)	110 mg 138 %
Folate	400 mcg
*Folic Acid	200 mcg 34 %
**L-Methylfolate (equivalent to 200 mcg folic acid)	208 mcg 34 %
Iodine	150 mcg 68 %

Amount per 1 capsule	Daily value %
Docosahexaenoic Acid (DHA)	200 mg ↑
Vitamin E (as dl-Alpha Tocopherol)	12 IU 36 %

↑ Daily value not established



No. 58, 8th St, Kooye Nasr (Gisha St.), Tehran, IR Iran,
Postal Code: 144683914, Tel: +98 (21) 41637000
ACT.MKT.GYN.09.1404.3803
www.actovergroup.com



کمپانی Richard Wolf آلمان با بیش از ۱۲۰ سال سابقه در نوآوری و توسعه تجهیزات پزشکی، یکی از پیشگامان جهانی در حوزه اندوویژن جراحی‌های کم تهاجمی محسوب می‌شود.

شرکت آریان تندروست طب تنها نماینده انصاری کمپانی ولف آلمان در ایران با پشتوانه کاری بیش از ۳۰ سال همکاری مستقیم و مداوم با این کمپانی معتبر، مفتخر است جدیدترین محصولات Richard Wolf آلمان را به جامعه پزشکی کشور ارائه دهد.

این شرکت با ارائه راهکارهای پیشرفته در هیستروسکوپی، جراحی‌های زنان، لایپروسکوپی، آرتروسکوپی، ENT، فول اندوسکوپی دیسک و سایر سیستم‌های جراحی کم تهاجمی، استانداردهای نوینی در درمان ایجاد کرده است.

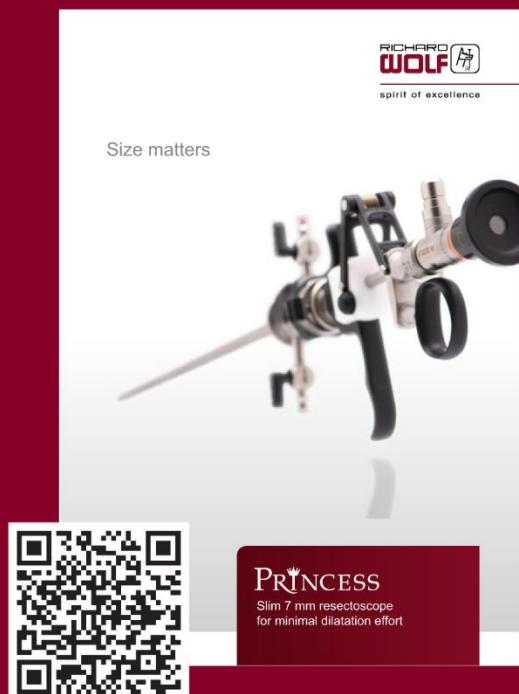
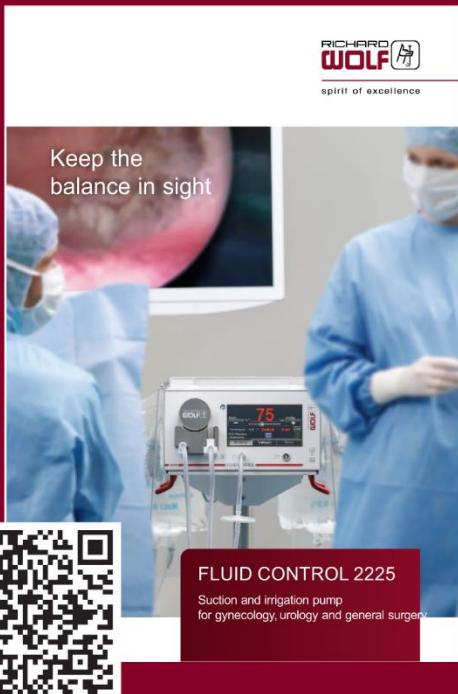
تمرکز بر کیفیت ساخت، دقت تصویر و توجه خاص به ایمنی بیمار، محصولات Richard wolf را به انتخابی قابل اعتماد برای پزشکان و مراکز درمانی در سراسر جهان تبدیل کرده است.



Gynecology solutions:

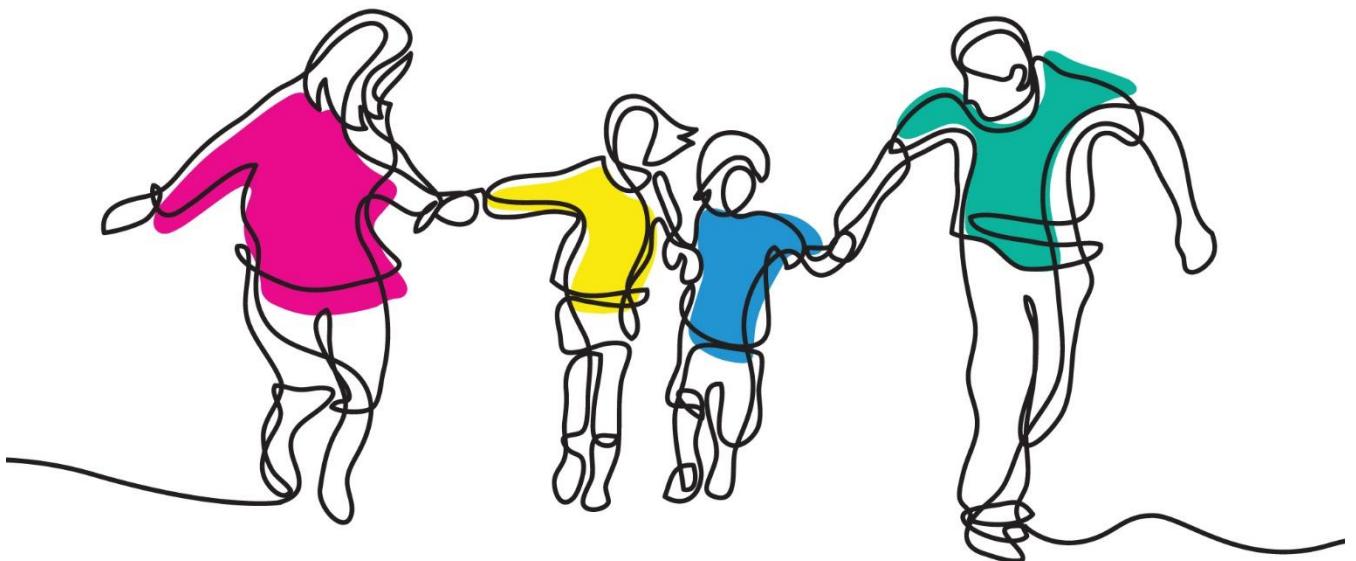
شرکت طب
آریان تندروست
مسنیت مددود

Aryan Tandorost Tech co.





**LIFE IS A FANTASTIC
MIRACLE**





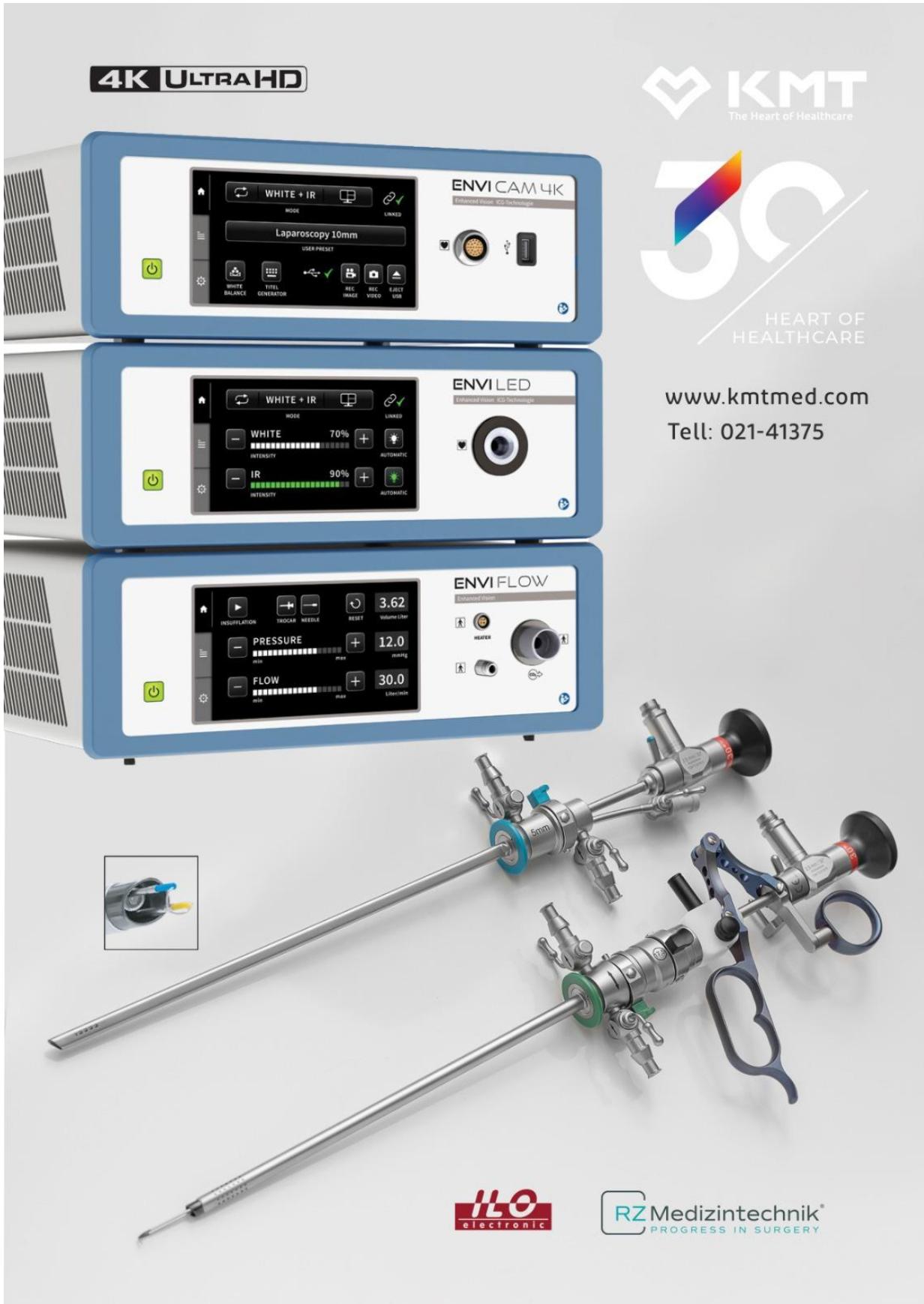
ایجاد شرایط بهینه جهت باروری بانوان

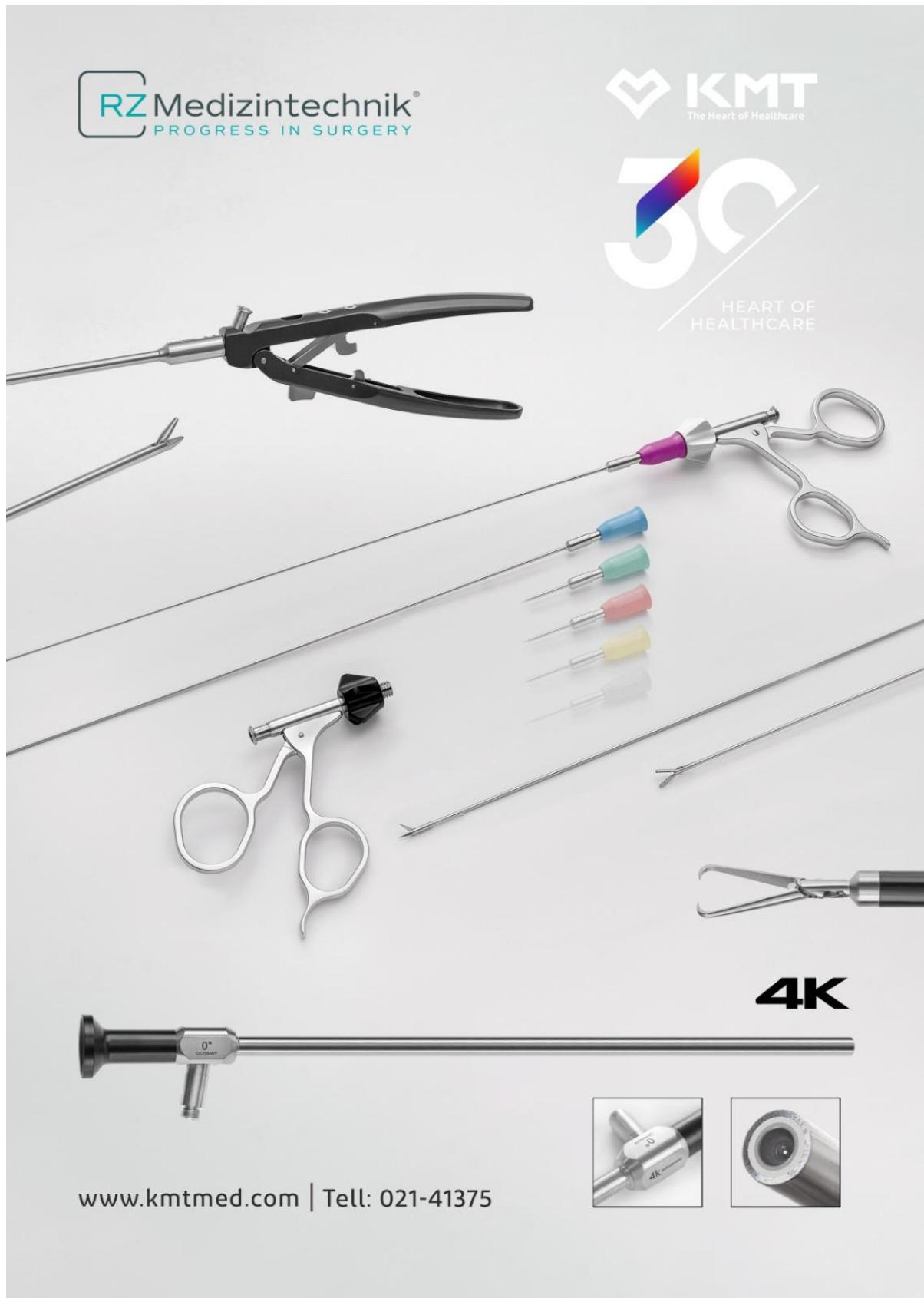
- کمک به تنظیم فعالیت هورمونی
- کمک به تقویت کیفیت تخمک
- کاهش خطر بروز نقص در تشکیل

کاتال عصبی جنین

- حفاظت از سلول‌ها در برابر استرس اکسیداتیو







RZ Medizintechnik
PROGRESS IN SURGERY

KMT
The Heart of Healthcare

50
HEART OF
HEALTHCARE

4K

www.kmtmed.com | Tell: 021-41375



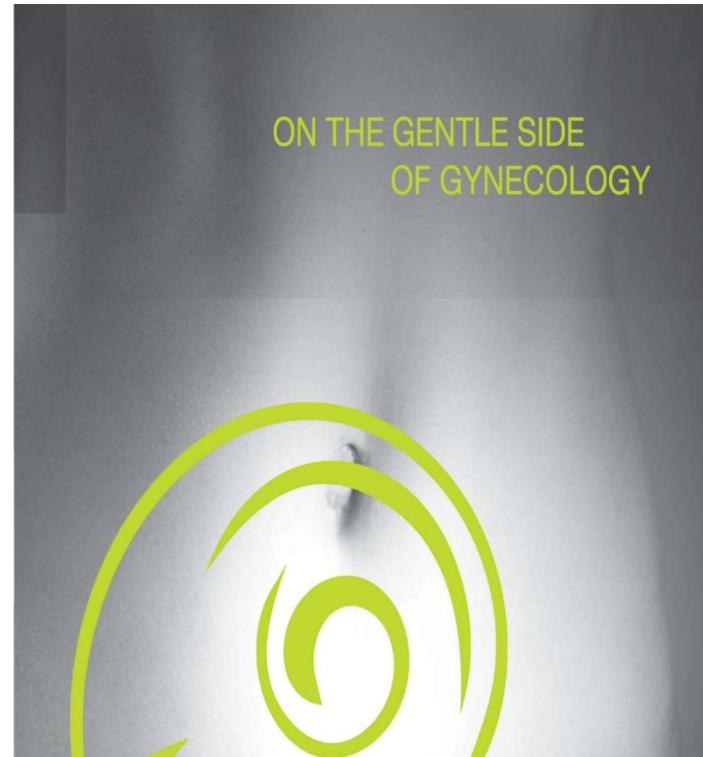
تهران جراح نوین

TRUSTED PRECISION
A HISTORY OF INNOVATION



The Valleylab™ energy portfolio offers the most comprehensive suite of energy-based devices in the industry¹—ranging from a series of trusted electrosurgical tools to advanced vessel-sealing instruments and an energy platform that powers it all.

Medtronic



TONTARRA



Applied
Medical



شرکت بهبود صنعت درمان واردکننده انحصاری
محصولات لپاروسکوپی کمپانی Applied آمریکا



بهبود صنعت درمان

۰۲۱-۸۸۲۰۲۳۳۰

Congress Program
January 7-9, 2026



EMIG 2026

Main Hall

Day 1- January 7, 2026

Panel chair	Panel name	Speakers	Lectures	Time of lectures
Keynote lecture	Dr. Adel Shervin (US)		Laparoscopic Management of Endometrioma	8:00-8:30 (UTC: 04:30-05:00 AM)
Dr. Roya Padmehr	Inside the Scope: Practical Skills for Laparoscopic Surgery	Dr. Adel Shervin (US) Dr. Khadijeh Shadjo Dr. Hossein Ashegh Dr. Jalil Pakravesh Dr. Soudabeh Kazemi Dr. Sharareh Vaezi	Panel Discussion	8:30- 9:30
Keynote lecture	Dr. Taner Usta (Turkey)		Cul-de-Sac Obliteration: A Key Challenge in Endometriosis Surgery	9:30-9:45 (UTC: 06:00-06:15 AM)
Keynote lecture	Dr. Roya Padmehr		SMART-LAP	9:45-10:00
		Opening ceremony		10:00-11:00
		Break		11:00-11:15
Keynote lecture	Dr. Shaheen Khazali (UK)		Does The Robot Really Add Value to Endometriosis Surgery? The Experience of a Skeptic	11:15-11:35 (UTC: 07:45-08:05 AM)
Dr. Nasim Naseri	Diagnostic Advances in Endometriosis	Dr. Ali Sadeghitabar Dr. Haleh Soltan Ghorae Dr. Ayeh Baghizadeh Dr. Nasim Naseri Dr. Bahareh Hatami Dr. Yulia Sopova (Russia)	Laboratory Methods and Tumor Markers in the Diagnosis of Endometriosis Pathogenesis of Endometriosis: Current Concepts and Emerging Insights Differential Diagnosis of Endometrioma Advances in Ultrasound Imaging for DIE with Parametrial Involvement Ultrasound of Bowel DIE Ultrasound Differential Diagnosis in Endometriosis	11:50-13:00
		Lunch break		13:00-13:20
Keynote lecture	Dr. Alexander Popov (Russia)		Surgical Treatment in Colorectal Endometriosis: Experience of Our Center	13:40-14:00 (UTC: 10:10-10:30 AM)
Dr. Roya Padmehr	The Role of AI in Personalized Management of Endometriosis Patients	Dr. Adel Shervin (US) Dr. Zeinab Barzegar Dr. Atoosa Karimi Dr. Rabbie Hanna (Iraq)	Panel Discussion	14:00-15:00
Keynote lecture	Dr. Nicholas Leyland (Canada)		GnRH Antagonists for Endometriosis and Fibroids	15:20-15:40 (UTC: 11:50-12:10 PM)
		Break		15:40-15:50
Keynote Lecture	Dr. Khashayar Shakiba (US)		Hip and Lower Extremity Pain in Patients with Endometriosis. What Is the Cause?	15:50-16:10 (UTC: 12:20-12:40 PM)
Dr. Roxana Kargar	Medical Management: Current Evidence and Future Direction	Dr. Safoora Rouholamin Dr. Maryam Hashemi Dr. Narjes Marjani Dr. Roxana Kargar	The Use of OCPs and Letrozole in the Treatment of Endometriosis Medical Management in Adolescence Progestins GnRH Analogs	16:10-17: 10
Keynote lecture	Dr. Anton Fedorov (Russia)		Sclerotherapy of Endometrioma: When and Whom?	17:10-17:20 (UTC: 13:40-13:50 PM)
Dr. Atefeh Gorgin	Talk Show	Dr. Adel Shervin (US) Dr. Roxana Kargar Dr. Roya Padmehr Dr. Leili Hafizi Dr. Khadijeh Shadjo	Talk Show	17:20-18:30

Main Hall

Day 2- January 8, 2026

Panel chair	Panel name	Speakers	Lectures	Time of lectures
Keynote lecture	Dr. Saeed Alborzi		Parametrial Endometriosis	8:00-8:30
Dr. Saeed Alborzi	Personalized Surgical Treatment: Tailoring Techniques to Patient Needs	Dr. Tahereh Poordast Dr. Ashraf Moeini Dr. Elham Askari Dr. Azam Sadat Mahdavi Dr. Elham Akbari Dr. Ziba Zahiri Dr. Roya Padmehr Dr. Khadijeh Shadjoo	Panel Discussion	8:30-10:15
		Break		10:35-10:45
Dr. Malek Mansour Aghssa	Tissue Removal System	Dr. Shahrzad Ansari Dr. Mehra Ketabi Dr. Azadeh Tarafdar	Panel Discussion	10:45-12:15
Keynote lecture	Dr. Helder Ferreira (Portugal)		Bowel Endometriosis and ICG Applications in Gynecology	12:35-12:50 (UTC: 09:05-09:20 AM)
		Lunch Break		12:50-13:20
Keynote lecture	Dr. Togas Tulandi (Canada)		Thoracic Endometriosis Syndrome- Reproductive Surgery Is Distinct Form Gynecologic Surgery	13:20-13:40 (UTC: 09:50-10:10 AM)
Dr. Afsaneh Mohammadzadeh	Surgical and Medical Treatment of Adenomyosis	Dr. Saeed Alborzi Dr. Parand Gheshlaghi Dr. Ali Akbar Mahdavi Dr. Simin Zafardoust	Panel Discussion	13:40-14:40
Keynote lecture	Dr. Angela Aguilar (Philippines)		Fertility Sparing Management of HMB in Adenomyosis	14:40-15:00 (UTC: 11:10-11:30 AM)
		Break		15:00-15:15
Keynote lecture	Dr. Gaby Moawad (US)		Nerve Sparing Surgery for Endometriosis	15:15-15:30 (UTC: 11:45-12:00 PM)
Dr. Khadijeh Shadjoo	Complications, Prevention, and Management in Laparoscopic Surgery for Endometriosis	Dr. Saman Mohammadipour Dr. Roya Padmehr Dr. Hossein Yousef Fam Dr. Saeed Arasteh Dr. Farhad Yaghmaei Dr. Alireza Milanifar Dr. Adel Shervin (US) Dr. Alireza Chamani	Panel Discussion	15:30-17:00
Keynote lecture	Dr. Brad Sullivan (Canada)		Advanced Imaging Techniques for Detecting Superficial Endometriosis	17:00-17:15 (UTC: 13:30-13:45 PM)
Keynote lecture	Dr. Mehrnoosh Aref Adib (UK)		Laparoscopic and Robotic Myomectomy	17:15-17:30 (UTC: 13:45-14:00 PM)
Dr. Setareh Akhavan	Endometrioma and Ovarian Cancer Connection: From Pathogenesis to Patient Care	Dr. Soheila Amini Moghaddam Dr. Elham Shirali Dr. Razieh Sadat Hashemi Dr. Soheila Sarmadi Dr. Mahrooz Malek	Panel Discussion	17:30-18:30

Main Hall

Day 3- January 9, 2026

Panel chair	Panel name	Speakers	Lectures	Time of lectures
Keynote lecture	Dr. Farr Nezhat (US)		Malignant Transformation of Endometriosis and Its Clinical Implications	8:00-8:30 (UTC: 04:30-05:00 AM)
Dr. Soheila Arefi	Endometriosis and Infertility: Current Challenges and Management Strategies	Dr. Mohammad Reza Sadeghi Dr. Ashraf Alyasin Dr. Ebrahim Parsanejad Dr. Robabeh Taheripanah	Panel Discussion	8:30-9:40
Break				10:00-10:15
Dr. Abolfazl Mehdizadeh	Complicated Hysterectomy in Frozen Pelvis	Dr. Shahla Chaichian Dr. Ameneh Sadat Haghgoo Dr. Mania Kaveh Dr. Samaneh Rokhgireh	Panel Discussion	10:15-11:15
Keynote lecture	Dr. Hooman Soleymani Majd (UK)		The Evolving Role of Gynecological Oncological Surgeons Beyond Gynecological Cancers in Modern Era	11:15-11:45 (UTC: 07:45-08:15 AM)
Dr. Zahra Asgari	Cesarean Scar (Niche) and Pregnancy in Isthmocele	Dr. Afsaneh Shahbakhsh Dr. Reyhaneh Hosseini Dr. Reihaneh Pirjani Dr. Atiyeh Javaheri	Panel Discussion	12:00-13:00
Closing Ceremony				13:00-13:45

Second Hall
Day 1- January 7, 2026

Panel chair	Panel name	Speakers	Time
Dr. Behzad Ghorbani	Multidimensional Management of Endometriosis: From Lifestyle to Ethical and Legal Considerations	Dr. Ladan Giahi Dr. Shadab Shahali Dr. Alireza Milanifar Dr. Mohammad Kazemian	9:00-10:00
Opening Ceremony			10:00-11:00
Dr. Mehrdad Bohlooli	CRS and HIPEC in Endometriosis Associated Ovarian Cancer		11:00-11:15
Dr. Ghazaleh Parnian (Canada)	MIS Educational Material For Residents		11:15-11:30 (UTC: 07:45-08:00 AM)
Dr. Hossein Asefjah Dr. Khadijeh Shadjoo (Master Class)	Advanced Suturing Skills in Minimally Invasive Gynecologic Surgery	Dr. Roya Padmehr Dr. Roxana Kargar Dr. Atefeh Gorgin Dr. Sara Bahramzadeh	11:30- 13:30
Dr. Rabbie Hanna (Iraq)	Neuroplasticity in Teaching Laparoscopic Surgery		13:30-14:00 (UTC: 10:00-10:30 AM)
Dr. Zinat Ghanbari	Endometriosis and Pelvic Floor: A Multidisciplinary Masterclass	Dr. Saman Mohammadi Pour Dr. Nasrin Changizi Dr. Maryam Deldar Pasikhani Dr. Tahereh Eftekhar Dr. Roghayeh Hosseini an	14:00 – 15:15
Dr. Fatemeh Mohammad Najjar	Electrosurgery in Laparoscopy		15:15-15:45
Dr. Arash Mohazzab	Endometriosis Study Design and Analysis of Associated Data		15:45-16:15
Dr. Roya Padmehr Dr. Alireza Mirbagheri	Initiation of robotic Surgery in Iran		16:15-17:15

Second Hall
Day 2- January 8, 2026

Panel chair	Panel name	Speakers	Time
Dr. Shahrzad Ansari	Myoma and Infertility	Dr. Mahroo Rezaei Nejad	9:00-10:00
Ms. Fatemeh Bahiraei (Master Class)	Nursing Training, Maintenance of Laparoscopic Instruments, and Postoperative Patient Care	Ms. Mahnaz Hajiaghaipoor Ms. Faezeh Shafieirad Ms. Razieh Saber Mr. Mahdi Nezami Foroud Ms. Nasim Kalantari	10:00-11:00
Dr. Aryan Forouhi	Enhanced Recovery: Science, Strategy, Success		11:00-11:30
Dr. Atefeh Gorgin	Pelvic Anatomy in Minimally Invasive Surgery		11:30-12:00
Dr. Roya Padmehr Dr. Adel Shervin (US) (Master Class)	Advanced Electrosurgical Techniques in Endometriosis and Hysterectomy	Dr. Banafsheh Tajbakhsh Dr. Behnaz Noori Mr. Ehsan Abbasi	12:00-14:00 (UTC: 08:30-10:30 AM)
Dr. Bahareh Hatami Dr. Roya Padmehr Dr. Atefeh Gorgin (Master Class)	Sonographic Evaluation of Endometriosis Cases	Dr. Nasim Naseri Dr. Azadeh Ghahari	14:00-15:30
Dr. Atefeh Gorgin Dr. Sara Bahramzadeh	Complex Endometriosis Cases & Laparoscopy Training and Safe Abdominal Access		15:30-16:00
Dr. Poopak Yahyavi (Master Class)	Minimally Invasive Surgery for Perineal Descent		16:00-17:00

Second Hall
Day 3- January 9, 2026

Panel chair	Panel name	Speakers	Time
Dr. Saeed Alborzi (Master Class)	The Role of Ultrasound in Endometriosis	Dr. Saeed Alborzi	8:00-9:00
Dr. Saman Mohammadipour	Workshop on Bowel Endometriosis: Diagnosis and Surgical Management	Dr. Roya Padmehr Dr. Khadijeh Shadjoo Dr. Atefeh Gorgin Dr. Roxana Kargar Dr. Hossein Yousef Fam Dr. Hamzeh Moosavi Dr. Mahdi Jafarnia	9:00-10:00
Break			10:00-10:15
Dr. Mina Vardiani	The Role of Endometriosis in Fetal Growth Restriction (FGR) and Implantation Processes		10:15-10:30
Dr. Saeed Arasteh	Hands-on Training: Urinary Tract Dissection in Laparoscopic Endometriosis Surgery	Dr. Roya Padmehr Dr. Khadijeh Shadjoo Dr. Atefeh Gorgin Dr. Roxana Kargar Dr. Naser Amir Jannati Dr. Kaveh Soltanzadeh Dr. Robab Maghsoudi	10:30-11:30

p.ISSN:2008-2835

e.ISSN:2008-4625

AJMB

Avicenna Journal of
Medical Biotechnology

66

Vol. 17 No. 3 July-September 2025



Journal of
Reproduction & Infertility

Vol 26, No 3, Jul-Sept 2025

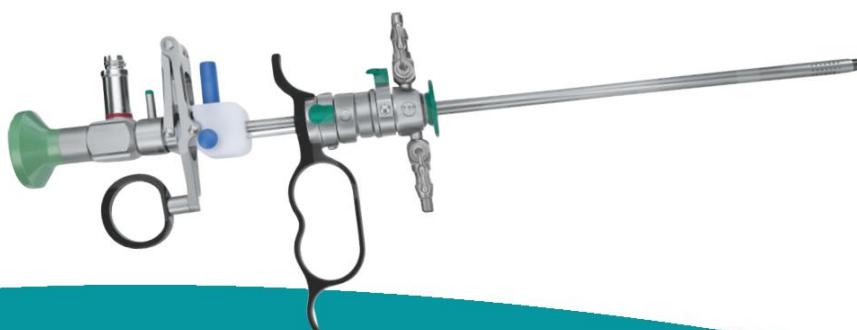
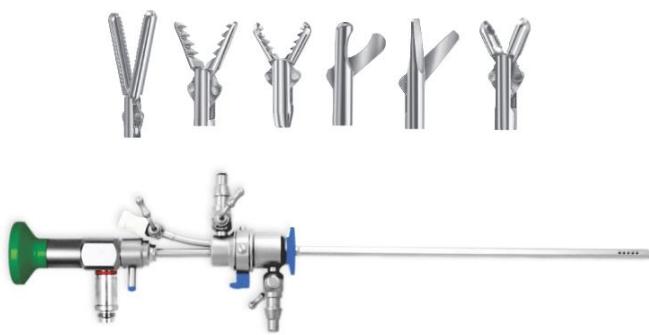
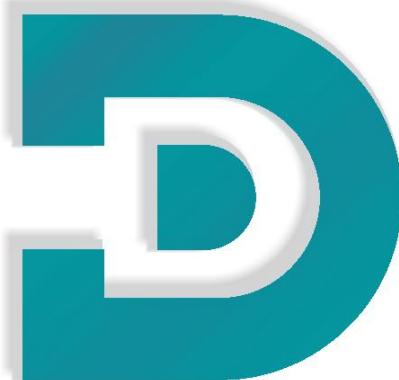
ISSN:2228-5482
eISSN:2251-676 X

104

درسا مد سلامت

DORSA MED SALAMAT

- نماينده انحصاری کمپانی **HAWK** آلمان و **RUDOLF** چين
- اندوفیزن Full HD و 4K جهت اتاق عمل و مطب
- ست های جراحی هیستروسکوپی و لاپاروسکوپی
- انواع تروکارهای دائم مصرف



تهران، فردوس، بیست مت ری ولیعصر
خیابان اعتمادیان، پلاک ۳۰، ط ۵، واحد ۱۳
021 4496 3447  www.dorsamed.com



DMS



PDHoMoG[®]
Menotropins
Highly Purified Human Menotropin Gonadotropin

PDpreg[®]
Human Chorionic Gonadotropin 5000 I.U.
Highly Purified HCG



Folligrowth
Urofollitropin
Highly purified FSH



Decatrop
extended Release
Triptorelin Acetate



Pooyesh Darou
Biopharmaceutical Co.

Abstracts



Pelvic Anatomy in Minimally Invasive Surgery

Atefeh Gorgin

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

A thorough understanding of pelvic anatomy is essential for the safe and effective performance of minimally invasive surgery (MIS), including laparoscopic and robotic procedures. Unlike open surgery, MIS relies on magnified visual fields with limited tactile feedback, making precise anatomical knowledge critical. Identification of surgical spaces is fundamental for safe dissection. It is essential to clearly identify the ureter and its anatomical course in relation to the uterine artery, commonly described as “water under the bridge,” to avoid intraoperative injury. Magnification improves visualization of fine anatomical details but may distort depth perception.

Accurate anatomical orientation helps prevent injury to the ureter, bladder, bowel, and pelvic nerves, thereby reducing surgical complications. Proper anatomical dissection reduces intraoperative bleeding and operative time, improving overall surgical outcomes.

Endometriosis often distorts normal anatomy through fibrosis, adhesions, and inflammatory changes, making anatomical orientation challenging. Adhesions may obscure normal tissue planes, requiring advanced anatomical knowledge to restore surgical spaces safely.

Identification and development of the pararectal spaces (Okabayashi and Latzko spaces) are essential for deep infiltrating endometriosis (DIE). The rectovaginal space and pouch of Douglas are commonly involved in endometriosis and require meticulous dissection. The ureter is at high risk during surgery due to lateral or medial displacement or encasement by fibrotic disease, and systematic ureterolysis is often necessary to prevent injury and ensure complete excision. Preservation of pelvic autonomic nerves, including the hypogastric nerves and the inferior hypogastric plexus, is essential to avoid postoperative bladder, bowel, and sexual dysfunction, with nerve-sparing techniques relying on precise anatomical knowledge. Additionally, a thorough understanding of uterine and internal iliac vascular anatomy is critical for controlling bleeding during deep pelvic dissection, as inflammatory neovascularization associated with endometriosis further increases the risk of intraoperative hemorrhage. Mastery of pelvic anatomy in these domains contributes to improved pain relief, reduced recurrence rates, and better functional outcomes for patients.

Keywords: Minimally invasive surgery, Deep infiltrating endometriosis, Pelvic anatomy, Laparoscopy, Robotic procedures, Adhesions

Endometriosis Associated Ovarian Cancer

Soheila Aminimoghaddam

Iran University of Medical Sciences, Tehran, Iran

Abstract

Ovarian cancer risk, specifically for endometrioid and clear cell histologies, is elevated in women with endometrioma. Some ovarian endometriosis lesions harbor genetic changes (mutation in ARID1A, PTEN, HNF1B, and KRAS) that may be found in ovarian cancer lesions, while the relative risk of ovarian cancer may be increased. The absolute risk of developing ovarian cancer from ovarian endometriosis remains low.

The risk of malignant transformation of endometriosis is 1% for premenopausal female and 1 to 2.5 % for post menopause. Among postmenopausal patients with endometriosis, 35% demonstrated a spectrum of histopathological changes, including metaplasia, hyperplasia, atypia, and endometrioid carcinoma originating in ovarian endometriosis. For postmenopausal women experiencing endometriosis-associated pain, clinicians may consider aromatase inhibitors as a treatment option, particularly when surgery is not feasible.

In women with endometriosis, clinicians should not systemically perform cancer screening beyond the existing population-based cancer screening guidelines. Ovarian epithelial tumors arising in the context of endometriosis are typically diagnosed in younger, predominantly premenopausal women and are associated with lower parity, reduced serum levels of CA 125 and CA 19-9, lower tumor stage, and lower histological grade. These tumors demonstrate higher rates of optimal cytoreduction, improved prognosis, and increased overall survival compared with non-endometriosis-associated ovarian cancers. Histopathologically, 53% are endometrioid and 22% are clear cell subtypes. Immunohistochemical profiling reveals estrogen receptor positivity in endometrioid tumors, whereas clear cell tumors are typically estrogen receptor-negative and frequently exhibit p53 protein overexpression.

Ovarian clear cell carcinoma is often associated with the presence of atypical endometriosis. The presence of a pelvic mass ≥ 9 cm, rapid enlargement over a short interval, early post-treatment recurrence, or diagnosis in a postmenopausal patient warrants careful evaluation for potential malignancy.

Keywords: Ovarian cancer, Endometriosis, Postmenopausal patients, Tumor stage, Immunohistochemistry



Medical Management of Endometriosis: GnRH Agonists and Antagonists

Roxana Kargar

Avicenna Fertility Center, ACECR, Tehran, Iran

Abstract

GnRH agonists

Pituitary follicle-stimulating hormone (FSH) and luteinizing hormone (LH) secretion requires a pulsatile hypothalamic GnRH stimulus, which allows receptor concentrations to be replenished between pulses; a constant intravenous infusion of GnRH generates an initial response “flare”, followed by downregulation of receptor concentrations, which desensitizes the pituitary to continued stimulation. Long-acting GnRH agonists (leuprolide, nafarelin, goserelin, buserelin, and triptorelin) have the same effect, inducing a hypogonadotropic hypogonadal state that has been dubbed “pseudomenopause”. Administration of a GnRH agonist, one week prior to the patient’s menses, helps minimize the flare effect. In efforts to prevent the bone mineral depletion that accompanies GnRH agonist therapy, a number of different “add-back” treatment strategies have been developed. The “estrogen threshold hypothesis” notes that endometriosis lesions grow when serum estradiol concentration is in the premenopausal range (30–300 pg/mL) and regress when estradiol levels are in the menopausal range (<20 pg/mL). Norethindrone acetate 5 mg is the only FDA-approved add-back regimen, although several other estrogen plus progestin combinations exist and can be used in a similar manner to minimize hot flushes and bone loss. Low-dose combined estrogen–progestin add-back regimens may also be used.

GnRH antagonist

As opposed to GnRH agonists, antagonists do not stimulate the receptor, and therefore, there is no flare effect. They directly block the GnRH receptor and therefore can function rapidly and partial dose-dependent reduction in gonadotropins is readily achieved. Elagolix was the first *oral* non peptide GnRH antagonist available. In two completed phase III trials, both a low dose (150 mg/d) and high dose (200mg twice per day) resulted in significant improvement in endometriosis associated pain, compared to placebo. Relugolix 40 mg combined with 1 mg of estradiol and 0.5 Norethindrone was approved for treatment of endometriosis.

Keywords: Endometriosis, GnRH agonists, GnRH antagonists, Leuprolide, Nafarelin, Goserelin, Triptorelin, Elagolix, Relugolix



EMIG 2026

The Crucial Role of Nursing in Enhancing Safety for Laparoscopic Endometriosis Surgery

Fatemeh Bahiraei

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis is far more than a surgical condition; it represents a complex therapeutic journey in which patient safety, surgical precision, and professional care are paramount. Each year, alongside hosting the congress, Avicenna Research Institute publishes a scientific booklet aimed at documenting the latest standards in this field. This panel has been designed to highlight the indispensable role of nursing staff in the success of minimally invasive surgeries.

The specialized nursing care pathway begins with advanced instrumentation management. This session provides an in-depth analysis of laparoscopic tools, including trocars, optics, and high-tech lenses. A significant focus is placed on the rigorous protocols for the cleaning, sterilization, and safe maintenance of sensitive energy-based instruments, ensuring their flawless performance during complex surgical procedures. Nurses serve as the bridge between technology and humanity. In this section, clinical strategies for patient preparation were explored, with a focus on psychological support and anxiety reduction. Additionally, the proactive role of nurses during surgery, such as coordination with the anesthesia team, ensuring the safety of energy devices, and anticipating the surgeon's needs to prevent potential complications, is thoroughly discussed.

Care does not end in the recovery phase. The panel expert speakers will address specialized post-operative monitoring and the essential discharge education required, empowering patients to manage their recovery period effectively.

Led by Mr. Nezam and Ms. Aghapour, Kalantari, and Shafiee-Rad, this scientific session aims to redefine the nursing contribution to the endometriosis patient experience. By integrating human compassion with technical expertise, every surgical intervention is not only successful, but also safe and patient-centered.

Keywords: Minimally invasive surgery, Nursing staff, Laparoscopy, Anxiety reduction, Recovery, Endometriosis



EMIG 2026

Personalized Video-Based Surgical Education in Endometriosis: A Narrative Review of Applications, Advantages, and Preliminary Evidence from a Targeted Feedback Model

Safoora Soleimani Fakhr

Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Advanced endometriosis surgery, particularly in cases involving deep infiltrating disease, multi-compartment involvement, and segmental resection, demands high-level psychomotor precision, complex decision-making, and refined dissection techniques. Over the past decade, video-based surgical review has emerged as one of the most effective tools for enhancing technical and cognitive surgical skills. While the literature consistently supports the educational value of surgical video analysis, current programs typically rely on generic video review rather than individualized, performance-based feedback. This gap underscores the need for personalized, analytic video-based training tailored to each surgeon's strengths and weaknesses.

This narrative review synthesizes current evidence on video-based surgical education and introduces a personalized video-feedback model designed specifically for skill refinement in endometriosis surgery. Preliminary results from an early pilot implementation are also presented.

The review integrates studies on surgical coaching, video-based feedback, time-motion analysis, OSATS scoring, and minimally invasive surgical education. Evidence demonstrates that:

- * Video-based coaching can yield 20–40% improvement in stepwise decision-making across various laparoscopic procedures.
- * Time-motion and structural video analysis enhance economy of motion, tissue handling, and technical accuracy.
- * Existing educational programs rarely include surgeon-specific, personalized feedback grounded in objective performance assessment.

Proposed model: personalized video-based surgical training

Based on gaps identified in the literature, a structured four-stage model is proposed that integrates standardized high-definition recording of key steps in endometriosis surgery such as pararectal dissection, excision of deep infiltrating nodules, adhesiolysis, and bowel repair with structured performance analysis using an adapted Objective Structured Assessment of Technical Skills (OSATS) framework for deep endometriosis and time-motion metrics to evaluate precision, micro-errors, and operative efficiency. This model further incorporates targeted, personalized video-based feedback consisting of a 5–8 minute curated and annotated compilation highlighting technical strengths, errors, and actionable recommendations, benchmarked against expert performance, followed by longitudinal skill tracking through repeated recordings and re-analysis to quantify progression in OSATS scores, motion efficiency, and technical accuracy over time. Early pilot implementation demonstrated a 35% reduction in micro-technical errors and a 25% improvement in economy of motion, accompanied by marked enhancements in dissection accuracy and intraoperative efficiency. Learner satisfaction was high, with 92% of participating surgeons describing the feedback as “precise, actionable, and distinctly superior to traditional teaching.” In addition, a positive correlation was observed between the specificity of feedback provided and the rate of technical skill improvement. These results align with international evidence supporting the effectiveness of structured surgical video coaching. The synthesis of current literature indicates that video review is a powerful modality for advanced surgical training; however, maximal educational benefit occurs when feedback is tailored to the individual surgeon's performance profile. This aligns with contemporary adult-learning theories, including reflective practice, self-directed learning, and competency-based progression. Personalized video-based feedback bridges the gap between theoretical training and real-time operative performance.

Keywords: Objective structured assessment, Advanced endometriosis surgery, Competency-based progression, Operative performance, Targeted feedback model, Surgical coaching

A Personalized Training Program for Psychotherapists: Tailoring Psychological Interventions to Coping Profiles in Patients with Endometriosis

Safoura Soleimani Fakhr¹, Hamideh Mousavi

Reproductive Biotechnology Research Centre, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis is a complex and chronic condition marked by severe pelvic pain, infertility, and functional impairment, often accompanied by significant psychological consequences such as anxiety, depression, pain catastrophizing (PC), emotional dysregulation, and reduced quality of life. Evidence indicates that patients' coping profiles, ranging from avoidance and emotional coping to problem-focused strategies, directly influence perceived pain intensity and treatment adherence. Despite this variability, psychological interventions are commonly delivered in a uniform, non-individualized manner. This gap highlights the need for a personalized educational framework for psychotherapists, equipping them to align therapeutic modalities with the patient's psychological profile.

The purpose of the current study was to develop and evaluate the feasibility of a personalized, modular training program enabling psychotherapists to tailor cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), and mindfulness-based interventions according to the coping style, cognitive patterns, and emotional needs of patients with endometriosis.

A structured training package was developed comprising three integrated components designed to support systematic assessment, intervention selection, and clinician skill development. First, initial patient assessment was conducted using standardized instruments, including the Coping Strategies Questionnaire (CSQ), the Depression–Anxiety–Stress Scale (DASS-21), and validated measures of pelvic pain severity, to ensure consistent profiling of psychological and symptom-related factors. Second, an algorithm-based intervention framework guided clinicians in selecting appropriate therapeutic approaches: targeted CBT for patients demonstrating avoidance behaviors, catastrophizing, and maladaptive cognitive cycles; ACT-based strategies for individuals characterized by experiential avoidance, cognitive fusion, and misalignment between values and behavior; and mindfulness-based modules for patients presenting with somatic anxiety, heightened symptom monitoring, or variable pain trajectories. Third, therapist competency was supported through an adaptive training model incorporating micro-learning video content, case-based clinical simulations, and structured skills evaluation using a Mini–Objective Structured Clinical Examination (Mini-OSCE) format, ensuring both theoretical understanding and applied clinical proficiency. A pilot pre–post evaluation assessed outcomes including pain intensity (VAS), quality of life (EHP-30), and therapist self-efficacy.

Psychotherapists completing the personalized program demonstrated a 45% improvement in intervention-matching accuracy compared to the control group. Their patients reported significant reductions in perceived pain and 30–40% improvements in quality-of-life scores. Clinicians also showed measurable gains in confidence and proficiency in adapting interventions to individual profiles.

A personalized training program for psychotherapists represents a promising educational innovation for improving psychological care in endometriosis. Integrating this model within multidisciplinary care pathways may enhance clinical outcomes, strengthen collaboration with surgical teams, and support the development of a national framework for specialized psychotherapeutic training in women's health.

Keywords: Endometriosis, Personalized psychotherapy, Coping profiles, CBT, ACT, Mindfulness, Adaptive training, Chronic pelvic pain

Management of Ureterovaginal Fistula Following Laparoscopic Surgery for Deep Infiltrating Endometriosis

Roxana Kargar

Avicenna Fertility Center, ACECR, Tehran, Iran

Abstract

A video is presented of a 46-year-old woman, gravida 1 para 1, who presented with severe dysmenorrhea, dyspareunia, and dyschezia (pain score 10/10), along with menorrhagia. She has a history of one cesarean section and two laparoscopic surgeries for endometriosis. Ultrasound findings were consistent with endometriosis involving the bowel.

The patient underwent laparoscopic hysterectomy, bilateral salpingo-oophorectomy, and bilateral ureterolysis. Deep infiltrating endometriotic lesions were excised, and a segmental bowel resection was performed.

Two weeks after discharge, the patient presented with a complaint of urine leakage from the vagina. For diagnostic evaluation, ultrasonography and CT scan were requested. With the diagnosis of ureterovaginal fistula, a double-J stent was placed in the left ureter. After four months, the double-J stent was removed, and the patient's problem was resolved.

Keywords: Ureterovaginal fistula, Deep infiltrating endometriosis, Laparoscopic surgery, Dyschezia, Dyspareunia



EMIG 2026

Protecting the Ureter, Bladder, Bowel, and Nerves During Laparoscopic Hysterectomy in Frozen Pelvis

Mania Kaveh

Department of Gynecology and Obstetrics, Zabol University of Medical Sciences, Zabol, Iran

Abstract

Frozen pelvis associated with severe endometriosis represents one of the most challenging scenarios in laparoscopic hysterectomy, carrying a significantly increased risk of ureteric, bladder, bowel, and neural injuries. Loss of normal anatomical planes, fibrotic retraction, and organ displacement require a strategic, anatomy-driven, and stepwise surgical approach rather than standard hysterectomy techniques.

This presentation focuses on evidence-based principles for organ protection during laparoscopic hysterectomy in frozen pelvis, with particular emphasis on ureteric safety and nerve preservation. A case-based strategy was used to illustrate how surgical planning and intraoperative decision-making should be adapted according to the dominant compartment involved.

Key concepts include early retroperitoneal access, lateral-to-medial dissection, systematic ureteric mapping, bladder protection through distance and controlled dissection, safe management of the posterior compartment, and nerve-sparing techniques aimed at preserving pelvic autonomic function. The importance of minimizing thermal injury, restoring anatomical landmarks before definitive hysterectomy steps, and delaying uterine devascularization until adjacent organs are safely identified is highlighted.

The primary message is that a successful hysterectomy in the context of a frozen pelvis is defined not merely by technical completion, but by the avoidance of complications and the preservation of function. A structured, anatomy-based, and disciplined surgical strategy allows complex hysterectomy to be performed safely while reducing urinary, bowel, and neurologic morbidity.

Keywords: Frozen pelvis, Severe endometriosis, Hysterectomy, Fibrotic retraction, Ureteric mapping



EMIG 2026

Laboratory Methods and Tumor Markers in the Diagnosis of Endometriosis

Ali Sadeghitabar

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

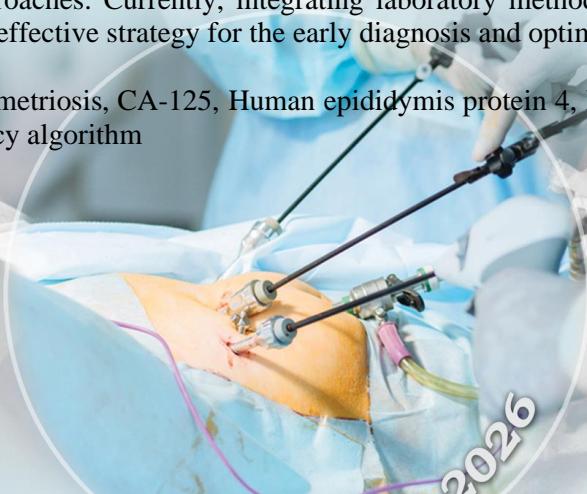
Abstract

Endometriosis is one of the most common hormone-dependent inflammatory disorders affecting women of reproductive age and is characterized by the presence of endometrial-like tissue outside the uterine cavity. It is commonly associated with chronic pelvic pain, dysmenorrhea, menstrual disturbances, and infertility. Despite its high prevalence, diagnosis remains challenging, with laparoscopy considered the gold standard. However, due to its invasive nature, attention has increasingly shifted toward non-invasive laboratory methods. Among laboratory tests, CA-125 is the most widely used tumor marker and is frequently elevated in advanced stages of endometriosis. However, its diagnostic utility is limited by low sensitivity and specificity in early-stage disease, as well as by elevations observed in a range of both benign and malignant conditions. Inflammatory markers such as C-reactive protein (CRP), interleukins particularly IL-6 and IL-8, and tumor necrosis factor-alpha (TNF- α) have also been investigated due to the inflammatory nature of endometriosis, although their routine clinical use remains limited.

Human epididymis protein 4 (HE4), primarily recognized as a marker for ovarian malignancy, generally does not show significant elevation in endometriosis. This makes HE4 valuable for differentiating endometriosis from ovarian cancer, especially in patients with adnexal masses. Additionally, the risk of ovarian malignancy algorithm (ROMA), which combines CA-125, HE4, and menopausal status, is useful for assessing ovarian cancer risk but is not a specific diagnostic tool for endometriosis.

Recent studies have focused on novel laboratory biomarkers, including microRNAs, proteomic, and metabolomic approaches. Currently, integrating laboratory methods with clinical evaluation and imaging remains the most effective strategy for the early diagnosis and optimal management of endometriosis.

Keywords: Endometriosis, CA-125, Human epididymis protein 4, Laparoscopy, C-reactive protein, Risk of ovarian malignancy algorithm



EMIG 2026

Bowel Endometriosis

Bahareh Hatami

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis involving the bowel is a severe form of the disease, and the bowel is the most common site of extragenital endometriosis. Surface lesions of the bowel are considered as peritoneal disease. Bowel endometriosis (BE) is defined as endometriotic tissue infiltrating the muscularis propria layer of the bowel wall. BE is estimated to affect up to 37% of patients with known deep endometriosis, highlighting its coexistence with genital endometriosis. The rectosigmoid colon is the most common segment of the bowel involved, followed by the distal small bowel. Bowel deep infiltrating endometriosis (DIE) can take the form of an isolated lesion or can be multifocal (multiple lesions affecting the same segment) and/or multicentric (multiple lesions affecting several bowel segments). Normal rectal wall layers can be visualized on TVS: the anterior rectal serosa is seen as a thin hyperechoic line; the muscularis propria is hypoechoic, with the longitudinal smooth muscle (outer) and circular smooth muscle (inner) separated by a faint thin hyperechoic line; the submucosa is hyperechogenic; and the mucosa is hypoechoic. Bowel DIE usually appears on TVS as a thickening of the hypoechoic muscularis propria or as hypoechoic nodules, with or without hyperchoic foci with blurred margins.

Bowel DIE lesions identified on TVS can be classified according to their location within the rectum or sigmoid colon. Lesions located below the level of uterosacral ligament (USL) insertion on the cervix are classified as lower (retroperitoneal) anterior rectal DIE lesions, whereas those located above this level are classified as upper (laparoscopy-visible) anterior rectal DIE lesions. Lesions at the level of the uterine fundus are described as rectosigmoid junction DIE lesions, while those located above the uterine fundus are classified as anterior sigmoid DIE lesions. The dimensions of DIE nodules should be measured and recorded in three orthogonal planes, along with the distance from the lower margin of the most caudal lesion to the anal verge. Although well established in the evaluation of endometrioma, no prospective data have been reported for the role of color Doppler in the evaluation of DIE. Usually, endometriotic lesions in the rectosigmoid are poorly vascularized. Color Doppler is useful in the differential diagnosis between DIE in the bowel and rectal cancer and color Doppler can be used as an adjunct modality in the assessment of DIE lesions of the bowel.

There are two main diagnostic tools used in endometriosis diagnostics: ultrasonography and magnetic resonance imaging (MRI). Magnetic resonance imaging offers the possibility to obtain a complete pelvic evaluation with a single imaging procedure. However, it is not deprived of errors. The movements of the bowels may generate artifacts, which can result in overlooking or underestimating the size of endometriotic nodules in the bowel. Because of that, MRI is not the first-line diagnostic tool but may be complementary to ultrasonography. While ultrasonography is considered as a “first-line” procedure due to its diagnostic usefulness, low cost, and minimal patient discomfort during examination, it remains an operator-dependent and subjective technique. Ultrasound examinations are considered safe and are well accepted by patients, as demonstrated in acceptability studies involving pregnant women and populations undergoing ovarian tumor screening.

Enhanced TV-US techniques

These techniques include rectal water-contrast transvaginal ultrasonography (RWC-TVS), Sonovaginography (SVG), and Bowel Preparation TVS, among others. They are mainly used to aid with the identification of posterior compartment DIE in addition to supplementary information for surgical planning such as the number of intestinal layers affected and the distance from the lesion to the anal border. If applied by an experienced operator, the sensitivity can reach similar levels as MRI. Sonovaginography uses TVS combined with the introduction of saline solution into the vagina to create an acoustic window between the transvaginal probe and the surrounding vaginal structures. A modified SVG technique, outpatient ultrasound gel SVG, was first described in 2014 and represented the initial study to use office-based gel SVG for predicting posterior compartment DIE. Instead of saline solution, it uses 20 ml of ultrasound gel inserted into the posterior fornix using a 20 ml plastic syringe.

RWC-TVS requires injection of saline through a catheter into the rectum under ultrasound guidance. It may facilitate the better identification of rectosigmoid endometriosis compared with standard TVS exam because

the distention of the intestinal lumen enhances the identification of the layers of the anterior rectosigmoid wall. It can be performed with or without bowel preparation (BP). BP TVS is a technique that uses bowel preparation prior to TVS to improve the detection of rectosigmoid endometriosis and facilitate assessing the characteristics of endometriotic nodules.

TVS and transrectal ultrasound (TR-US) demonstrated comparable accuracy in the diagnosis of posterior endometriosis. Magnetic resonance imaging may be considered in patients with endometriosis under several circumstances. These include cases where ultrasonography reveals only subtle findings in symptomatic patients, or when cyclic pain occurs in extrapelvic regions such as the upper abdomen or abdominal wall. MRI is also indicated when radiculopathy raises suspicion of lumbosacral plexus involvement, or when urinary tract symptoms are present without evidence of other pathologies. It can assist in preoperative planning to enable the least invasive ovarian surgery prior to in vitro fertilization, and in evaluating suspected recurrence following conservative or operative therapy when sonographic findings are inconclusive. Additionally, MRI is useful in cases of suspected superinfection or inflammation, in patients with potential or confirmed bowel involvement, and in adolescents or virginal patients for whom transvaginal or transrectal ultrasound is not feasible or is refused.

MRI complements TVS in preoperative endometriosis assessment as it can confirm the presence of significant bowel endometriosis throughout the pelvis and abdomen, identifying locations that are occult on ultrasound, such as the diaphragmatic, or bowel lesions.

Keywords: Deep infiltrating endometriosis, Ultrasound, Magnetic resonance imaging, Bowel preparation, Color Doppler, Rectal wall layers



EMIG 2026

Laparoscopic Management

Alireza Chamani

Avicenna Fertility Center, ACECR, Tehran, Iran

Abstract

Any increase in PETCO₂ larger than 25% and/or occurring later than 30 minutes after the beginning of peritoneal insufflation should suggest CO₂ subcutaneous emphysema, the most frequent respiratory complication during laparoscopy.

Peritoneal insufflation induces alteration of hemodynamics, characterized by decreases of cardiac output, elevations of arterial pressure, and increases of systemic and pulmonary vascular resistances. Hemodynamic changes are accentuated in high-risk patients.

The pathophysiologic hemodynamic changes can be attenuated or prevented by optimizing preload before pneumoperitoneum and by using vasodilating agents, alpha 2- adrenergic receptor antagonists, high doses of opioids, and beta-blockers.

Keywords: Laparoscopic management, Peritoneal insufflation, Pneumoperitoneum, Beta-blockers



Sexual Health in Women with Endometriosis: A Systematic Review and Narrative Synthesis

Shadab Shahali

Department of Reproductive Health and Midwifery, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Email: shadab.shahali@modares.ac.ir

Abstract

Endometriosis is a chronic gynecological condition that affects millions of women of reproductive age worldwide and is frequently associated with significant impairments in sexual health. Symptoms such as chronic pelvic pain, dyspareunia, fatigue, and psychological distress can negatively influence sexual function, intimacy, body image, and relationship satisfaction. Despite growing recognition of these issues, evidence related to sexual health outcomes in women with endometriosis remains fragmented.

This systematic review with narrative synthesis aimed to comprehensively examine the impact of endometriosis on women's sexual health and to synthesize evidence on associated biological, psychological, and relational factors, as well as reported interventions.

A systematic search of international databases (including PubMed, Scopus, Web of Science, and PsycINFO) was conducted for peer-reviewed studies published up to 27 December 2025 that investigated sexual health outcomes in women diagnosed with endometriosis. Both quantitative and qualitative studies were included. Data extraction focused on sexual function, sexual satisfaction, dyspareunia, psychological correlates, partner relationships, and therapeutic approaches. Due to methodological heterogeneity, a narrative synthesis approach was applied.

The reviewed studies consistently reported high prevalence of sexual dysfunction among women with endometriosis, particularly dyspareunia, reduced desire, arousal difficulties, and orgasmic problems. Sexual health impairments were strongly associated with pain severity, disease chronicity, anxiety, depression, and negative body image. Relational consequences included reduced intimacy, partner distress, and communication difficulties. Evidence on interventions suggested that multidisciplinary approaches, combining medical or surgical treatment with psychological counseling, sexual therapy, and pain management, may improve sexual health outcomes, although high-quality interventional studies were limited.

Endometriosis has a profound and multidimensional impact on women's sexual health. Integrating sexual health assessment and counseling into routine endometriosis care is essential. Future research should prioritize longitudinal and interventional studies to develop evidence-based, holistic strategies for improving sexual well-being in this population.

Keywords: Endometriosis, Sexual health, Sexual dysfunction, Dyspareunia, Quality of life

FIGO Type 3 Myomas: Effects on Fertility and Evidence-Based Management

Shahrzad Ansari

IVF Center, Mehr hospital, Tehran, Iran

Abstract

Uterine myomas are the most common benign tumors in women of reproductive age and are frequently encountered during infertility evaluation. Their impact on fertility is highly dependent on fibroid location, size, and proximity to the endometrial cavity. Submucosal myomas are well established as detrimental to fertility due to direct cavity distortion; however, increasing attention has been directed toward intramural fibroids that do not overtly deform the uterine cavity, particularly FIGO type 3 myomas.

FIGO type 3 myomas are defined as intramural fibroids that directly abut the endometrium without intracavitary extension. Although traditionally considered less clinically significant, emerging evidence suggests that these myomas may negatively affect both natural fertility and assisted reproductive outcomes. Recent systematic reviews and meta-analyses indicate that women with FIGO type 3 myomas undergoing in vitro fertilization experience reduced implantation rates, clinical pregnancy rates, and live birth rates compared with women without fibroids, even in the absence of visible cavity distortion.

Several mechanisms have been proposed to explain the association between FIGO type 3 myomas and infertility. These include altered uterine peristalsis, impaired endometrial receptivity, changes in local vascularization, and disruption of molecular and inflammatory pathways essential for embryo implantation. The close proximity of these fibroids to the endometrium appears to play a critical role in creating a suboptimal implantation environment.

Management of infertility in the presence of FIGO type 3 myomas remains controversial. While surgical removal clearly benefits women with submucosal fibroids, evidence supporting routine myomectomy for FIGO type 3 myomas is limited and inconclusive. Treatment decisions should therefore be individualized, taking into account fibroid size, number, reproductive history, prior treatment failures, and patient-specific fertility goals. Further well-designed prospective studies are needed to define optimal management strategies for this subgroup of infertile patients.

Keywords: Infertility, FIGO type 3 myomas, Uterine peristalsis, Endometrial receptivity, Assisted reproduction

Is Hysterectomy a Definitive Surgery for Endometriosis?

Samaneh Rokhgireh

Iran University of Medical Sciences, Tehran, Iran

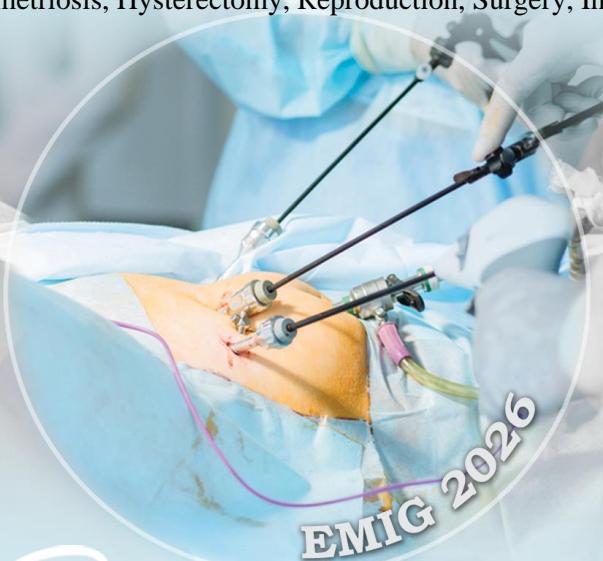
Abstract

Endometriosis is a chronic, inflammatory condition characterized by the presence of endometrial-like tissue outside the uterus, affecting approximately 10-15% of women of reproductive age. This disorder frequently causes significant morbidity, including chronic pelvic pain, infertility, and adverse impacts on quality of life. Hysterectomy, the surgical removal of the uterus, is considered a treatment option for endometriosis, especially in cases where conservative treatments have failed or when symptoms are severe. The relationship between endometriosis and hysterectomy remains complex, with considerations necessary regarding the timing of the procedure, the preservation of ovarian function, and the potential for recurrence of endometriosis or the development of related conditions post-hysterectomy.

There is a significant debate regarding the role of hysterectomy as a definitive treatment for endometriosis. Surgical intervention may alleviate symptoms, but the risk of persistent pain post-surgery is notable, particularly in women with severe disease. The effectiveness of hysterectomy is often influenced by the underlying severity and type of endometriosis, as well as the woman's age and other individual factors.

While hysterectomy can provide significant relief for many women suffering from severe endometriosis, it does not eliminate the disease nor the risk of related complications. A comprehensive understanding of each patient's individual condition is essential for optimizing outcomes. Ongoing studies and patient follow-ups are fundamental to addressing the long-term management of endometriosis post-hysterectomy.

Keywords: Endometriosis, Hysterectomy, Reproduction, Surgery, Individual factors



EMIG 2026

The Role of Artificial Intelligence in the Diagnosis, Treatment, and Follow-Up of Endometriosis

Roya Padmehr

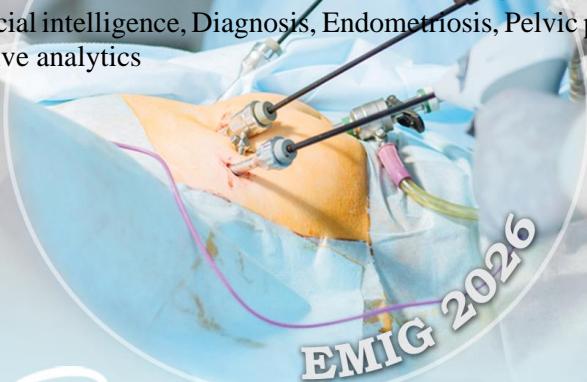
Avicenna Fertility Center, Avicenna Research Institute ACECR, Tehran, Iran

Abstract

Artificial intelligence (AI) has emerged as a transformative tool in the management of endometriosis, a chronic gynecological disease characterized by ectopic endometrial tissue, pelvic pain, and infertility. One of the major challenges in endometriosis is delayed diagnosis, often taking several years due to nonspecific symptoms and the lack of noninvasive diagnostic methods. AI offers promising solutions to overcome these limitations by enhancing diagnostic accuracy, treatment planning, and long-term follow-up. In diagnosis, AI-based machine learning and deep learning algorithms can analyze complex datasets including clinical symptoms, laboratory markers, imaging data, and patient history. Advanced image analysis applied to ultrasound and magnetic resonance imaging (MRI) enables improved detection of deep infiltrating endometriosis (DIE) and subtle lesions that may be missed by conventional assessment. Predictive models can also identify patients at high risk, supporting earlier referral and intervention while reducing the need for diagnostic laparoscopy. In terms of treatment, AI contributes to personalized medicine by integrating clinical, hormonal, genetic, and surgical data to predict disease severity and treatment response. Decision-support systems can assist clinicians in selecting optimal medical or surgical strategies tailored to individual patients. In surgical management, AI-assisted and smart laparoscopic systems enhance intraoperative visualization, anatomical recognition, and precision, potentially reducing complications and improving outcomes.

AI also plays an important role in follow-up and disease monitoring. Mobile health applications and AI-driven symptom tracking platforms allow continuous assessment of pain, quality of life, and treatment adherence. Predictive analytics can identify early signs of disease recurrence and guide timely clinical interventions. Overall, artificial intelligence represents a powerful adjunct in the comprehensive management of endometriosis. Despite challenges related to data quality, ethical considerations, and clinical validation, AI-driven approaches have the potential to improve diagnostic timeliness, optimize treatment, and enhance long-term patient care.

Keywords: Artificial intelligence, Diagnosis, Endometriosis, Pelvic pain, Infertility, Patient care, Personalized medicine, Predictive analytics



EMIG 2026

Electrosurgery in Laparoscopic Surgery

Roya Padmehr

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

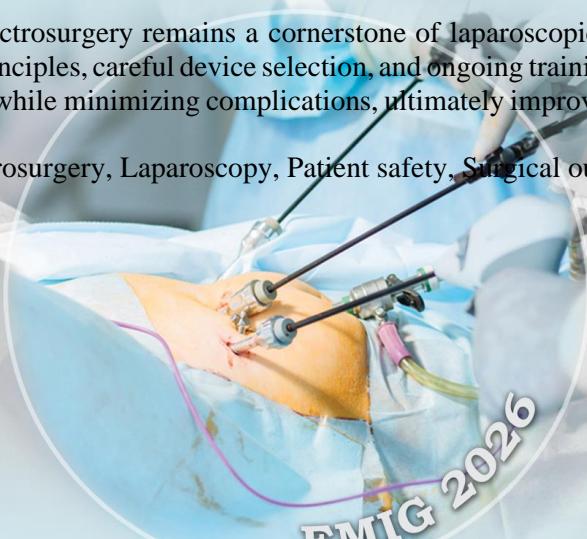
Abstract

Electrosurgery is an essential component of laparoscopic surgery and plays a critical role in tissue dissection, hemostasis, and operative efficiency. Due to the minimally invasive nature of laparoscopy and limited tactile feedback, a thorough understanding of electrosurgical principles and safe application is vital to prevent complications and optimize surgical outcomes. In laparoscopic surgery, electrosurgical devices convert electrical energy into thermal energy to cut tissue or achieve coagulation. Common modalities include monopolar and bipolar electrosurgery, as well as advanced energy systems that combine ultrasonic and bipolar technologies. Each modality differs in current flow, depth of thermal spread, and safety profile, making appropriate selection crucial depending on the surgical task and anatomical location. Monopolar electrosurgery is widely used due to its versatility and effectiveness in cutting and coagulation; however, it carries risks such as unintended thermal injury, insulation failure, and capacitive coupling. Bipolar electrosurgery offers improved safety by confining electrical current to the tissue between the instrument jaws, thereby reducing lateral thermal damage. Advanced vessel-sealing devices further enhance precision and efficiency, particularly in complex laparoscopic procedures.

Proper technique, including correct power settings, controlled activation time, and awareness of tissue effects, is fundamental to safe electrosurgical practice. Surgeon training and simulation-based education play an important role in developing competence and minimizing preventable injuries. In addition, adherence to standardized safety guidelines and continuous equipment inspection are essential components of risk reduction.

In conclusion, electrosurgery remains a cornerstone of laparoscopic surgery. Comprehensive knowledge of electrosurgical principles, careful device selection, and ongoing training are necessary to maximize the benefits of electrosurgery while minimizing complications, ultimately improving patient safety and surgical outcomes.

Keywords: Electrosurgery, Laparoscopy, Patient safety, Surgical outcomes, Thermal injury



EMIG 2026

Personalized Training Based on Surgeons' Skill Profiles: Enhancing Mastery of Complex Laparoscopic Techniques in Endometriosis Surgery

Safoora Soleimani Fakhr

Reproductive Biotechnology Research Centre, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

The increasing complexity of laparoscopic procedures for endometriosis management demands innovative and adaptive educational models. Surgeons at different proficiency levels require distinct learning pathways for developing advanced skills such as deep dissection, bowel repair, and adhesiolysis. Conventional training models, based on uniform workshops and repetitive practice, fail to address these individual variations in learning needs and technical abilities. This study aims to design and implement a personalized learning framework that tailors the educational trajectory to each surgeon's skill profile, thereby optimizing mastery of advanced laparoscopic techniques.

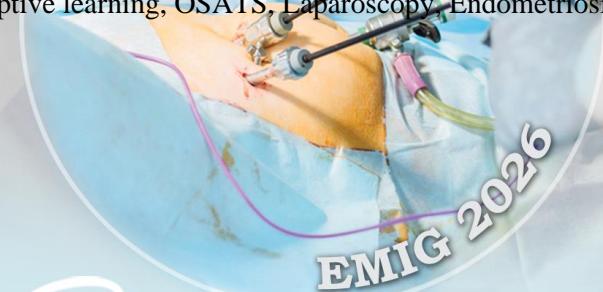
This educational action research was conducted in three phases:

1. Baseline Skill Assessment: Participants' competencies were evaluated using the Objective Structured Assessment of Technical Skills (OSATS) focusing on tissue dissection, hemostasis, and suturing.
2. Development of Individual Skill Profiles: Based on OSATS outcomes, an adaptive algorithm categorized participants into three learning levels, beginner, intermediate, and advanced.
3. Implementation of Personalized Learning Pathways: Each level was assigned a tailored set of modules, including targeted video tutorials, box simulator exercises, individualized instructor feedback, and progressive performance tracking at defined intervals.

Preliminary findings from a pilot group of 15 surgeons demonstrated a 25% improvement in OSATS scores and a 40% reduction in procedural errors following the personalized training. Moreover, 90% of participants reported high satisfaction with the relevance of content to their real surgical needs.

Personalized, skill-based training represents a transformative approach in surgical education for endometriosis. By recognizing individual differences and real-world competency gaps, this model significantly enhances learning efficacy and skill retention. The proposed framework can serve as a reference model for future hands-on laparoscopic training programs. Integration of artificial intelligence for real-time performance analytics is recommended for subsequent development phases.

Keywords: Adaptive learning, OSATS, Laparoscopy, Endometriosis, Personalized education



EMIG 2026

Safety of Retroperitoneal Approach in Deep Endometriosis Laparoscopy

Ameneh Sadat Haghgoo

Department of Obstetrics and Gynecology, Nikan hospital, Tehran, Iran

Abstract

Deep infiltrating endometriosis (DIE) of the pelvic sidewall is associated with severe fibrosis and distortion of normal pelvic anatomy, increasing the risk of ureteral and vascular injury during surgical excision. A retroperitoneal approach allows direct identification of critical structures and facilitates safer and more complete lesion removal.

A safe, anatomy-based retroperitoneal surgical technique is described for the laparoscopic excision of pelvic sidewall deep infiltrating endometriosis, with emphasis placed on stepwise retroperitoneal access, ureterolysis, and lesion excision.

Laparoscopic surgery was initiated by sharp entry into the retroperitoneal space through an area of normal peritoneum, preferably at the pelvic brim along the medial leaf of the broad ligament. The peritoneum was gently tented to maximize the distance from underlying structures, followed by precise millimeter-by-millimeter incision until the loose areolar tissue plane was reached. This entry point was selected because it was typically spared from endometriotic involvement and allowed early orientation within the retroperitoneal space.

Once the retroperitoneal space was developed, systematic identification of anatomical landmarks was performed. The ureter was identified at the pelvic brim where it crossed the common iliac vessels and was traced distally along the pelvic sidewall. Complete ureterolysis was carried out using blunt dissection, when possible, combined with sharp scissor dissection in areas of dense fibrotic adhesion. Dissection proceeded parallel to the ureter to minimize traction and thermal injury, ensuring continuous visualization throughout the procedure.

After ureteral mobilization, retroperitoneal vasculature was delineated, including the internal iliac artery and its branches. The obliterated umbilical artery was used as a key landmark to identify the uterine artery, which lay immediately medial to it and lateral to the ureter. Clear separation of vascular structures from the planned excision field was achieved before any energy application. When disease extended laterally or posteriorly, dissection was cautiously extended into the obturator or pararectal spaces, with careful preservation of autonomic nerves.

Excision of endometriotic lesions was performed only after complete isolation of the ureter and vessels. Sharp dissection combined with bipolar energy was used for hemostasis, while monopolar energy was minimized due to the risk of lateral thermal spread. All visible endometriotic tissue was excised to optimize symptom relief and reduce recurrence. In cases involving the rectovaginal septum or rectosigmoid colon, dissection followed established anatomical planes, with multidisciplinary consultation recommended when bowel wall involvement was suspected.

An anatomy-driven retroperitoneal approach provides a safe and reproducible technique for laparoscopic excision of pelvic sidewall DIE. Early retroperitoneal access, systematic ureterolysis, and controlled excision under direct visualization are key elements for minimizing complications and achieving complete disease removal.

Keywords: Deeply infiltrating endometriosis, Endometriosis surgery, Pelvic sidewall, Retroperitoneum

Management of Endometriosis in Adolescents

Leili Hafizi

Department of Obstetrics and Gynecology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

Management of endometriosis in adolescents requires early recognition, individualized therapy, and a long-term, multidisciplinary plan focused on pain control and fertility preservation. Medical management is the cornerstone, with surgery reserved for selected cases and always performed conservatively to minimize damage to ovarian reserve.

First-line treatment combines lifestyle measures and NSAIDs for dysmenorrhea with hormonal suppression to inhibit ovulation and menstruation-related inflammation. Continuous combined oral contraceptives or progestins are preferred to achieve amenorrhea and reduce recurrence of pain. Therapy should be regarded as suppressive rather than curative, with continued administration until pregnancy is desired, reflecting the chronic nature of the disease.

When pain persists despite optimized first-line therapy, options include escalation of progestins or administration of GnRH agonists with add-back therapy, employed for limited durations with careful monitoring of bone health. Multidisciplinary pain programs incorporating pelvic floor physiotherapy, psychological support, and school or work accommodations help mitigate the impact on quality of life and should be integral to long-term management.

Diagnostic and therapeutic laparoscopy is indicated in adolescents with persistent, function-limiting symptoms despite adequate medical treatment, or when imaging suggests other pathology. Surgical strategy emphasizes meticulous excision or ablation of visible lesions, maximal preservation of reproductive structures, and immediate postoperative transition to hormonal suppression to reduce recurrence. Lifelong follow-up, shared decision-making, and counseling about future fertility are integral to adolescent endometriosis care.

Keywords: Endometriosis, Fertility preservation, Dysmenorrhea, Amenorrhea, GnRH agonists, Surgery, Multidisciplinary programs



EMIG 2026

Medical Management of Endometriosis: Role of Combined Estrogen-Progestin Therapy

Safoura Rouholamin

Department of Obstetrics and Gynecology, School of Medicine, Isfahan University of Medical sciences, Isfahan, Iran

Abstract

Endometriosis is a chronic inflammatory disease that requires continuous management during the reproductive period. Treatment goals include maximizing medical therapy to control symptoms and avoiding repeat surgical intervention. Each treatment plan is individualized to include patient preferences and takes into account the clinical presentation, symptom severity, disease extent and location, reproductive desires, patient age, medication side effects, surgical complication rates, and cost. Combined contraceptives are commonly used as first-line therapy because they are suitable for long-term use, well tolerated, relatively inexpensive, easy to use, and provide contraception as well as additional benefits, including a reduced risk of ovarian and endometrial cancers. No method or drug combination has been demonstrated as superior to another. Estrogen-progestin contraceptives are thought to suppress ovarian function and thereby reduce endometriosis disease activity and pain. The purported therapeutic mechanism is progestin-induced decidualization and subsequent atrophy of endometrial tissue. Patients with adequate symptom improvement continue the hormonal therapy regimen until pregnancy is desired or the average age of menopause is reached.

Keywords: Endometriosis, Contraceptive, Ovarian function, Menopause, Surgical complications



EMIG 2026

Isthmocele and Infertility

Afsaneh Shahbakhsh

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Isthmocele is a gynecological condition characterized by a disruption in the uterine scar, often associated with prior cesarean sections. This anatomical anomaly can be attributed to inadequate or insufficient healing of the uterine wall following a cesarean incision. It appears that isthmocele may impact a woman's quality of life as well as her reproductive capacity. The incidence of isthmocele can range from 20% to 70% in women who have undergone a cesarean section. This review aims to sum up the current knowledge about the effect of isthmocele on fertility and the possible therapeutic strategies to achieve pregnancy. However, currently, there is not sufficiently robust evidence to indicate the need for surgical correction in all asymptomatic patients seeking fertility. In cases where surgical correction of isthmocele is deemed necessary, it is advisable to evaluate residual myometrial thickness (RMT). For patients with $RMT > 2.5-3$ mm, hysteroscopy appears to be the technique of choice. In cases where the residual tissue is lower, the use of laparoscopic, laparoscopic, or vaginal approaches is warranted.

Keywords: Isthmocele, Infertility, Residual myometrial thickness, Surgical correction, Laparotomy, Laparoscopy



EMIG 2026

The Effect of Adenomyosis on Embryo Transfer

Afsaneh Mohammadzadeh

Reproductive Biotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Adenomyosis is a uterine condition where endometrial tissue invades the myometrium, negatively impacting embryo implantation in embryo transfer cycles like IVF. Studies show it displaces the window of implantation (WOI) and reduces implantation rates.

Adenomyosis disrupts uterine peristalsis, impairs endometrial receptivity, and hinders decidualization, preventing proper embryo-endometrium interaction. Inflammatory factors and hormonal changes further degrade the uterine environment. Recurrent implantation failure (RIF) rates in adenomyosis patients reach up to 66.6%.

In IVF cycles, clinical pregnancy and live birth rates are significantly lower in adenomyosis patients (31-47% vs. 46-64% in controls), with higher spontaneous miscarriage rates. Personalized embryo transfer based on adjusted WOI can improve pregnancy rates to 62.5%.

WOI assessment via endometrial biopsy and timed embryo transfer are recommended in such cases. Pre-transfer treatments like GnRH agonists can enhance the uterine environment.

Keywords: Adenomyosis, Window of implantation, Recurrent implantation failure, In vitro fertilization



EMIG 2026

Endometriosis in Adolescence

Maryam Hashemi

Department of Obstetrics and Gynecology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Abstract

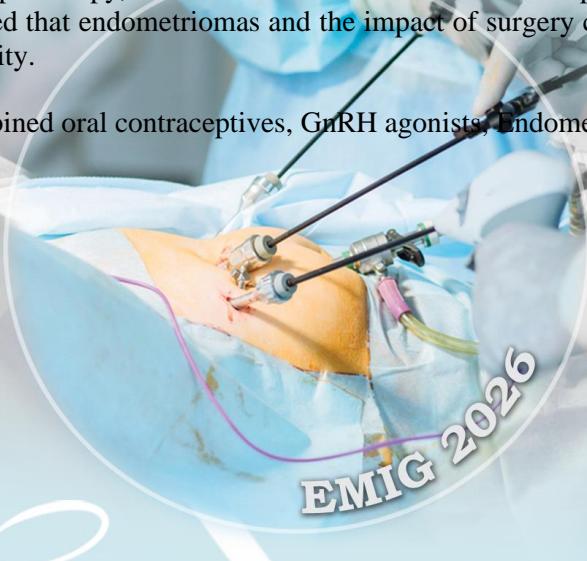
Detailed history-taking, including age at menarche, menstrual cycle, family history, and presence of reproductive tract anomalies, is necessary for diagnosing endometriosis during adolescence. Endometriosis during adolescence should be considered if chronic or acyclic pelvic pain is accompanied by nausea, dysmenorrhea, gastrointestinal disturbances, dysuria, or dyspareunia. Transvaginal ultrasonography is effective for diagnosing endometriosis, but if not feasible, transabdominal, transrectal, or transperineal ultrasonography or pelvic MRI may be considered. Diagnosing endometriosis in adolescents using biomarkers such as

CA-125 is not recommended. Diagnostic laparoscopy may be considered for adolescents with suspected endometriosis who are negative on imaging or do not respond to medical therapy. If endometriosis is suspected, NSAIDs can be considered as the first-line treatment to control pain. If there is no response to NSAIDs for pain associated with endometriosis, combined oral contraceptives (COCs) or progestins should be prescribed. However, it is important to note that some progestins may cause bone mineral density (BMD) loss. If COCs or progestin therapy fails, GnRH agonists with add-back therapy may be considered.

ESHRE guideline recommended GnRH agonists with add-back therapy for up to 1 year in adolescents with laparoscopically confirmed endometriosis and associated pain in whom hormonal contraceptives or progestogen therapy failed.

Treatment may be considered to control related symptoms in adolescents with endometriosis, but high recurrence rates should be taken into account. If surgery is necessary, it should be performed by a skilled specialist using laparoscopy, and all lesions should be removed if possible. Adolescents with endometriosis should be informed that endometriomas and the impact of surgery can decrease ovarian reserve, which may affect future fertility.

Keywords: Combined oral contraceptives, GnRH agonists, Endometriosis, Adolescence, Progestins



EMIG 2026

Advances in Ultrasound Imaging for Deep Infiltrating Endometriosis with Parametrial Involvement

Nasim Naseri

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis is a chronic benign gynecological disease affecting 10% of women of reproductive age. It is a multifocal and multiorgan pathology that may involve the reproductive organs and various pelvic structures, such as the bladder, uterosacral ligaments, ureters, rectum, and rectosigmoid. Amongst patients undergoing surgical treatment for endometriosis, 14.5–57% of cases are estimated to have deep lateral parametrial endometriosis (dLPE). This location of endometriosis is often associated with more severe disease, with possible involvement of the ureter or the nerve fibers of the lower hypogastric plexus and somatic nerves, such as the sacral roots.

Preoperative sonographic staging in patients with suspected parametrial endometriosis is essential to plan surgical intervention and anticipate the need for a multidisciplinary approach, and thus optimize surgical outcome. The results of a recent meta-analysis suggest that there is a need to define more accurately the ultrasonographic criteria for parametrial involvement in endometriosis. The 2023 addendum to the International Deep Endometriosis Analysis (IDEA) consensus highlights the sonographic features of the parametrium and outlines ultrasound techniques for diagnosing deep endometriosis in this region.

Keywords: Deep infiltrating endometriosis, Reproductive organs, Nerve fibers, Somatic nerves, Parametrial involvement



EMIG 2026

Practical Skills in Laparoscopic Surgeries

Roya Padmehr

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Laparoscopic surgery is a cornerstone of modern minimally invasive surgical practice and requires a distinct set of practical skills that differ significantly from those used in open surgery. Mastery of these skills is essential to ensure patient safety, procedural efficiency, and optimal surgical outcomes. One of the fundamental practical skills in laparoscopic surgery is camera navigation and maintenance of a stable visual field. Surgeons must develop excellent hand–eye coordination to interpret two-dimensional images displayed on a monitor and translate them into precise three-dimensional movements. Depth perception, spatial orientation, and ambidexterity are therefore critical components of laparoscopic performance.

Instrument handling represents another core practical skill. This includes proper grip, controlled force application, and coordinated bimanual manipulation of long instruments with limited degrees of freedom. Surgeons must perform delicate tasks such as tissue grasping, dissection, cutting, and energy-based coagulation while minimizing trauma to surrounding structures. Effective control of bleeding and safe use of energy devices are particularly important to prevent intraoperative complications. Advanced practical skills include intracorporeal suturing and knot tying, which are considered among the most challenging aspects of laparoscopic surgery. These tasks demand precision, fine motor control, and extensive practice. Proficiency in suturing significantly contributes to reduced operative time and improved surgical quality.

Training and acquisition of laparoscopic practical skills are best achieved through structured educational programs using box trainers, virtual reality simulators, and supervised clinical practice. Objective assessment tools focusing on accuracy, efficiency, and error rates help monitor progress and competence. In conclusion, practical skills form the foundation of successful laparoscopic surgery. Continuous training, simulation-based practice, and objective evaluation are essential to develop and maintain these skills, ultimately leading to safer procedures and improved patient outcomes.

Keywords: Laparoscopic surgery, Practical skills, Instrument handling, Energy-based coagulation, Dissection, Educational programs



EMIG 2026

SMART-LAP: A Structured Model for Laparoscopic Training

Roya Padmehr

Avicenna Fertility Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

SMART-LAP is a comprehensive educational framework designed to enhance laparoscopic training through a structured, skill-based, and technology-enhanced approach. Laparoscopic surgery requires advanced psychomotor abilities, deep anatomical understanding, and high levels of precision. Traditional apprenticeship-based training is often limited by patient safety concerns and restricted operative exposure. SMART-LAP addresses these limitations by integrating simulation, objective assessment, and modern digital tools into a unified training model.

The SMART components focus on foundational learning principles. Simulation-based training (S) allows trainees to practice core skills repeatedly in a safe environment using box trainers, virtual reality, and procedural simulators. Motor skills development (M) emphasizes hand-eye coordination, ambidexterity, depth perception, and controlled instrument movement. Anatomy awareness (A) highlights the importance of three-dimensional anatomical orientation and recognition of critical structures during minimally invasive procedures. Real-time feedback (R), provided by instructors or intelligent systems, enables immediate error correction and performance optimization. Technology-enhanced learning (T) incorporates artificial intelligence, video analysis, and digital platforms to personalize training and accelerate skill acquisition. The LAP components emphasize performance and patient outcomes. Laparoscopic dexterity (L) focuses on advanced operative skills such as dissection, suturing, knot tying, and energy device handling. Assessment (A) involves objective evaluation using validated metrics, task completion time, error rates, and motion analysis. Patient safety (P) represents the ultimate goal of the SMART-LAP model, ensuring that improved technical competence translates into safer surgeries, reduced complications, and better clinical outcomes. Overall, SMART-LAP provides a modern, adaptable, and evidence-based framework for laparoscopic education. By combining technical skills, cognitive training, and intelligent technologies, this model supports efficient learning, standardized assessment, and improved surgical performance.

The table below defines the SMARTLAP framework, outlining each component, its meaning, and its educational role in laparoscopic training.

Components	Meaning	Educational role
S	Simulation-based training	Safe and repetitive practice
M	Motor skills	Hand-eye coordination and precision
A	Anatomy awareness	3D anatomical understanding
R	Real-time feedback	Immediate correction and guidance
T	Technology-enhanced learning	AI and digital training tools
L	Laparoscopic dexterity	Advanced operative skills
A	Assessment	Objective skill evaluation
P	Patient safety	Reduction of errors and complications

Keywords: SMART-LAP, Simulation-based training, Laparoscopic dexterity, Patient safety, Assessment, Motor skills, Artificial intelligence, Digital training tools

Modern Methods for Teaching Laparoscopic Skills: Global Perspectives and the Iranian Experience

Khadijeh Shadjoo

- Reproductive Immunology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

- Pelvic Pain, Endometriosis, and Advanced Laparoscopy Clinic, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

The purpose of the current study was to review contemporary, evidence-based methods for laparoscopic training worldwide, compare global best practices with the current status of laparoscopic training in Iran, and provide practical recommendations along with an implementation roadmap for improving training programs.

Why modernize laparoscopic training?

Minimally invasive surgery (MIS) requires the integration of psychomotor, cognitive, and intraoperative decision-making skills. Traditional apprenticeship models (“see one, do one”) are increasingly recognized as insufficient to ensure patient safety and consistent skill acquisition. A growing body of evidence supports simulation-based training, competency-based medical education (CBME), and telementoring as essential components of modern surgical education.

Core components of modern laparoscopic training

The core components of modern laparoscopic training include simulation-based deliberate practice using box trainers, virtual reality (VR), and augmented reality (AR); competency-based curricula with milestone-driven progression (CBME); objective assessment tools such as the Fundamentals of Laparoscopic Surgery (FLS), Objective Structured Assessment of Technical Skills (OSATS), and motion-based performance metrics; and the use of telementoring and remote proctoring to support training and skill acquisition.

Simulation-based training: box trainers and low-cost models

Box trainers are cost-effective and have been shown to facilitate the transfer of basic psychomotor skills to the operating room. Multiple validation studies demonstrate that low-cost simulators achieve meaningful skill improvement, making them particularly suitable for resource-limited settings and decentralized training programs.

Virtual reality simulation

VR simulators provide standardized scenarios, objective performance metrics, and automated feedback. Randomized controlled trials and systematic reviews consistently show that VR training improves laparoscopic skills and translates into improved operating room performance. VR is particularly valuable for deliberate practice and benchmarking trainee performance.

Augmented reality and emerging technologies

AR systems overlay procedural guidance to enhance training efficiency, as demonstrated in recent studies. Emerging technologies include haptic feedback, AI-driven performance assessment, and patient-specific procedural rehearsal. While promising, these tools require further standardization and long-term validation.

Tlementoring and remote proctoring

Tlementoring enables expert surgical guidance across geographic distances and has demonstrated effectiveness in low-resource and distributed settings. It supports scalable mentorship, continuous professional development, and structured feedback beyond traditional training centers.

Competency-based curricula

Modern surgical education is shifting from time-based training to competency-based progression. International frameworks, such as those from the RCOG and RCS, emphasize entrustable professional activities (EPAs), clearly defined milestones, and learning agreements to ensure consistent skill acquisition.

Objective assessment tools

Objective assessment frameworks include FLS, OSATS, motion-analysis systems, and data-driven performance dashboards. Systematic reviews document hundreds of studies supporting these tools. Their advantages include reproducibility, benchmarking across institutions, and targeted remediation.

Evidence summary

Simulation-based training using box trainers and VR improves laparoscopic skills and operating room performance. Tlementoring demonstrates moderate but growing evidence for improving surgical competence. AR and AI-based tools show substantial promise but require further validation before widespread adoption

Status of laparoscopic training in Iran: strengths

Iran has experienced rapid growth in laparoscopic practice, supported by dedicated training centers such as programs at Tehran University of Medical Sciences. Trainees demonstrate strong motivation and a preference for hands-on learning. Regional fellowships and workshops are increasingly available.

Status of laparoscopic training in Iran: gaps and challenges

Access to high-fidelity simulators (HFS) and standardized curricula remains variable. National-level implementation of competency-based frameworks is limited. There is a need for scalable mentorship models, validated assessment systems, and stronger integration of training-related research.

Recommendations for Iran

A comprehensive reform of laparoscopic training should begin with the introduction of a tiered, competency-based curriculum that supports progressive skill acquisition from basic to advanced levels. This curriculum should be reinforced through blended simulation programs that combine cost-effective box trainers with shared virtual reality hubs to maximize accessibility and training efficiency. Objective assessment tools, such as the FLS and the OSATS, should be systematically adopted and integrated with electronic portfolios to enable longitudinal tracking of trainee performance and competency attainment. In parallel, telementoring platforms should be utilized to extend expert supervision beyond tertiary centers, thereby supporting both training and continuing professional development. Finally, the establishment of multicenter research collaborations and outcome registries is essential to evaluate training effectiveness, promote evidence-based improvements, and ensure sustained quality advancement in laparoscopic education.

Implementation roadmap

The implementation roadmap should be structured in phased stages to ensure feasibility and sustainability. Phase 1 (0–6 months) focuses on conducting a comprehensive needs assessment, training faculty members in modern educational methodologies, and procuring low-cost simulation equipment. Phase 2 (6–12 months) involves launching pilot competency-based curricula, implementing standardized assessment systems, and initiating telementoring programs to expand expert supervision. Phase 3 (12–24 months) emphasizes scaling shared virtual reality hubs, piloting AR technologies, and pursuing formal accreditation while integrating structured research activities to evaluate outcomes and support continuous improvement.

Take-home messages

Modern laparoscopic training integrates simulation, competency-based education, objective assessment, and telementoring. Scalable and cost-effective solutions enable meaningful progress even in resource-limited environments. Iran has a strong foundation to adopt these methods, with priority placed on standardization, mentorship, and evaluation.

Keywords: Laparoscopic skills, Minimally invasive surgery, Competency-based education, Telemonitoring, Standardization, Needs assessment

Extracellular Vesicles and Non-coding RNAs in Endometriosis: Emerging Roles, Diagnostic Potential, and Pathogenic Insights

Niknam Lakpour

Reproductive Biotechnology Research Centre, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis remains one of the most challenging gynecological disorders. Despite its high prevalence, definitive diagnosis is often delayed, and existing treatments (hormonal or surgical) have significant limitations. In recent years, extracellular vesicles (EVs), particularly exosomes, and non-coding RNAs such as miRNAs and lncRNAs, have drawn major attention as intercellular messengers. These particles can carry molecular cargo (RNAs, proteins, lipids) and potentially regulate gene expression, inflammation, angiogenesis, tissue invasion, and immune responses.

The objective of this review is to compile and analyze current evidence on the role of EVs and non-coding RNAs in the pathogenesis of endometriosis, evaluate their potential as diagnostic or prognostic biomarkers, and outline the challenges and future perspectives for their clinical application.

EVs derived from endometriosis patients exhibit distinct molecular signatures, with seminal studies demonstrating that EVs from both tissue and plasma harbor unique miRNA and lncRNA profiles not observed in healthy controls, suggesting a potential role in disease pathology. Functional studies further indicate that patient-derived EVs can enhance cell proliferation, stimulate angiogenesis, and provoke inflammatory responses in endothelial and epithelial cells, processes central to lesion development and maintenance. Of particular interest, the non-coding RNAs carried within circulating EVs, whether from plasma or peritoneal fluid, have been proposed as minimally invasive biomarkers for early detection, disease phenotyping, and prognosis, although methodological heterogeneity across studies remains a challenge. Bioinformatic analyses of EV-associated ncRNAs have implicated key signaling pathways, including PI3K/Akt, MAPK, and TGF- β , which may drive inflammation, angiogenesis, extracellular matrix remodeling, and fibrogenesis in ectopic tissue. Given that EVs and their RNA cargo can be readily isolated from body fluids, they hold significant potential for non-invasive diagnosis, disease monitoring, early detection of recurrence, and possibly guiding personalized management strategies. Accumulating evidence positions extracellular vesicles and their non-coding RNA contents at the center of endometriosis pathogenesis, and they are increasingly recognized as having significant potential as diagnostic and prognostic biomarkers, as well as therapeutic targets. Despite technical and methodological challenges, ongoing research in this area is being advanced, and it is anticipated that such efforts will transform the diagnosis, monitoring, and treatment of endometriosis, moving clinical practice toward less invasive and more personalized care strategies.

Keyword: Extracellular vesicles, Endometriosis, Non-coding RNA, Biomarkers

Metabolic Reprogramming in Endometriosis: Molecular Mechanisms and Therapeutic Prospects

Niknam Lakpour

Reproductive Biotechnology Research Centre, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis is a chronic inflammatory disorder characterized by the presence of endometrial like tissue outside the uterine cavity, which contributes to pain, infertility, and lesion persistence. Emerging evidence reveals that endometriotic cells undergo metabolic reprogramming, shifting toward aerobic glycolysis (Warburg like effect) and displaying mitochondrial dysfunction.

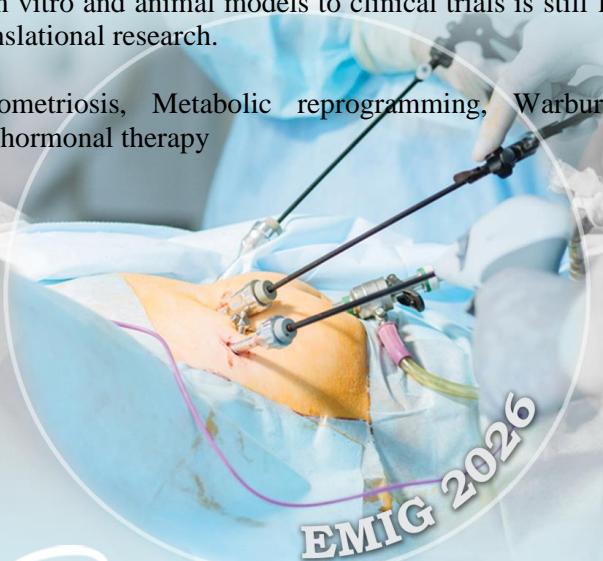
Key molecular drivers include hypoxia-inducible factor 1 α (HIF 1 α), activation of the PI3K/AKT/mTOR pathway, inflammatory cytokines (e.g., TGF β), and post-translational regulators such as SIRT7, which collectively enhance glycolytic enzyme expression (e.g., HK2, LDHA) and suppress oxidative phosphorylation.

These metabolic shifts result in increased glucose uptake, elevated lactate production, and acidification of the microenvironment, facilitating immune evasion, angiogenesis, and survival of ectopic lesions.

Recent multi omics analyses have identified hub genes associated with this reprogramming (e.g., PDK1, PFKFB4), offering novel biomarkers and non-hormonal therapeutic targets. Pre-clinical studies targeting glycolytic pathways, for instance with PDK or LDHA inhibitors, show promising results in reducing cell viability and metabolic flux in endometriotic cells.

Metabolic reprogramming is emerging as a central mechanism in the pathophysiology of endometriosis. Targeting key metabolic pathways represents a promising non-hormonal therapeutic strategy. However, translation from in vitro and animal models to clinical trials is still limited, highlighting an urgent need for well-designed translational research.

Keywords: Endometriosis, Metabolic reprogramming, Warburg effect, Glycolysis, Mitochondrial dysfunction, Non-hormonal therapy



EMIG 2026

How to Design the Operating Room for Advanced Laparoscopic Surgeries Based on WHO Checklist

Nasim Kalantari

Avicenna Fertility Center, Avicenna Research Institute, Tehran, Iran

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 anesthetic safety 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 boxes on the list. The designated checklist coordinator will often be a circulating nurse, but it can be clinician or healthcare professional participating in the operation room.

The checklist divides the operation into three phases: (A) Sign In, which occurs before induction of anesthesia; (B) Time Out, conducted before the surgical incision; and (C) Sign Out, performed before the patient leaves the operating room.

Keywords: Laparoscopic surgeries, WHO checklist, Patient safety, Operating room



Robotic-Assisted Exploration of the Alcock Canal with Full Exposure of Pudendal Nerve and Vessels: A Case Series and Surgical Approach

Kateryna Kolesnikova * , Khashayar Shakiba

Women's Pelvic Surgery of North Jersey, Hackensack, New Jersey, United States

Corresponding author: Women's Pelvic Surgery of North Jersey, Hackensack, New Jersey, United States

Phone: (716) 200-9262; Fax: (551) 313-8274

Email: drkkolesnikova@wpsnj.com

Abstract

The purpose of the current study was to demonstrate a novel surgical approach to access Alcock's canal with a full decompression of the pudendal nerve. A step-by-step description of a robotic-assisted surgical approach and a case series of 3 patients are presented. A single site institution study was conducted by a single surgeon experienced in robotic surgery. Three patient cases are reviewed in this study. These patients presented with clinical findings consistent with pudendal neuralgia and underwent surgery utilizing the described surgical technique. A robotic-assisted approach was used to dissect the Alcock canal and achieve decompression of the pudendal nerve. Surgeries were performed using the daVinci® Xi robotic system. The described surgical technique provides enhanced access to the entire length of the pudendal nerve, including inside the Alcock canal, with improved visibility compared to current approaches. The procedure demonstrates feasibility and reproducibility. The three patients included in the case series did not have any surgical complications and reported sustained improvement in symptoms associated with pudendal nerve dysfunction following surgical decompression. With the enhanced access to the pudendal nerve provided by the novel surgical technique demonstrated in this study, a more comprehensive nerve decompression can be performed. This has the potential to improve outcomes in patients with pudendal neuralgia while limiting surgical complications. Future adaptation and refinement of this technique may contribute to the advancement of the surgical management of pudendal neuralgia.

Keywords: Alcock canal, Pudendal canal, Pudendal neuralgia, Robotic-assisted surgery



EMIG 2026

Poster Presentations



EMIG 2026

Molecular Overlaps Between Cancer and Endometriosis: A Review of Shared Mechanisms and Clinical Implications

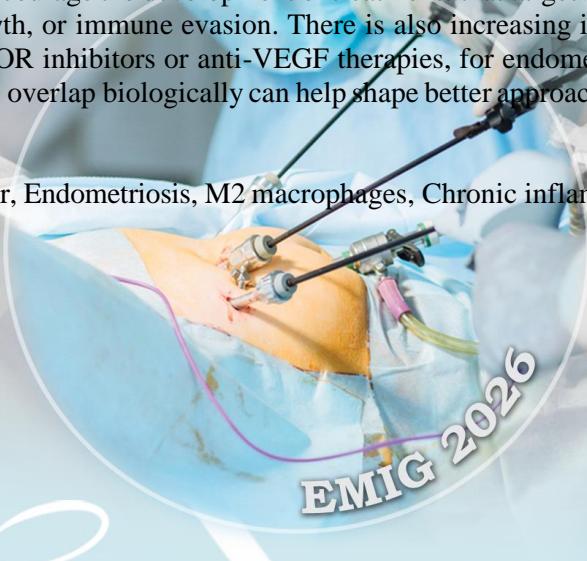
Fatemeh Nassaji

Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran

Abstract

Endometriosis is a benign gynecological condition, yet it often behaves in ways that resemble cancer because it shows invasive growth, spreads beyond its original site, and avoids immune detection. This review summarizes recent literature that explores the molecular links between endometriosis and various cancers, with a focus on the shared biological mechanisms that may help explain their similarities. One of the strongest connections between the two conditions is hormonal regulation. Both endometriotic lesions and many hormone-dependent tumors are heavily reliant on estrogen-driven pathways that support uncontrolled cell growth and long-term survival. Studies show that both endometriosis and certain cancers share some of the same genetic changes, including mutations in ARID1A, PTEN, KRAS, and PIK3CA. These mutations often activate similar signaling pathways, especially the PI3K/AKT pathway, which plays a role in driving cell growth and proliferation. Chronic inflammation plays an equally important role. High levels of cytokines like interleukin-6 activate pathways such as MAPK/ERK, causing cells to grow faster and avoid normal cell death. Endometriosis also changes the nearby immune environment so that it behaves much like the area around a tumor. When natural killer cells become less active and more M2 macrophages are present, the immune system cannot clear the endometriosis tissue. This allows the lesions to hide and survive, in a manner similar to cancer cells. Another important similarity is the reliance on enhanced angiogenesis. Higher levels of VEGF help create new blood vessels, giving both endometriosis lesions and tumors the nutrients they need to grow. Understanding these shared molecular features can improve clinical care. It may lead to earlier diagnosis through new biomarkers and encourage the development of treatments that target specific processes like inflammation, new blood vessel growth, or immune evasion. There is also increasing interest in using certain anticancer drugs, such as PI3K/mTOR inhibitors or anti-VEGF therapies, for endometriosis. Overall, recognizing how cancer and endometriosis overlap biologically can help shape better approaches to detection, treatment, and long-term management.

Keywords: Cancer, Endometriosis, M2 macrophages, Chronic inflammation, Long-term management



EMIG 2026

The Role of Macrophages in Endometriosis: Immunopathology and Therapeutic Perspectives

Saba Safdarpour

Faculty of Modern Sciences, Islamic Azad University of Medical Sciences, Tehran, Iran

Email: saba.safdarpour97@gmail.com

Abstract

Endometriosis is a chronic inflammatory gynecological disorder characterized by the ectopic presence of endometrial-like tissue. Among various immune players, macrophages are increasingly recognized as key regulators in the disease's pathophysiology. This review aimed to explore the multifaceted role of macrophages in endometriosis, focusing on their plasticity, secretory profile, and potential as therapeutic targets. A comprehensive literature review was conducted using databases including PubMed, Scopus, and Web of Science. Studies from the past two decades addressing macrophage function, polarization, and interaction with endometriotic lesions were included. Evidence indicates that macrophages in endometriotic lesions exhibit an altered M2-like phenotype, contributing to lesion survival, angiogenesis, and immune evasion. Crosstalk between macrophages and other stromal or immune cells promotes chronic inflammation and fibrosis. Additionally, extracellular vesicles (EVs) released by macrophages modulate the microenvironment and influence lesion progression. Understanding macrophage dynamics opens new avenues for targeted therapies in endometriosis. Modulating macrophage polarization or blocking their pathological interactions could represent a novel approach to managing the disease.

Keywords: Endometriosis, Macrophages, Inflammation, Immune cells, Polarization, Therapeutic targets



Improving Pelvic Pain and Sexual Health in Endometriosis: Efficacy of Biofeedback Versus Pelvic Floor Training

Zahra Rastegari, Masoumeh Ghasemian, Zahra Yazdanpanahi

Department of Gynecology and Midwifery, Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

Email: rastegari.zahra2015@gmail.com

Email: masome.ghasemian.1998@gmail.com

Email: z_yazdanpanahi@yahoo.com



Abstract

Endometriosis, a chronic estrogen-dependent inflammatory disease, affects 5-15% of reproductive-aged women, predominantly causing chronic pelvic pain (CPP) and impaired sexual quality of life (SQoL). Current management paradigms increasingly favor non-invasive, self-management strategies. Given evidence that pelvic floor dysfunction contributes to pain, this study aimed to compare the efficacy of biofeedback and supervised pelvic floor exercises (PFEs) on improving CPP and SQoL in women with mild to moderate endometriosis.

This randomized, parallel-group clinical trial was conducted on 90 married women with mild to moderate endometriosis. Participants were recruited from gynecology clinics affiliated with Shiraz University of Medical Sciences in 2023 and randomly assigned via permuted block randomization to one of three groups: a control group (n=32), a pelvic floor exercise group (n=32), or a biofeedback group (n=26). The intensity of chronic pelvic pain and sexual quality of life were assessed using the Visual Analog Scale (VAS) and the Sexual Quality of Life-Female (SQOL-F) questionnaire, respectively, at baseline and 8 weeks post-intervention. All analyses were performed using SPSS software (version 27), with a p-value < 0.05 denoting statistical significance.

At baseline, the groups were homogenous in demographic and clinical characteristics ($p > 0.05$). Following the 8-week intervention, both the pelvic floor exercise and biofeedback groups demonstrated a significantly greater reduction in chronic pelvic pain intensity compared to the control group ($p < 0.001$), with no statistically significant difference between the two active interventions ($p = 0.909$). Similarly, sexual quality of life improved significantly in both intervention groups relative to controls ($p < 0.001$), again with no significant difference between the exercise and biofeedback approaches ($p = 0.171$). These results indicate that both non-pharmacological interventions are comparably effective in alleviating pelvic pain and enhancing sexual quality of life in women with endometriosis.

Both biofeedback and pelvic floor exercises were found to significantly improve pelvic pain and sexual quality of life in women with endometriosis. The comparable efficacy of both interventions provides flexibility for clinicians to tailor treatment based on individual patient preferences and resource availability. These findings underscore the value of conservative management strategies for endometriosis and their potential to enhance patient quality of life.

Keywords: Endometriosis, Biofeedback, Pelvic floor exercise, Chronic pelvic pain, Sexual quality of life

Shared Somatic Mutations in the ARID1A and PIK3CA Genes Implicate Common Pathogenic Pathways in Endometriosis-Associated Ovarian Carcinomas

Tayebeh Hamzehloei ^{*}, Faezeh Khaghani ¹

Department of Medical Genetics and Molecular Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author: Department of Medical Genetics and Molecular Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
Email: hamzehloiet@mums.ac.ir

Abstract

Endometriosis is a common benign gynecological condition that confers an increased risk of clear cell ovarian carcinoma (CCOC) and endometrioid ovarian carcinoma (ENOC). The molecular drivers of malignant transformation in this context are not fully elucidated. This study investigated the somatic mutation landscape of cancer-associated endometriosis to identify early genetic events in carcinogenesis.

In this study, whole-exome sequencing was performed on a cohort of 25 matched trios comprising invasive carcinoma tissue, adjacent histologically benign endometriosis, and normal tissue from patients with CCOC or ENOC. Mutational analysis was conducted to identify variants shared across the tissue types.

Our analysis identified a high prevalence of somatic mutations in *ARID1A* and *PIK3CA* within both the carcinomas and the adjacent endometriosis. Importantly, identical mutations in these genes were observed in a clonal relationship between benign and malignant tissues from the same patient. In vitro experiments demonstrated that the combination of *ARID1A* loss and *PIK3CA* activation synergistically promoted cellular hyperproliferation and conferred resistance to anoikis. These findings demonstrate that mutations in *ARID1A* and *PIK3CA* are early, critical driver events in the malignant transformation of endometriosis to ovarian cancer. This provides a molecular basis for the well-established clinical link between these conditions and identifies potential biomarkers for risk stratification in patients with endometriosis.

Keywords: Endometriosis, Clear cell ovarian carcinoma, Endometrioid ovarian carcinoma, Risk stratification, Whole-exome sequencing



EMIG 2026

Integrated Genomic and Epigenomic Analysis of Ectopic Endometrial Lesions Reveals Novel Diagnostic and Therapeutic Targets in Endometriosis

Tayebeh Hamzehloei ^{*}, Soheyla Jafarpour

Department of Medical Genetics and Molecular Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author: Department of Medical Genetics and Molecular Medicine, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Email: hamzehloiet@mums.ac.ir

Abstract

Endometriosis, a chronic inflammatory disease affecting nearly 10% of women, causes severe pelvic pain and infertility. Its pathogenesis involves complex interactions between inherited genetic predisposition and acquired epigenetic dysregulation. While genome-wide association studies (GWAS) have identified genetic susceptibility loci near *WNT4* (e.g., rs7570498) and *VEGFA* (e.g., rs3025039), these explain only part of the disease heritability. Concurrently, epigenetic alterations, DNA methylation and histone modifications, are known to drive ectopic lesion survival and invasion. The direct interplay between germline genetic variants and lesion-specific epigenetic landscapes in shaping endometriosis phenotypes remains largely unexplored. This study enrolled 150 endometriosis patients with diverse clinical presentations and 50 healthy controls. Germline DNA from peripheral blood underwent whole-exome sequencing (WES). From endometriosis patients, paired ectopic and eutopic endometrial biopsies were collected for targeted bisulfite sequencing (DNA methylation) and ChIP-seq (H3K4me3, H3K27ac). Integrated bioinformatic analyses correlated germline genetic variants with tissue-specific epigenomic profiles and clinical phenotypes, including pain scores, lesion types, and recurrence.

Our integrated analysis revealed distinct molecular signatures. A significant enrichment of *WNT4* (rs7570498) and *VEGFA* (rs3025039) germline risk alleles was found in patients with deep infiltrating endometriosis (DIE). These alleles correlated with specific hypermethylation patterns in proximal enhancer regions and increased H3K27ac marks in key angiogenesis (*VEGFA*, *ANGPT2*) and inflammation (*IL6*, *TNF*) genes within ectopic lesions. Furthermore, novel long non-coding RNAs (lncRNAs), epigenetically modulated in ectopic tissue, were identified, correlating with both germline risk alleles and patient-reported pain severity.

This comprehensive genomic and epigenomic investigation demonstrates that germline genetic predisposition significantly influences the lesion-specific epigenetic landscape in endometriosis, driving aggressive and symptomatic phenotypes. These identified germline-epigenome interaction modules offer promising novel biomarkers for predicting disease severity and recurrence, paving the way for precision diagnostics and targeted epigenetic therapies.

Keywords: Precision diagnostics, Epigenetic therapies, Endometriosis, Therapeutic targets, Angiogenesis

Unraveling the Heritable Components of Endometriosis Using Whole Exome Sequencing in Personalized Medicine

Zahra Allahyar ^{1,2}, Mona Khosravi ², Kiandokht Kiani ^{3*}, Amir Amiri-Yekta ^{2*}

1. Department of Genetics, Faculty of Sciences and Advanced Biological Technologies, University of Science and Culture, Tehran, Iran

2. Department of Genetics, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

3. Department of Endocrinology and Female Infertility, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

* Corresponding authors: Department of Endocrinology and Female Infertility, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

Email: k.kiani@royan-rc.ac.ir; Phone number: +989126099578

Department of Genetics, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

Email: amir.amiriye@royaninstitute.org; Phone number: +989369191509

Abstract

The study provides an overview of the use of whole-exome sequencing (WES) in the study of endometriosis, a common gynecological condition affecting around 10% of women. Endometriosis is a complex, estrogen-dependent condition characterized by the presence of endometrial-like tissue outside the uterus, which can lead to pain and infertility. Genetic factors play a significant role in endometriosis, with heritability estimates up to 50%. However, traditional genetic approaches like genome-wide association studies (GWAS) have limitations in identifying rare genetic variants. WES, which focuses on the genome's protein-coding regions, has emerged as a powerful tool to uncover rare pathogenic variants associated with endometriosis, especially in familial cases.

The electronic databases Medline (via PubMed) and Scopus were searched up to September 2024. Only English-language papers in our searches or study selection were included, with keywords such as "Endometriosis" and "Whole Exome Sequencing".

Several genes, including ARID1A, PIK3CA, KRAS, and PTEN, have been repeatedly identified in WES studies of endometriosis and related conditions like ovarian cancer, highlighting their potential importance in the pathogenesis of the disease. Integrating advanced genetic techniques like WES with accurate clinical diagnoses and comprehensive data analysis can provide valuable insights into the genetic basis of endometriosis and aid in the development of improved diagnostic and therapeutic strategies.

In conclusion, the integration of advanced genetic techniques like whole-exome sequencing with clinical data can help in understanding the pathogenesis of endometriosis by providing a comprehensive view of the genetic factors contributing to the condition. This approach allows for the identification of rare pathogenic variants associated with endometriosis, especially in familial cases, and can reveal insights into the underlying genetic mechanisms of the disease. Additionally, integrating WES with clinical data can aid in the development of improved diagnostic and therapeutic strategies tailored to the genetic profiles of individuals with endometriosis.

Keywords: Endometriosis, Hereditary, Whole exome sequencing, Personalized medicine

Designing and Validating a Health Promotion Program for Women with Endometriosis in Iran

Sanaz Mollazadeh^{1,3*}, Javad Moghri², Talat Khadivzadeh^{1,3}, Khadijeh Mirzai Najmabadi^{1,3}

1. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

2. Department of Management Sciences and Health Economics, School of Health, Management and Social Determinants of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

3. Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author: Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

Email: sanaz.mollazadeh@gmail.com

Abstract

Endometriosis, a chronic estrogen-dependent disease, significantly impacts women's lives. While interventions to improve quality of life are recommended, few studies have developed structured programs to achieve this. This study aimed to design and validate a health promotion program using a logical model.

A health promotion program was developed in two phases. Phase 1 employed conventional qualitative content analysis, using in-depth, semi-structured interviews to explore the experiences of women with endometriosis and their health-promoting lifestyles. Data collection continued until saturation was reached, after interviewing 14 participants. Phase 2 involved developing the health promotion program based on a logical model that integrated findings from the qualitative phase, a literature review, and focus group discussions with experts. The program was subsequently validated using the Delphi method.

The program resulted in five key strategies aimed at promoting health-enhancing lifestyles among women with endometriosis. First, it emphasized enhancing the healthcare system to ensure timely identification and the provision of high-quality services. Second, it focused on strengthening health education within schools and universities to raise awareness and promote preventive behaviors. Third, the program sought to empower women and their families through education and counseling, supporting effective disease management and improving overall quality of life. Fourth, it highlighted the importance of bolstering socio-cultural support to address stigma and foster a supportive environment. Finally, the program aimed to improve financial access to necessary healthcare services, reducing economic barriers to care.

This novel study utilized a mixed-method approach to design a health promotion program for women with endometriosis. By revealing hidden issues in attitudes among patients, medical staff, and healthcare providers, the program facilitates a better understanding of factors impacting health and quality of life. These findings can help stakeholders better support women with endometriosis, promoting healthy lifestyles and effective disease management.

Keywords: Health promotion, Life style, Endometriosis, Program, Qualitative analysis, Healthcare providers, Economic barriers

Pap Smear Findings and HPV Infection in Patients with Endometriosis: A Systematic Review

Shima Mohammadian ¹, Melina Amari Allah Yari ²

1. Gynecology Oncology Department, Kamali Teaching Hospital, Alborz University of Medical Sciences, Karaj, Iran

2. School of Nursing and Midwifery, Islamic Azad University Tehran Medical Sciences, Tehran, Iran

Abstract

Endometriosis, a chronic estrogen-dependent inflammatory condition, can alter immune responses and potentially influence susceptibility to viral infections. Human papillomavirus (HPV) is the principal etiologic agent of cervical cancer. This systematic review synthesized available evidence regarding HPV prevalence and Pap smear abnormalities among women with endometriosis. A systematic search was conducted in PubMed, Scopus, Web of Science, Embase, Cochrane Library, SID, and Magiran up to June 2025. Interventional and observational studies reporting HPV infection or Pap smear findings in confirmed endometriosis cases were included. Quality was assessed using the Newcastle–Ottawa Scale (NOS). The national study using NHANES data (2003–2006) included 1,768 women, of whom 129 reported a diagnosis of endometriosis.

In the NHANES cohort, the overall prevalence of any HPV infection was 42.6% (95% CI: 39.6–45.6%), while high-risk HPV prevalence was 26.7% (95% CI: 24.0–29.6%). After adjustment, endometriosis was not significantly associated with any HPV (adjusted prevalence ratio [aPR] = 0.84, 95% CI: 0.61–1.15) or high-risk HPV (aPR = 0.71, 95% CI: 0.44–1.14). In smaller studies, HPV prevalence ranged from 24.7% (predominantly low-risk genotypes) to 59.2% in cervical endometriosis patients. Another study reported higher rates of high-risk HPV among women with endometriosis (26%) compared to controls (10.2%, $p = 0.041$).

The largest population-based study, NHANES, found no significant difference in HPV prevalence between women with and without endometriosis. However, smaller-scale studies show conflicting outcomes, with some indicating increased HPV prevalence in endometriosis. These inconsistencies likely reflect heterogeneity in sample size, detection methods, and population characteristics. Future research with rigorous design and larger cohorts is warranted to determine whether tailored cervical screening strategies are needed for women with endometriosis.

Keywords: Endometriosis, Viral infections, Human papillomavirus, Adjusted prevalence ratio, Population characteristics, Cervical screening

EMIG 2026

Down-regulated Genes in Ovarian Endometriosis

Negin Tahmasebi¹, Vahid Shariati¹, Ghazaleh Zandi¹, Roya Padmehr², Mojtaba Dashtizadeh¹

1. *Embryonic Biotechnology Laboratory (EmBio Lab), National Institute of Genetic Engineering and Biotechnology, Tehran, Iran*

2. *Reproductive Biotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran*

Abstract

Endometriosis is a chronic estrogen-dependent inflammatory disease characterized by ectopic endometrial-like tissue involving the ovaries. A significant proportion of affected individuals experience infertility, and the disease is associated with pelvic pain, while diagnosis relies on laparoscopy. Transcriptomic analyses have revealed molecular signatures in endometriotic lesions, particularly downregulation of key genes, providing insight into disease mechanisms. However, no noninvasive biomarker has demonstrated diagnostic accuracy, underscoring the need for integrated approaches.

A literature-based review focused on RNA sequencing (RNA-seq) studies investigating transcriptional changes in ovarian endometriotic lesions. Only studies comparing ovarian endometriotic tissue with endometrial samples from women without endometriosis were included. Studies using microarray platforms or environmental samples were excluded. The analysis was limited to downregulated genes. International RNA-seq studies formed the primary evidence base, while Iranian studies were reviewed to identify gaps. RNA-seq studies demonstrate gene downregulation in ovarian endometriotic lesions, with 600– 700 genes showing reduced expression compared to normal endometrium. Notably, RASA1 and NF1, regulators of the Ras/MAPK pathway, are downregulated, indicating impaired control of cell proliferation and survival. In addition, miR-451 and members of the miR-200 family show reduced expression, contributing to altered epithelial differentiation, immune dysregulation, and increased invasion. Enrichment analyses reveal convergence in PI3K-Akt, MAPK signaling, and cytokine–receptor interaction pathways.

Ovarian endometriotic lesions exhibit an RNA-seq transcriptional signature characterized by downregulation of genes involved in cellular signaling, immune modulation, and tissue homeostasis. Although these findings highlight potential molecular targets, no single gene is diagnostically sufficient, emphasizing the need for integrated multi-marker and multi-omics approaches for non-invasive diagnosis and personalized management.

Keywords: RNA sequencing, Endometriosis, Tissue homeostasis, Personalized management, Immune dysregulation

EMIG 2026

Tissue Microbiome Profiling in Endometriosis: 16S rRNA-Based Studies and Conventional Microbiological Findings

Nasrin Damvar 1, Mojtaba Dashtizad 2, Vahid Shariati 2, Roya Padmehr 3, Parichehr Hanachi 1

1. Department of Biotechnology, Faculty of Biological Sciences, Alzahra University, Tehran, Iran

2. Embryo Biotechnology Laboratory (EmBio Lab), National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

3. Reproductive Biotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

Abstract

Endometriosis is a chronic inflammatory disorder characterized by the ectopic growth of endometrial-like tissue. Recent studies have highlighted the potential role of microbial dysbiosis within eutopic and ectopic endometrium in the disease's onset and progression. This review aims to summarize international and Iranian research focusing on the endometrial tissue microbiome, with particular emphasis on methodological differences in microbial identification.

A narrative literature review was conducted using PubMed, Scopus, and Google Scholar databases with the keywords "Endometriosis," "Microbiome," "Ectopic/ Eutopic endometrium," and "16SrRNA." International studies employing 16SrRNA profiling were compared with Iranian studies utilizing conventional microbiological culture, biochemical testing, and PCR/qPCR for bacterial identification.

Global studies demonstrated significant alterations in the microbial composition of ectopic endometrial lesions, including decreased *Lactobacillus* and increased *Gardnerella*, *Fusobacterium*, *Enterococcus*, and *Pseudomonas*. These changes were associated with the activation of proinflammatory pathways such as TGF- β and NF- κ B. In contrast, Iranian studies, based on classical culture and PCR methods, identified *E.coli*, *Enterococcus faecalis*, and *Klebsiella pneumoniae* as predominant pathogens, along with a marked reduction in beneficial *Lactobacillus* species. The absence of 16SrRNA sequencing in Iranian research limits the comprehensive assessment of microbial diversity and potential biomarkers.

Available evidence underscores microbial dysbiosis as a key contributor to chronic inflammation, immune modulation, and lesion persistence in endometriosis. Implementing advanced sequencing technologies, such as 16SrRNA and metagenomic analysis, in Iranian studies could provide deeper insights into microbial ecology, disease mechanisms, and novel microbiome-based therapeutic strategies.

Keywords: Endometriosis, Endometrial lesions, Microbial dysbiosis, Biomarkers, Microbiome



EMIG 2026

Upregulated Genes in Ovarian Endometriosis Across Transcriptomic Studies

Kosar Abbaszadeh ¹, Vahid Shariati ¹, Ghazale Zandi ¹, Roya Padmehr ², Mojtaba Dashtizad ^{1*}

1. Embryo Biotechnology Laboratory (EmBio Lab), National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

2. Reproductive Biotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

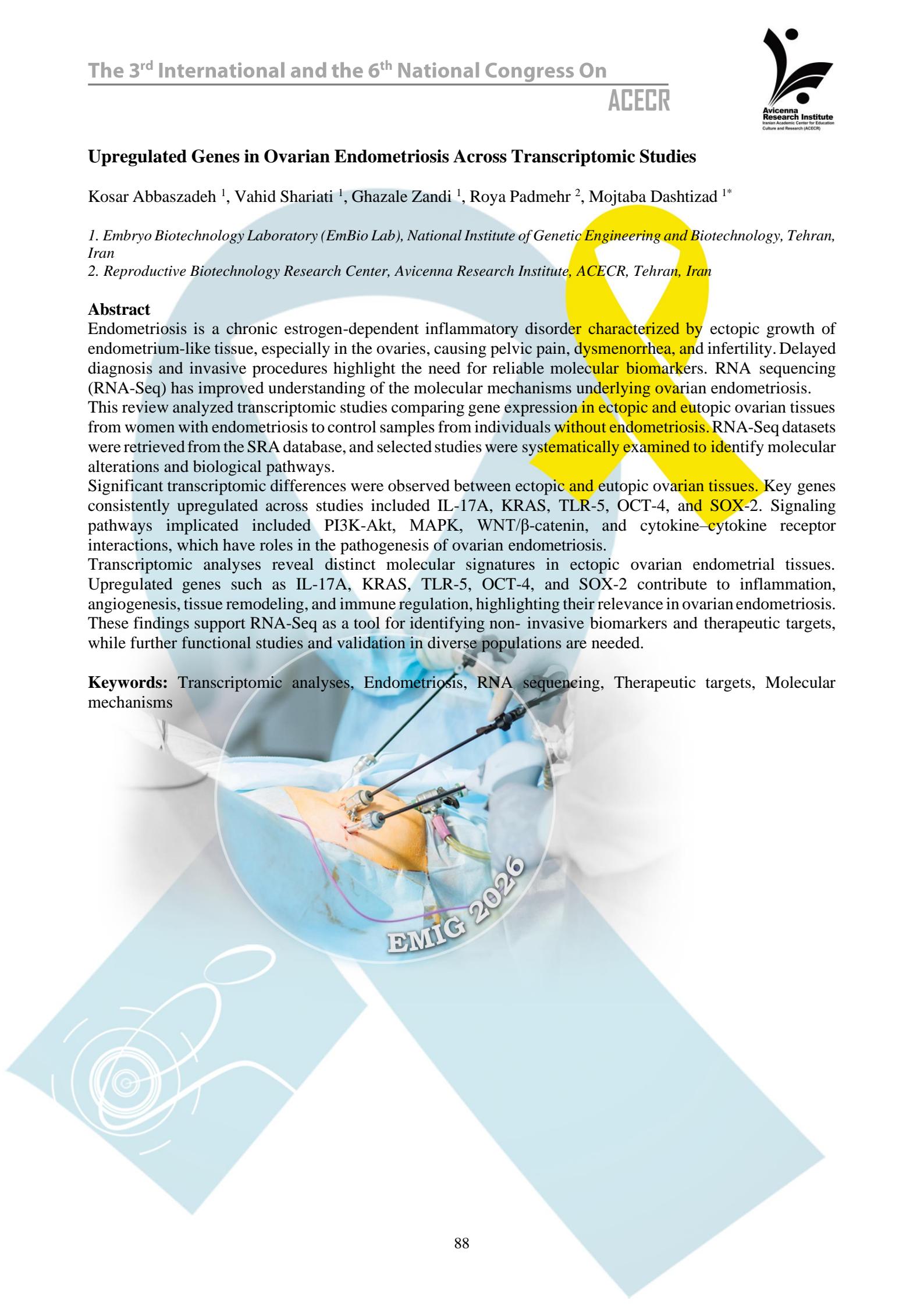
Abstract

Endometriosis is a chronic estrogen-dependent inflammatory disorder characterized by ectopic growth of endometrium-like tissue, especially in the ovaries, causing pelvic pain, dysmenorrhea, and infertility. Delayed diagnosis and invasive procedures highlight the need for reliable molecular biomarkers. RNA sequencing (RNA-Seq) has improved understanding of the molecular mechanisms underlying ovarian endometriosis. This review analyzed transcriptomic studies comparing gene expression in ectopic and eutopic ovarian tissues from women with endometriosis to control samples from individuals without endometriosis. RNA-Seq datasets were retrieved from the SRA database, and selected studies were systematically examined to identify molecular alterations and biological pathways.

Significant transcriptomic differences were observed between ectopic and eutopic ovarian tissues. Key genes consistently upregulated across studies included IL-17A, KRAS, TLR-5, OCT-4, and SOX-2. Signaling pathways implicated included PI3K-Akt, MAPK, WNT/β-catenin, and cytokine–cytokine receptor interactions, which have roles in the pathogenesis of ovarian endometriosis.

Transcriptomic analyses reveal distinct molecular signatures in ectopic ovarian endometrial tissues. Upregulated genes such as IL-17A, KRAS, TLR-5, OCT-4, and SOX-2 contribute to inflammation, angiogenesis, tissue remodeling, and immune regulation, highlighting their relevance in ovarian endometriosis. These findings support RNA-Seq as a tool for identifying non- invasive biomarkers and therapeutic targets, while further functional studies and validation in diverse populations are needed.

Keywords: Transcriptomic analyses, Endometriosis, RNA sequencing, Therapeutic targets, Molecular mechanisms



EMIG 2026

Genetic and Epigenetic Landscape of Endometriosis: Developmental Origins and Implications for Reproductive Health

Kimia Sadat Nazemi, Saba Safdarpour *

Faculty of Modern Sciences, Islamic Azad University of Medical Sciences, Tehran, Iran

Corresponding author: Saba Safdarpour; Faculty of Modern Sciences, Islamic Azad University of Medical Sciences, Tehran, Iran

Email: saba.safdarpour97@gmail.com

Abstract

Endometriosis is an estrogen-dependent and chronic disease, defined by the presence of endometrial-like tissue in ectopic locations. Its etiology is multifactorial, influenced not only by genetic predisposition but also by epigenetic changes and early-life environmental exposures. Understanding this interaction may offer valuable insights into the disease's origins and variability in clinical presentations.

An integrative review of existing literature was conducted regarding genetic and epigenetic factors in endometriosis, with a focus on developmental exposures and the Developmental Origins of Health and Disease (DOHaD) hypothesis. Searches were performed in databases such as PubMed and Scopus using keywords of endometriosis, epigenetics, DOHaD, and reproductive health.

Multiple loci have been associated with endometriosis through their roles in estrogen signaling pathways, including WNT4, VEZT, ESR1, JAKs, JARIDs, and PGPs. However, these genes alone do not fully explain the disease's heterogeneity. Epigenetic mechanisms such as aberrant DNA methylation and microRNA dysregulation have been reported in both ectopic and eutopic endometrial tissues. These alterations are associated with progesterone resistance, abnormal immune responses, impaired implantation, and ovarian dysfunction. Prenatal exposure to stress, endocrine-disrupting chemicals, poor maternal nutrition, or infections may induce epigenetic changes that predispose the female fetus to endometriosis in adulthood. These findings support the view that endometriosis arises from a combination of hereditary genetic factors and environmentally driven epigenetic modifications. The intrauterine environment may play a crucial role in shaping long-term reproductive health through epigenetic programming. This perspective underscores the importance of early-life prevention and opens new avenues for personalized treatments based on individual epigenetic profiles.

Keywords: Endometriosis, Estrogen, Genetic factors, Epigenetic changes, Impaired implantation, Reproductive health



EMIG 2026

Quality of Life in Women with Endometriosis: Clinical and Social Perspectives

Mohadeseh Haghifar

Islamic Azad University of Meybod. Meybod, Iran

Email: hana27644@gmail.com

Abstract

Endometriosis significantly affects women's health-related quality of life (HRQoL) in terms of physical, psychological, and social aspects. The current systematic review analyzed clinician and societal perspectives on HRQoL in endometriosis patients, with the purpose of identifying main difficulties and knowledge gaps from prior studies.

Systematic review of literature was performed on databases PubMed, Scopus, and Web of Science until October 2024, selecting studies that measured HRQoL using validated questionnaires such as SF-36 and EHP-30. Studies were included based on the clinical and social impacts of endometriosis on HRQoL. Twenty studies satisfied the inclusion criteria based on HRQoL impact, emphasizing a broad representation of diverse demographic groups.

Chronic pelvic pain, fatigue, anxiety, and depression greatly compromise HRQoL. Socially, women suffer from decreased work productivity, compromised interpersonal relationships, and stigma due to menstrual symptoms. While surgical and hormonal treatments offer partial symptom relief, their long-term impact on HRQoL is inadequately investigated. Initial findings indicate that advanced laparoscopic techniques might enhance HRQoL, necessitating additional investigation. The impact of cultural and socioeconomic factors on HRQoL is inadequately researched, and methodological variations, including a variety of assessment tools and a paucity of longitudinal data, render comparative investigations challenging.

The review highlights the necessity for multidisciplinary interventions with effective pain management, psychological counseling, and social empowerment strategies to enhance HRQoL. Longitudinal research and culturally sensitive methodologies must be included in the future agenda to better understand the clinical and societal interaction. The results emphasize patient-centered care approaches as the primary component to enhance outcomes in women with endometriosis.

Keywords: Endometriosis, Health-related quality of life, Systematic review, Menstrual symptoms, Stigma



EMIG 2026

The Role of Local Angiotensin II/Angiotensin Type 1 Receptor in Endometriosis: A Potential Target for New Treatment Approaches

Shirin Moazen ¹, Mohammad-Hasan Arjmand ^{2*}

1. Department of Obstetrics and Gynecology, Clinical Research Development Unit, Hajar Hospital, Shahrekord University of Medical Sciences, Shahrekord, Iran

2. Transplant Research Center, Clinical Research Institute, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author: Transplant Research Center, Clinical Research Institute, Mashhad University of Medical Sciences, Mashhad, Iran

Email: Arjmandmh1@mums.ac.ir

Abstract

Endometriosis is a chronic inflammatory disorder described by the presence of functional endometrial-like tissues at extra-uterine locations that are related to chronic pelvic pain and infertility. Multiple molecular mechanisms including inflammation, reactive oxygen species (ROS) generation, fibrotic reactions, and angiogenesis are involved in the pathogenesis of endometriosis; however, the exact cause of this disorder still remains a matter of discussion. Recently, it has been shown that the local renin angiotensin system (ROS) has been expressed in different tissues like the gynecological tract and alterations in its expression are associated with multiple pathological conditions like endometriosis. Angiotensin II (Ang II) as a main peptide of the RAS through angiotensin type 1 receptor (AT1R) upregulates signal transduction pathways such as nuclear factor kappa B (NF- κ B), mitogen activation protein kinase (MAPK), and transforming growth factor beta (TGF- β) to promote inflammation, oxidative stress, and fibrogenesis. Angiotensin receptor blockers (ARBs) control high blood pressure increased by excessive AT1R activity. Recently, it is recognized that ARBs have tissue protective effects because of their anti-inflammatory and antifibrotic effects. In this review, the role of local Ang II/AT1R axis activity in endometriosis pathogenesis was emphasized and the use of ARB agents as a potential therapeutic strategy to improve endometriosis was justified.

Keywords: Endometriosis, Angiotensin II, Angiotensin type 1 receptor, Angiotensin receptor blocker, Inflammation, Fibrosis



EMIG 2026

Reproductive Health of Women with Endometriosis: An Improving Educational Intervention Based on the Theory of Planned Behavior Theory

Masoumeh Namazi *, Zahra Behboodi Moghadam, Niusha Zandi

Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Email: masnamazi@yahoo.com

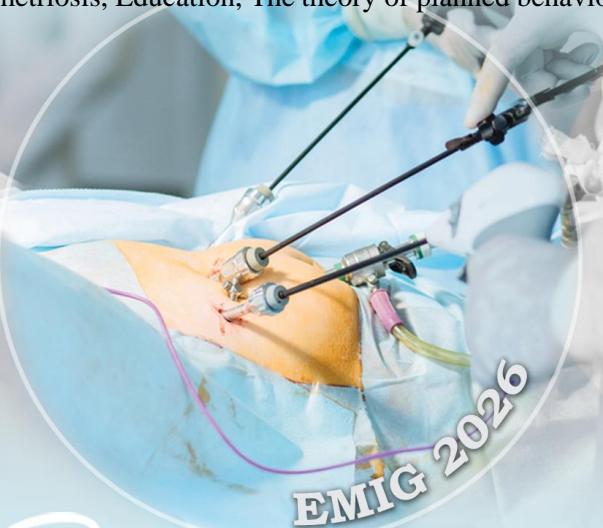
Abstract

Endometriosis is a chronic debilitating disease with devastating effects on reproductive health. The present study aimed to investigate the impact of education based on the theory of planned behavior (TPB) on the reproductive health of women with endometriosis.

This research was a randomized controlled trial performed on 71 women with endometriosis (35 intervention and 36 control groups) referred to the infertility clinic of Imam Khomeini Hospital in Tehran, Iran. The educational intervention, based on the constructs of the TPB, was delivered to the intervention group in four weekly sessions lasting 90–120 minutes. The demographic questionnaire, model constructs questionnaire, and endometriosis reproductive health questionnaire (ERHQ) in both groups were completed at three stages: before intervention, and 4, and 8 weeks after the intervention. Data were analyzed using SPSS software version 24. After the educational intervention, TPB values and overall reproductive health of women with endometriosis improved significantly in the intervention group ($p < 0.05$), while changes were not significant in the control group.

The study results showed that education based on the TPB had positive effects on the reproductive health of patients.

Keywords: Endometriosis, Education, The theory of planned behavior, Reproductive health



EMIG 2026

Exploring the Impact of Endometriosis on Women's Lives: A Qualitative Study in Iran

Masoumeh Namazi ^{*}, Zahra Behboodi Moghadam

Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Email: masnamazi@yahoo.com

Abstract

Endometriosis is a disabling disease impacting different aspects of reproductive health. Considering the wide impact of endometriosis on various aspects of health, this study aimed to explore the impact of endometriosis on Iranian women's lives.

The present study used a qualitative approach and conventional content analysis. Twenty patients suffering from endometriosis referring to Imam Khomeini Hospital in Tehran took part in this study. The sampling was done purposefully until data saturation. After deep semi- structured interviews, the content analysis of the interviews was done according to the steps proposed by Zhang and Wildemuth.

The mean age of the participants was 34.53 years (SD = 5.81; range: 23–43), with a mean duration of illness of 6.30 ± 5.86 years. Their educational level varied from high school to university, and most of them were employed. Analysis of the data from participants' experiences led to the formation of 5 categories under the titles 'Physical suffering, instability of marital life, mental disorder, disruption in social life, and self-care' and 11 subcategories.

The findings of the present study showed that endometriosis can adversely affect women's lives including physical, sexual, psychological, and social problems. Although in some cases, patients adopted different strategies for self-care, a need for greater support was still evident.

Keywords: Endometriosis, Women, Qualitative study, Data saturation, Physical suffering, Mental disorder, Self-care



EMIG 2026

Ethics, Law, and Criminology in the Treatment of Endometriosis Through Minimally Invasive Gynecological Surgery

Jalaladdin Hassani

Center for Innovation and Acceleration, ACECR, Bushehr Branch, Bushehr, Iran
Email: hassanijalal@gmail.com

Abstract

Medical law, medical ethics, and medical criminology are among the interdisciplinary research areas that have gained increasing prominence in recent years. This study was conducted using a review-based approach. The endometrium is the layer covering the inner surface of the uterus, and the growth of similar tissues in areas beyond the uterus, such as the ovaries and fallopian tubes, leads to the occurrence of endometriosis. Minimally invasive gynecological surgery refers to radical surgical procedures based on advanced technologies such as laparoscopy to overcome the challenges of traditional methods. Advances in the scientific and experimental treatment of endometriosis through minimally invasive surgery are accompanied by fundamental legal protections, including the right to life, the right to health, the right to a good quality of life, and the right to a safe and comfortable pregnancy. Among the most important requirements for controlling endometriosis through the aforementioned surgeries is the fight against the criminological challenge of state crime in the health sector. Modernizing both theoretical and practical approaches in minimally invasive surgery, alongside establishing regulations that limit the ease of attributing criminal liability to surgeons, represents a key strategy for addressing malpractice related to endometriosis. Medical ethics standards in the field of treating radical endometriosis based on the aforementioned surgeries should be accompanied by the need to protect the privacy of these patients, informing them of the entire scope of these surgeries and their consequences.

Keywords: Endometriosis, Ethics, Criminology, Law, Minimally invasive gynecological surgery



From Lesion to Scar: Tackling Adhesions After Endometriosis Laparoscopy, Current Barriers and the Promise of Regenerative Strategies

Ebrahim Mirzadegan ^{1*}, Amir-Hassan Zarnani ^{1,2}

1-Nanobiotechnology Research Center, Avicenna Research Institute, Academic Center for Education, Culture and Research (ACECR), Tehran, Iran

2-Department of Immunology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

** Corresponding author: Nanobiotechnology Research Center, Avicenna Research Institute, Academic Center for Education, Culture and Research (ACECR), Tehran, Iran
Email: emirzadegan@gmail.com*

Abstract

Laparoscopic excision is the primary method for treating symptomatic or fertility-associated endometriosis. However, a significant complication following this surgery is the formation of postoperative peritoneal adhesions. These adhesions cause substantial long-term issues, including chronic pelvic pain, secondary infertility, bowel complications, and the need for repeat surgeries. Adhesion formation is thus a clinically significant, yet often under-recognized burden following endometriosis treatment. This review synthesizes current evidence regarding adhesion formation after endometriosis surgery, evaluates the limitations of existing prevention methods, and explores promising biological and tissue-engineering strategies.

The review conducted a comprehensive search (via PubMed, Web of Science, and major guidelines up to 2025) of cohort studies, randomized controlled trials (RCTs), and preclinical regenerative medicine research. Adhesion formation remains common even after minimally invasive laparoscopy, particularly in cases of extensive disease. Conventional prevention methods rely on refined microsurgical technique combined with physical barrier agents. While these strategies reduce adhesion rates, they do not eliminate them, and the evidence for long-term clinical benefits (such as improved fertility or pain relief) remains inconsistent. Notably, one recent RCT using a resorbable starch-based gel barrier reported up to an ~85% reduction in adhesion scores at second-look laparoscopy compared to controls. For identifying new regenerative methods to prevent adhesions, preclinical studies are utilizing approaches that actively modulate healing rather than relying on passive barriers alone. Key experimental strategies involve bioresorbable biomaterial barriers, therapeutic scaffolds loaded with drugs or cells, and specific tissue-engineering techniques like supporting mesothelial cell function and delivering anti-fibrotic agents. However, significant challenges remain before these approaches can be clinically applied, including confirming biocompatibility, optimizing resorption kinetics, meeting regulatory safety standards, and collecting fertility- or pain-centered outcome data.

Postoperative adhesions are a frequent and serious complication of endometriosis laparoscopy, carrying substantial risks for fertility, pain, and reoperation. While current methods can mitigate risk, they cannot eliminate it. Regenerative and tissue-engineering-based approaches show considerable promise for transforming postoperative management by actively guiding peritoneal healing. There is an urgent need for translational efforts, including rigorous preclinical studies and well-designed clinical trials focusing on patient-centered, long-term outcomes. In the meantime, integrating systematic adhesion prevention (careful surgical technique plus judicious use of barriers) should be maintained as the standard of surgical care for endometriosis.

Keywords: Endometriosis, Peritoneal adhesions, Laparoscopy, Tissue engineering, Biomaterial barriers, Regenerative medicine

Fertility Preservation in Endometriosis: Is It Necessary?

Nafiseh Shams Nateri

Clinical Care and Health Promotion Research Center, Karaj Branch, Islamic Azad University, Karaj, Iran

Abstract

Endometriosis is an important health concern due to its symptoms and the scarce existing knowledge regarding treatment options. The symptoms in severe cases can impact a woman's quality of life. Studies indicate that 30–50% of women with endometriosis experience infertility, and about 20–50% of infertility patients are diagnosed with endometriosis. However, there remains controversy among researchers regarding whether fertility preservation technologies should be recommended in all cases.

A systematic search of the relevant literature identified 28 articles published between 2020 and 2025 using the keywords 'endometriosis,' 'infertility,' 'oocyte quality,' and 'fertility preservation,' all of which met the criteria for level 1 evidence. The search was conducted using PubMed, EMBASE, and Cochrane Library. Data were analyzed to assess whether fertility preservation should be recommended for all patients with endometriosis.

Studies have shown that patients with endometriosis experience higher rates of IVF failure and poorer clinical outcomes compared with those with other causes of infertility. In addition, ultrasound and histological data demonstrate a reduced ovarian follicle count, increased follicular atresia, and abnormal follicular development in this population. Cytokine levels change within the follicular fluid that impact oocyte quality and consequently influence clinical pregnancy outcomes.

Given the detrimental effects of endometriosis on ovarian function and fertility, fertility preservation has been proposed as part of pre-surgical counseling for women of reproductive age with endometriosis who have not yet completed family planning and who present with negative prognostic factors for fertility.

However, because outcomes in endometriosis are difficult to predict on an individual basis, and the extent of ovarian damage resulting from either disease progression or surgical treatment is variable, robust data defining clear indications for fertility preservation remain limited in the scientific literature. Nevertheless, patients with bilateral endometriomas appear to represent a common indication, and fertility preservation may be reasonably recommended in this group.

Keywords: Endometriosis, Infertility, Quality of oocytes, Fertility preservation



EMIG 2026

Endometriosis and Inflammation

Nafiseh Shams Nateri, Fatemeh Emdadi

Clinical Care and Health Promotion Research Center, Karaj Branch, Islamic Azad University, Karaj, Iran

Abstract

Endometriosis is a chronic disease characterized by the presence of endometrium-like epithelium outside the uterine cavity. It affects approximately 10% of women of reproductive age globally and associated with significant morbidity due to symptoms such as pelvic pain and infertility. The aim of this review article was to evaluate the inflammatory effect of endometriosis on body and its probable treatment.

An electronic database search of all published studies in PubMed and EMBASE from 2018 to 2025 was performed. Over recent years, numerous innovative immune biomarkers associated with endometriosis and infertility have been investigated, including cytotoxic T-lymphocyte antigen 4 (CTLA-4), human leukocyte antigen G (HLA-G), programmed cell death protein 1 (PD-1) and its ligand (PD-L1), plasma fibronectin–fibrin complexes, systemic inflammatory response markers, and uterine natural killer cells. The following keywords were used alone or in combination: endometriosis, biomarker, diagnostic, infertility, fertility disorders, and inflammation. Only scientific papers published in English language were included.

Chronic intraperitoneal inflammation, including chemokines, prostaglandins, inflammatory cytokines, white blood cells, and macrophages, creates an immunotolerant microenvironment in endometriosis, allowing endometriotic implants to survive. Endometrial implants secrete transforming growth factor- β (TGF- β), vascular endothelial growth factor (VEGF), IL-1, IL-6, IL-8, tumor necrosis factor-alpha (TNF- α), and other proinflammatory cytokines. This inflammatory and angiogenic intraperitoneal microenvironment reduces the motility of sperm, impairs the oocyte and embryo quality, and leads to implantation dysfunction.

The exact role of microbiota in endometriosis is still under study. Endometriosis is associated with autoimmunity and ovarian dysfunction. Hormonal treatments and surgery are commonly used; however, recent attention focuses on anti-inflammatory and immunomodulatory therapies, including cytokine and anti-cytokine antibodies. Modulating the immune response has proven critical; however, more research is needed to optimize treatment for these patients.

Keywords: Endometriosis, Cytokines, Inflammation, Autoimmunity, Cancer, Therapy



EMIG 2026

Endometriosis Reproductive Health Questionnaire (ERHQ): A Self- Administered Questionnaire to Measure the Reproductive Health in Women with Endometriosis

Masoumeh Namazi *, Zahra Behboodi Moghadam

Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Email: masnamazi@yahoo.com

Abstract

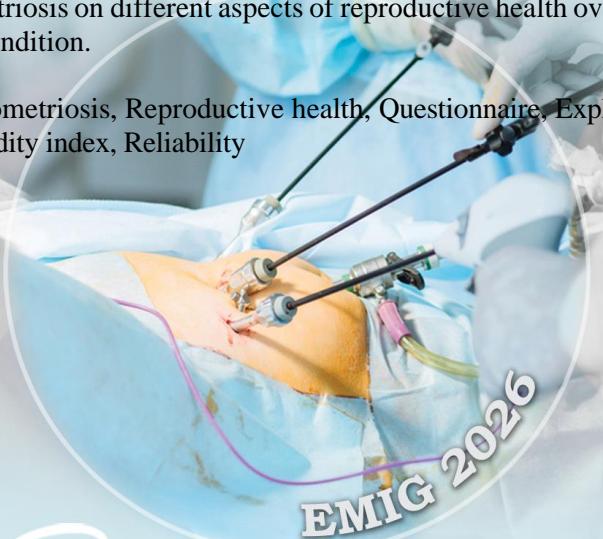
Endometriosis is a disabling disease impacting different aspects of reproductive health. The purpose of the current study was to develop and evaluate the psychometric properties of a questionnaire to measure the reproductive health in women with endometriosis.

This study used an exploratory mixed-methods design and included three phases. In the first phase, a sample of 20 women with endometriosis participated in semi-structured interviews. In the second phase, item pools were generated. In the third phase, face validity, content validity, and construct validity were assessed. To estimate the reliability of the tool, internal consistency and test-retest methods were used.

Sixty items were included in the psychometric evaluation stage of the scale. After the assessment of the content validity ratio (CVR), content validity index (CVI), and exploratory factor analysis, 15 items were omitted, leaving 35 items in the final scale. The exploratory factor analysis revealed four factors: physical problems, psychological problems, counteracting strategies, and instability of marital life. The reliability, according to Cronbach's alpha was 0.809, and the external reliability, as evaluated by the test-retest method and the intraclass correlation, was 0.825.

ERHQ is a new, valid, and reliable patient-generated instrument to measure the reproductive health in women with endometriosis. It can be used by researchers and health providers to provide a better understanding of the impact of endometriosis on different aspects of reproductive health over time and to meet the needs of patients living with this condition.

Keywords: Endometriosis, Reproductive health, Questionnaire, Exploratory factor analysis, Content validity ratio, Content validity index, Reliability



EMIG 2026

Identifying Gaps in Non-Invasive Superficial Endometriosis Diagnosis: A Scoping Review

Maryam Dehghan, Maryam Hashemi, Safoura Rouholamin

Department of Obstetrics and Gynecology, School of Medicine, Isfahan University of Medical sciences, Isfahan, Iran

Abstract

Endometriosis is a chronic, estrogen-dependent inflammatory disease affecting about 10% of reproductive-age women worldwide. It causes symptoms such as chronic pelvic pain, dysmenorrhea, dyspareunia, and infertility. The condition can reduce pregnancy likelihood, with 30–50% of affected women experiencing infertility. Clinical management includes medical treatments and surgical interventions for patients unresponsive to medical therapy. Endometriosis is classified into three types: superficial peritoneal (SE), ovarian endometriosis (OE), and deep endometriosis (DE). SE can be present in up to 40% of asymptomatic women but is significantly associated with primary infertility and moderate to severe pain symptoms. Diagnosis is challenging due to the lack of noninvasive tests and typically requires direct visualization via diagnostic laparoscopy. While imaging methods like transvaginal ultrasound (TVS) and magnetic resonance imaging (MRI) effectively detect OE and DE, they are limited in identifying SE. Non-invasive biomarkers and molecular techniques have emerged as promising tools for earlier diagnosis. Given the symptomatic burden of SE and the lack of consensus on optimal diagnostic approaches, this scoping review was conducted to systematically map current literature on noninvasive diagnostic methods for SE. The literature search for this scoping review was conducted across PubMed, Scopus, Web of Science, and Embase from 2000 to 2025, focusing on studies diagnosing superficial endometriosis.

The database search initially identified 5,469 records, of which eight articles met the inclusion criteria for the scoping review. Among these, three studies examined the role of biomarkers and microRNAs in diagnosing SE, while four studies evaluated transvaginal sonography as an effective diagnostic tool for the condition. One article highlighted the potential of artificial intelligence (AI) to improve the diagnosis of endometriosis based on patients' symptoms.

SE is the most prevalent form of endometriosis and remains a subject of debate concerning its diagnosis and treatment. While diagnostic tools like TVS, MRI, and novel methods such as biomarkers and microRNAs are effective for detecting DE and OE, their utility in diagnosing SE is still limited. This highlights the necessity for further research, improved information sharing, and the exploitation of emerging AI technologies to establish a comprehensive diagnostic strategy, minimize diagnostic delays, and enhance the quality of life for those affected by SE.

Keywords: Superficial endometriosis, Transvaginal ultrasound, Endometriosis diagnosis, Magnetic resonance imaging, Artificial intelligence, Ovarian endometriosis, Superficial peritoneal endometriosis

Comparative Outcomes of Laparoscopic Salpingectomy Versus Salpingostomy in the Management of Ectopic Pregnancy

Maryam Dehghan, Maryam Hashemi, Safoura Rouholamin

Department of Obstetrics and Gynecology, School of Medicine, Isfahan University of Medical sciences, Isfahan, Iran

Abstract

Ectopic pregnancy (EP) occurs in 1–2% of pregnancies and is associated with various complications. Treatment options include expectant management, medical therapy, and surgical interventions including salpingostomy or salpingectomy, which are now preferably performed via laparoscopy. Salpingostomy aims to preserve fertility but carries risks of persistent trophoblastic tissue and recurrence, whereas salpingectomy is definitive but involves removal of the affected fallopian tube.

This study analyzed patients treated for tubal EP with laparoscopic salpingectomy or salpingostomy at Al-Zahra and Shahid Beheshti hospitals in Isfahan Province from 2015 to 2025. Researchers collected demographic data, paraclinical findings, intraoperative and postoperative information from hospital records and conducted follow-up assessments of reproductive outcomes.

This study analyzed 401 patients undergoing laparoscopic surgery for EP. The average patient age was 31 years, with a mean body mass index (BMI) of 26.1 kg/m². Notable obstetric histories included prior miscarriage (33.75%), previous tubal EP (16%), and infertility (17.7%). The mean preoperative beta-hCG level showed no significant difference between the salpingectomy and salpingostomy groups. However, the average size of the EP mass on preoperative sonography and during surgery was significantly smaller in the salpingostomy group ($P < 0.0001$). The study found that smaller EP mass size on preoperative sonography and during surgery was significantly associated with successful tubal preservation via salpingostomy. Persistent trophoblastic tissue occurred in 1.7% of salpingostomy cases. Recurrent EP in the same fallopian tube was 6% in the salpingostomy group, while contralateral tube recurrence was significantly higher in the salpingectomy group (7.6% vs. 1%). The salpingostomy group also had a significantly higher live birth rate (62% vs. 47%).

EP poses significant health risks for women of reproductive age, making timely diagnosis and appropriate treatment essential to minimize complications and improve future pregnancy outcomes. Preoperative assessments can help predict the likelihood of successful tubal preservation in patients who are suitable candidates.

Keywords: Ectopic pregnancy, Laparoscopy, Salpingectomy, Salpingostomy, Pregnancy outcome

