AAGL 26

55TH GLOBAL CONGRESS ON MIGS

BOSTON, MASSACHUSETTS
NOVEMBER 13-16, 2026

Syllabus

PG-26210

Reproductive Surgery in the IVF Era: Outcomes-Driven Medical and Surgical Collaboration for Infertility Patients

HONORARY CHAIR
Charles H. Koh, MD

SCIENTIFIC PROGRAM CHAIR
Nash S. Moawad, MD

PRESIDENT
Michael Hibner, MD, PhD



Table of Contents

Course Program: Course Description, Learning Objectives, Course Outline 3

Financial Disclosures 4

Laparoscopic/Robotic Innovations for Uterine Reproductive Success
C. Miller..... 5

Enhancing the Endometrial Environment for Conception through Innovative Hysteroscopic Techniques
K. Isaacson 11

Don't Put All Your Eggs in One Basket: Adnexal Surgery in Patients Seeking Fertility
P. Bortoletto 20

Unlocking Pelvic Factor Infertility Using a Fertility Sparing Approach to Endometriosis
S. Behbehani 24

Cultural and Linguistic Competency & Implicit Bias 30

PG-26210: Reproductive Surgery in the IVF Era:
Outcomes-Driven Medical and Surgical Collaboration for Infertility Patients

Chair: Charles E. Miller
Faculty: Sadikah Behbehani, Pietro Bortoletto, Keith B. Isaacson, Charles E. Miller

Course Description

This course is a comprehensive, two-hour exploration into cutting-edge techniques and advances in reproductive surgery. Designed for gynecologic and reproductive surgeons, this post-graduate course emphasizes evidence-based, fertility-sparing and fertility-promoting surgical approaches. Faculty will also highlight patient care workflows that foster partnership between subspecialties and promote individualized care. Participants will gain a structured approach to the management of advanced endometriosis, with focused discussion on how inflammatory changes and disease manifestations impact fertility and quality of life. Faculty will demonstrate advanced minimally invasive laparoscopic and robotic techniques that prioritize surgical precision while preserving reproductive potential. The course will also highlight the complexities of adnexal surgery in patients actively seeking fertility, with attention to ovarian reserve preservation, tubal pathology, and individualized sequencing of surgery versus assisted reproductive technologies. Participants will learn contemporary frameworks for determining when surgical intervention enhances fertility outcomes and when IVF should precede surgery, incorporating patient age, ovarian reserve markers, prior infertility treatments, and long-term family-building goals. Innovative uterine surgical approaches will be featured, including laparoscopic and robotic management of uterine isthmoceles, adenomyosis, and cervical insufficiency, with emphasis on optimizing uterine function for both embryo transfer and unassisted conception. The course will also include a focused exploration of the uterine microenvironment, highlighting advanced hysteroscopic techniques for diagnosing and treating infertility-related intrauterine pathology such as Asherman's syndrome and retained products of conception. Throughout the course, expert reproductive surgeons will use surgical videos and case-based discussion to translate evolving technology and evidence into practical, outcomes-focused clinical strategies. Attendees will leave with actionable tools to elevate surgical care, enhance collaboration with fertility specialists, and improve reproductive outcomes for women worldwide.

Learning Objectives: *At the end of this course, the participant will be able to:* 1) Diagnose and manage advanced pelvic adhesions and deep endometriosis using fertility-sparing, minimally invasive strategies informed by disease biology and patient goals; 2) Apply innovative hysteroscopic, laparoscopic and robotic techniques to the uterus and adnexa, including management of adenomyosis, isthmoceles, adnexal pathology, and cervical insufficiency to optimize both assisted and unassisted conception; and 3) Establish effective collaborations with IVF practices by understanding referral expectations, co-management strategies, and optimal sequencing for reproductive surgery within the framework of fertility treatments.

Course Outline

10:30 am	Welcome, Introduction and Course Overview	C. Miller
10:35 am	Laparoscopic/Robotic Innovations for Uterine Reproductive Success	C. Miller
11:00 am	Enhancing the Endometrial Environment for Conception through Innovative Hysteroscopic Techniques	K. Isaacson
11:25 am	Don't Put All Your Eggs in One Basket: Adnexal Surgery in Patients Seeking Fertility	P. Bortoletto
11:50 am	Unlocking Pelvic Factor Infertility Using a Fertility Sparing Approach to Endometriosis	S. Behbehani
12:15 pm	Discussion Questions & Answers	All faculty
12:30 pm	Adjourn	

ADA Statement: In accordance with the Americans with Disabilities Act (ADA), please contact CMEsupport@aagl.org should you require any special assistance.

Disclosure of Relevant Financial Relationships

As an ACCME-accredited provider, AAGL is responsible for ensuring that accredited education is fair, balanced, free of commercial bias, and supports safe, effective patient care. AAGL maintains control over all aspects of educational planning, content, faculty selection, delivery, and evaluation.

All individuals in a position to control educational content are required to disclose financial relationships with ACCME-defined ineligible companies within the past 24 months. AAGL identifies and mitigates all relevant financial relationships before individuals assume their respective roles. Educational content is also subject to independent peer review by individuals without relevant financial relationships.

Disclosure information and acknowledgment of any commercial support are provided to learners before the activity to promote transparency and maintain the independence and integrity of the education.

Asterisk (*) denotes no financial relationships with ACCME-defined ineligible companies to disclose.

PLANNER DISCLOSURES

The following members of AAGL have been involved in the educational planning and/or review of this course (listed in alphabetical order by last name).

PROFESSIONAL EDUCATION COMMITTEE

Harold Wu, MD* - Chairman
Adrian Balica, MD*
Jamal Mourad, DO – Proctor: Intuitive Surgical
Jude Okohue, MD*
Steven Radtke, MD*
Anna Reinert, MD*
Jean Uy-Kroh, MD*
Linda Bradley, MD, AAGL Medical Director*
Linda Michels, AAGL Executive Director*
Linda Bell, AAGL Admin Support*
Nancy Williams, COO, CME Consultants*

SCIENTIFIC PROGRAM COMMITTEE

Nash Moawad, MD, MS, Chairman – Consultant (ended 12/2024): Medtronic, Womed, Integra Life Sciences
Amani Harris, MD*
Ted Lee, MD – Advisory/Consultant: Johnson & Johnson, Regeneron Pharmaceuticals
Nucelio Lemos, MD, PhD – Speakers Bureau: Pfizer, Inc., Medtronic; Advisory Board: Knight Therapeutics, Vecfer Pharma
Mario Malzoni, MD*
Emad Mikhail, MD – Consultant: Johnson & Johnson
Hannah Palin, MD*
Megan Wasson, DO*
Michael Hibner, MD, PhD*
Jose "Tony" Carugno, MD*
Angela Chaudhari, MD - Consultant: Tag/Dream Medical, Johnson & Johnson; Speakers Bureau: Johnson & Johnson
Linda D. Bradley, MD, Medical Director*
Linda Michels, Executive Director, AAGL*

COURSE CHAIR DISCLOSURE

Charles E. Miller, MD – Consultant: Hologic, LiNA Medical, Vitrolife; KOL: Vitrolife; Investment Interest: Blue Seas Med Spa

FACULTY DISCLOSURES

The following faculty have agreed to support their presentations and clinical recommendations with the best available evidence from the medical literature (in alphabetical order by last name).

Sadikah Behbehani, MD*
Pietro Bortoletto, MD, MSc*
Keith B. Isaacson, MD*
Charles E. Miller, MD – Consultant: Hologic, LiNA Medical, Vitrolife; KOL: Vitrolife; Investment Interest: Blue Seas Med Spa

MITIGATION OF RELEVANT FINANCIAL RELATIONSHIPS

All relevant financial relationships have been mitigated.

Drs. Lee, Lemos, Mikhail, and Chaudhari's planning decisions, as part of the Scientific Program Committee (SPC), were peer reviewed by other planners on the SPC who had disclosed no financial relationships with ineligible companies, and found to be fair, balanced, and free of commercial bias. Dr. Moawad's financial relationships ended 12/2024, thus mitigating them. For most of his AAGL Professional Education Committee service, Dr. Mourad had no financial relationships to disclose. He recently disclosed a new relationship as a Proctor for Intuitive Surgical. Since then, he has not participated in activities involving control or influence over accredited educational content; therefore, no additional mitigation was necessary.

Dr. Miller's role as Course Chair was limited primarily to course oversight and moderation, rather than development of educational content. Any planning decisions or content under his influence were subject to independent peer review by individuals without relevant financial relationships.

The presentation content for course faculty, Dr. Miller, has been peer reviewed and found to be fair, balanced, and free from commercial bias.

Laparoscopic/Robotic Innovations for Uterine Reproductive Success

Charles E. Miller, MD FACOG

President, CCRM – Fertility and Gynecologic Surgeons of Illinois

Professor, Department of Obstetrics and Gynecology
Wake Forest University Medical School, Winston Salem, NC

Director, Minimally Invasive Gynecologic Surgery
Advocate Lutheran General Hospital, Park Ridge, IL

NOVEMBER 13-16, 2026 · BOSTON · #AAGL26

1

Dr. Charles Miller – Disclosure Information

Consulting/Advisory Relationships

- Hologic
- LiNA Medical
- Vitrolife Inc.

Investment Interest

- Blue Seas Med Spa

2

Dr. Charles Miller - Objectives

At the conclusion of this presentation, participants will be able to:

1. Describe the steps to treat focal adenomyosis/adenomyoma via laparoscopy.
2. Describe the steps to treat the symptomatic isthmocele.
3. Describe the steps of a cerclage procedure.

3

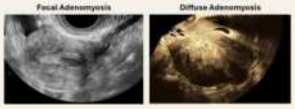
Reproductive Surgery on the Cutting Edge

Laparoscopic and Robotic Assisted Adenomyosis Excision

4

Adenomyosis

- Ectopic endometrial glands and stroma present in the myometrium
- Upwards to 21% via transvaginal ultrasound
- Causes hypertrophy of surrounding myometrium, uterine enlargement
- Symptoms – only 4.5% are asymptomatic
  - Dysmenorrhea
  - Abnormal uterine bleeding
  - Infertility
- 5-25% of cases less than 39 years old
- Co-existence of leiomyomata 35-55%
- Co-existence of endometriosis 65-70%



Imaging Modalities

- Transvaginal ultrasound (TVUS)
  - A staple in first line diagnosis
  - Widely available and inexpensive
  - Sensitivity 79%, specificity 80%
  - Sensitivity 0.68% (0.44–0.86), specificity 0.65% (0.50–0.77)
- Saline infused sonogram
  - Increases sensitivity and specificity
- Magnetic resonance imaging (MRI)
  - Gold standard for detailed uterine structural analysis
  - Expensive, less availability
  - Sensitivity 78%, specificity 93%
  - Sensitivity 0.70% (0.46-0.87), specificity 0.86 (0.76-0.93)

Adenomyosis Subtypes

- Focal
  - Non-defined architecture
  - Well-defined architecture (adenomyoma)
- Diffuse
- Inner myometrium/outer myometrium
- Junctional zone thickening
  - < 8 mm adenomyosis unlikely
  - > 12 mm adenomyosis likely
- Cystic

- Liu L, et al. Diagnostic Accuracy of Transvaginal Ultrasound and Magnetic Resonance Imaging for Adenomyosis: Systematic Review and Meta-Analysis and Review of Sonographic Diagnostic Criteria. J Ultrasound Med. 2021 Nov;40(11):2289-2306.
- Telum T, et al. Diagnosing adenomyosis with MRI: a prospective study residing the junctional zone thickness cutoff of 12 mm as a diagnostic marker. Eur Radiol. 2019 Dec;29(12):6977-6981.
- Li X., et al. Clinical profiles of 710 premenopausal women with adenomyosis who underwent hysterectomy. J Obstet Gynaecol Res. 2014 Feb;40(2):485-94.
- Fedhaus A, et al. Endometriosis and infertility: how and when to treat? Front Surg. 2014 Jul 2:124.
- Macer M., Taylor HS. Endometriosis and infertility: a review of the pathogenesis and treatment of endometriosis-associated infertility. Obstet Gynecol Clin North Am. 2012 Dec;39(4):535-49
- Bazot M, et al. Ultrasound diagnosis of adenomyosis and correlation with histology. Ultrasound Obstet Gynecol. 2004 Jul;24(2):180-9.
- Aleksandrovych V, et al. Current facts constituting an understanding of the nature of adenomyosis. Adv Clin Exp Med. 2019 Jun;28(6):839-849.
- Tan J, et al. A critical review of recent advances in the diagnosis, classification, and management of uterine adenomyosis. Curr Opin Obstet Gynecol. 2019 Aug;31(4):212-221.
- Duerholm M, et al. Magnetic resonance imaging and transvaginal ultrasonography for the diagnosis of adenomyosis. Fertil Steril. 2001 Sep;76(3):588-94.
- Harada T, et al. The Impact of Adenomyosis on Women's Fertility. Obstet Gynecol Surv. 2016 Sep;71(9):557-68.

5

Adenomyosis

Pregnancy Outcomes Post Adenomyomectomy

- Osada 2018 [1]
  - 18 studies
  - Pregnancy rate 17.5% - 72.7%
  - 2,365 procedures
  - 449 pregnancies
  - 363 deliveries
  - Miscarriage rate 20%
  - Uterine rupture 3.6%
- Jiang 2023 [2]
  - 13 studies
  - 795 interested in pregnancy
  - Pregnancy rate 40%
  - Miscarriage rate 21%
  - Live birth rate 70%
- Mikos 2020 [3]
  - 12 studies
  - 364 attempting pregnancy
  - Pregnancy rate 35%
  - Miscarriage rate 18%
  - Uterine rupture 0.8%

Factors Increasing Uterine Rupture

- Method of energy
- Size of defect
- Remnant adenomyosis
- Method of reconstruction
- Post-operative infection, hematoma
- Time to pregnancy

Surgery (no consensus)

- Excision
  - Hysteroscopy, laparoscopy, laparoscopic assisted, laparotomy
- Ablation
  - High-Intensity Focused Ultrasound (HIFU)
  - Microwave Ablation
  - Radiofrequency Ablation (RFA)

1. Osada H. Uterine adenomyosis and adenomyoma: the surgical approach. Fertil Steril. 2018 Mar;109(3):406-417.
2. Jiang L, et al. Pregnancy Outcomes after Uterus-sparing Operative Treatment for Adenomyosis: A Systematic Review and Meta-analysis. J Minim Invasive Gynecol. 2023 Jul;30(7):543-554.
3. Mikos T, et al. The Outcome of Fertility-Sparing and Nonfertility-Sparing Surgery for the Treatment of Adenomyosis: A Systematic Review and Meta-analysis. Minim Invasive Gynecol. 2020 Feb;27(2):309-321.e3.

6

Adenomyosis

Fertility outcomes after uterus conservative surgeries for focal adenomyosis

Name of Author	Type of Study	N	Method of Diagnosis	Classification	Surgical Approach	N Desiring Fertility	N(%) Getting Pregnant/Method	Successful Deliveries
Fedele et al., 2009	Retrospective	26	US and MRI	Focal	Excision/Laparotomy	18	13 patients (72%) 10 pregnancies 13 natural, 3 IVF	9 (69%)
Wang et al., 2009	Prospective	31	US	Focal	Excision/Laparotomy or Laparoscopy	23	20 (74%) All Natural	17 (85%)

Fertility outcomes after uterus conservative surgeries for diffuse adenomyosis

Name of Author	Type of Study	N	Method of Diagnosis	Classification	Surgical Approach	N Desiring Fertility	N(%) Getting Pregnant/Method	Successful Deliveries
Sanrui et al., 2014	Prospective	103	TVUS and HSG	Diffuse	Laparotomy: Wedge technique and overlapping flaps	70	22 patients (30%) 14 ART, 7 Natural	16 (22.8%)
Fujishita et al., 2010	Retrospective	41	N/A	N/A	Laparotomy: H technique	31	11 patients (38.7%)	7 (21.3%)
Osuka et al., 2011	Prospective	104	MRI	Diffuse	Laparotomy: Triple-flap method	26	16 patients (61.5%) 12 ART, 4 Natural	14 (53.8%)

- Mowaad, G, et al. The Impact of Conservative Surgical Treatment of Adenomyosis on Fertility and Perinatal Outcomes. J Clin Med. 2024 Apr 20;13(8):2321.

7

Adenomyosis

Fertility outcomes after surgery combined with medication

Name of Author	Type of Study	N	Natural vs. ART	Medication Used Combined with Surgery	N Desiring Fertility	(%) Getting Pregnant	Successful Deliveries
Yoon et al., 2023	Prospective trial	50	ART	GnRH-a: 3 cycles	33	54.5%	30.3%
Rajuddin et al., 2004	Retrospective study	32	Natural	GnRH-a: 3.6 mg for 4 weeks, then twice every 4 weeks	32	9.4%	6.3%
Hariharputra et al., 2006	Randomized control trial	20	Natural	GnRH-a:3 cycles	10	30%	20%
Al-Jama et al., 2011	Retrospective study	18	Natural	GnRH-a: 3.3 mg every month for 6 months	18	13.6% medical alone 44.4% medical & surgical	33.3%
Chang et al., 2013	Retrospective study	36	Natural	GnRH-a: 4 times a month	36	41.1%	26.8%
Huang et al., 2011	Retrospective study	9	Both	GnRH-a: 3.6 mg for 6 cycles	9	33.3%	22.2%
Zhou et al., 2022	Retrospective study	137	Both	GnRH-a: 3–6 courses	137	40.9%	32.8%
Wang et al., 2009	Prospective non-randomized study	134	Natural	GnRH-a: 6 courses	44	79.5%	72.7%
Wang et al., 2009	Prospective study	28	Natural	GnRH-a: 3.75 mg every 4 weeks for 24 weeks	28	46.4%	32.1%

- Mowaad, G, et al. The Impact of Conservative Surgical Treatment of Adenomyosis on Fertility and Perinatal Outcomes. J Clin Med. 2024 Apr 20;13(8):2321.

8

Adenomyosis

Effects of adenomyosis on infertile women undergoing assisted reproductive technology

Author	Year	Study Design	Sample Size	Results	Limits
Vannuccini et al.	2016	Meta-analysis 18 prospective cohort studies and 5 retrospective cohort studies	1960 women, 306 of which diagnosed with AD	Lower clinical pregnancy rate (PR) of 0.73 (40.5% vs. 49.8%); 2.12% higher risk of miscarriage (14.9% vs. 14.1%); Live birth rate of 0.70 (36.8% vs. 51.1%)	Qualitative and quantitative heterogeneity among studies was high
Younes and Tulandi	2017	Meta-analysis 11 observational studies on clinical outcome of IVF and 4 retrospective studies evaluating the effects of surgical or medical treatment of adenomyosis on fertility	319 patients with and 1520 without adenomyosis	Lower clinical pregnancy rate (PR) of 0.75; 2.3% higher risk of miscarriage; Live birth rate of 0.58	Difference in the participants' age, duration of infertility, type of adenomyosis, protocol used, number and quality of transferred embryos, number of IVF cycles performed, and the clinical outcomes assessed in the studies. In addition, the infertility diagnosis differed among studies
Dueholm and Aagaard	2018	Meta-analysis 8 case-control studies and 1 cohort studies	1697 infertile women undergoing IVF/ICSI; 782 infertile women with adenomyosis undergoing IVF/ICSI	Lower clinical pregnancy rate (PR) of 0.73; 2.12% higher risk of miscarriage; Live birth rate of 0.69	Only heterogenic studies of moderate quality are available
Ntigardakis et al.	2020	Meta-analysis 16 prospective studies and 13 retrospective studies	841 women with adenomyosis undergoing IVF/ICSI versus 2,191 women without adenomyosis undergoing IVF	Lower clinical pregnancy rate (PR) of 0.64; 1.17% higher risk of miscarriage; No significant difference in live birth rate was found	Studies heterogeneity; Diagnostic accuracy of the non-invasive imaging techniques for adenomyosis
Zhang et al.	2021	Retrospective cohort study	A total of 5087 divided into two groups: adenomyosis with tubal factor infertility study group (n = 770) and only tubal factor infertility Control group (n = 4994)	Clinical pregnancy rate 42.4% vs. 50.2%; Miscarriage rate 13.7% vs. 9.4%; Live birth rate 35.9% vs. 22.9%	Study design; No adenomyosis classification (the severity of the disease may affect pregnancy outcomes); Diagnosis of adenomyosis by TVS is not the gold standard
Coomillie et al.	2022	Meta-analysis 11 prospective cohort studies, 15 retrospective cohort studies	1728 patients (1227 women with adenomyosis and 501 without adenomyosis)	Lower live birth rate (OR 0.59, 95% CI 0.37–0.94, $p = 0.02$); Lower clinical pregnancy rate (OR 0.66, 95% CI 0.49–0.90); Lower ongoing pregnancy rate (OR 0.42, 95% CI 0.27–0.66); Higher miscarriage rate (OR 2.11, 95% CI 1.51–3.23)	Studies heterogeneity existed in age, duration of infertility, type of downregulation protocol used, number and quality of the transferred embryos, number of IVF cycles performed, and the clinical outcomes assessed in the studies; heterogeneity of the patients with different degrees of the disease (no division between focal and diffuse adenomyosis)
Liang et al.	2022	Retrospective cohort study	1186 patients with adenomyosis and 7186 frequency-matched control women in a 1:1 ratio based on age, BMI, and basal follicle-stimulating hormone/FSH level	No significant difference in clinical pregnancy rate (38.1% vs. 41.4%; $p = 0.07$); Lower implantation rate (35.4% versus 39.6%, $p = 0.002$); Lower live birth rate (26% versus 31.9%, $p = 0.004$); Higher miscarriage rate (27.1% versus 17.3%, $p < 0.001$)	Study design; Diagnostic accuracy of non-invasive imaging technology for adenomyosis; inability to exclude certain pathologies, such as peritoneal endometriosis

- Pedro G, et al. Adenomyosis and Infertility: A Literature Review. Medicina (Kaunas). 2023 Aug 26;59(9):1551.

9

Adenomyosis

Surgical methods for adenomyosis surgery

- Classical excision of adenomyotic tissue with single incision
- Wedge resection
- Double or triple flap
- Transverse H
- Push technique
- Triple flap
  - Flap of uterine wall approximated from one side to anterior posterior myometrium of other
  - Then, contralateral flap placed similarly over the sutured flap

10

Adenomyosis

Laparoscopic Treatment



11

Adenomyosis

Robotic Assisted Treatment Utilizing Firefly Fluorescence Imaging





Adenomyosis – Pre Robotic Resection

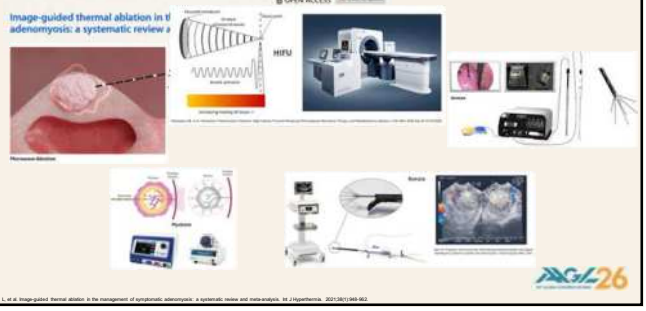


Adenomyosis – Post Robotic Resection

12

Adenomyosis

IMAGE-GUIDED THERMAL ABLATION TREATMENT



13

Adenomyosis

Pregnancy and symptomatic relief following ultrasound-guided transvaginal radiofrequency ablation in patients with adenomyosis

- N = 81 patients, 74 infertile
  - Post RFA, mean time to conception 18.9 months (2 – 72 months)
  - Twenty-nine achieved 39 pregnancies (35.8%)
  - Pregnancy rate 50% if patients not actively achieving pregnancy are excluded
  - Twenty-two delivered 24 live babies (66.7%)
  - Nine vaginal deliveries and 15 cesarean sections
  - Twelve pregnancies ended in SAB (33.3%)
  - No uterine rupture

14

Reproductive Surgery on the Cutting Edge

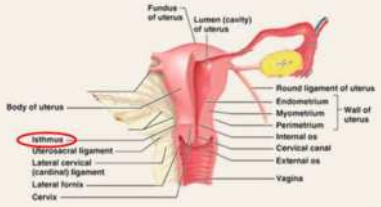
Robotic Assisted Isthmocele Resection and Repair

15

Surgical Treatment of Symptomatic Isthmocele

ISTHMOCELE DEFINITION

- Isthmocele
- Previous Cesarean Scar Defect
- Deficient Cesarean Scar
- Uterine Niche
- Diverticula
- Pouch
- Transmural Hernia
- Dehiscence
- Uteroperitoneal Fistula



- No universal definition used in literature
- Diverticulum at the lower uterine cavity, uterine isthmus or endocervical canal at the site of a previous cesarean section (CS) scar
- Sonographic finding of a triangular anechoic area at the presumed site of incision (no size defined)
- Myometrial thinning at site of CS scar

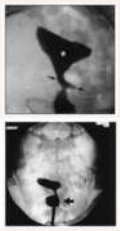
16

Surgical Treatment of Symptomatic Isthmocele

DIAGNOSIS

- Imaging
  - Transvaginal ultrasound (TVUS)
  - Saline infused sonohysterogram (SIS)
  - Hysterosalpingogram (HSG)
  - Hysteroscopy
  - MRI
- Timing
  - Proliferative phase, right after menstrual cycle has ended

Isthmocele visualized via hysterosalpingogram prior to surgical repair



Isthmocele visualized via saline infused sonogram prior to surgical repair



17

Surgical Treatment of Symptomatic Isthmocele

ISTHMOCELE REPAIR "CHICAGO STYLE"

- **Can be performed via conventional laparoscopy or with robotic assistance**
- **Perform hysteroscopy to verify isthmocele**
- **Place cannula inside cervix/uterus**
- **Mobilize bladder off lower uterine segment and cervix (may require back filling of bladder)**
- **Dissect laterally to just above uterine vessels**
- **Proceed back to hysteroscopy to identify isthmocele defect**
  - **Will often times see retracted scar laparoscopically**

12

18

Surgical Treatment of Symptomatic Isthmocele

ISTHMOCELE REPAIR "CHICAGO STYLE"

- Begin excision of isthmocele over the light of the hysteroscope
- When saline emits from incision site, replace hysteroscope with cannula to enter cervix only
  - This widens the lower uterine segment and isthmus; thus, making remaining excision easier
- Repair in layers
  - Layer one full thickness - interrupted vs. "U" suture – placed first at angles – "0" monofilament (0 Polydioxanone)
  - Layer two – similar to layer one or running suture, not as deep
  - Layer three – "0" barbed suture imbricating over previous layer
- Once completed, repeat hysteroscopy to verify no stenosis and adequate repair
- Perform uterine uplift if uterus retroflexed

19

Surgical Treatment of Symptomatic Isthmocele

ROBOTIC ASSISTED ISTHMOCELE RESECTION AND REPAIR



20

Surgical Treatment of Symptomatic Isthmocele

PREGNANCY RATE POST ROBOTIC-ASSISTED ISTHMOCELE REPAIR

Author	Year	Total	Total Attempting Pregnancy	Pregnancy Rate	Delivery Rate
Seaman SJ	2025	28	17	94.1% 7 with infertility	12/15 (80%)
Almasarweh S	2026	51	36	72.2%	18/36 (50%)
Schröder C	2026	28 21 Robotic 7 LSC	8 4 Robotic 4 LSC	--	3 Robotic 3 LSC 1 of 2 with infertility

- Seaman SJ, et al. Uterine isthmocele: obstetric outcomes after robotic-assisted laparoscopic repair. J Robot Surg. 2025 Jun 14;19(1):265.
- Almasarweh S, et al. Robotic-assisted laparoscopic repair of isthmoceles: the feasibility of operative treatment and recommendations for patient selection. Ther Adv Reprod Health. 2026 Mar 4;20:26334941261430159.
- Schröder C, et al. Reproductive and clinical outcomes after minimally invasive isthmocele repair: a comparison of robotic-assisted and laparoscopic approaches. Arch Gynecol Obstet. 2026 Jul 27;314(1):295.

21

Surgical Treatment of Symptomatic Isthmocele

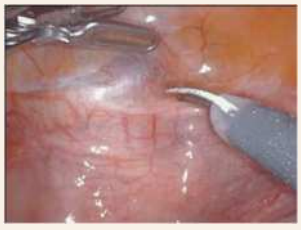
- Results of laparoscopic/robotic-assisted isthmocele repair "Chicago Style"
  - Prospective study
  - December 2014 - present
  - 125 patients – mainly treated via robotic-assistance
    - 5 patients incomplete information
    - 19 patients lost to follow-up
    - 101 patients evaluated
      - 47 patients delivered or ongoing pregnancy
      - 21 patients unsuccessful
      - 9 patients did not attempt pregnancy
      - 15 patients not yet cleared to attempt pregnancy or have attempted pregnancy less than one year
  - 69.1% delivered or ongoing pregnancy

Our Minimally Invasive Gynecologic Surgery Team, located in Metropolitan Chicago, continues to evaluate patient outcomes post robotic-assisted and conventional laparoscopic repair of symptomatic isthmocele via a prospectively maintained data base. The indication for surgery for virtually all patients has been secondary infertility.

22

Surgical Treatment of Symptomatic Isthmocele

ROBOTIC-ASSISTED LAPAROSCOPIC EXCISION OF CESAREAN SCAR PREGNANCY WITH SCAR REVISION



23

Reproductive Surgery on the Cutting Edge

Laparoscopic Cerclage

24

Laparoscopic Abdominal Cerclage

- Advantages over transvaginal cervical cerclage
  - More proximal placement of the stitch (at level of internal os)
  - Decreased risk of caudal suture migration as uterus enlarges
  - Absence of a foreign body in the vagina that could promote infection and inflammation
- Absolute indications
  - Transcervical cerclage contraindicated due to extremely short or absent cervix
  - Previously failed transvaginal cerclage
- Relative indications
  - Advanced maternal age
  - Poor prognosis for pregnancy
  - Long standing infertility
- Open transabdominal vs transvaginal cerclage (MAVRIC Trial) [1]
  - N = 111 patients with previous failed vaginal cerclage and loss or preterm birth between 14 and 28 weeks gestation
    - Preterm birth rate < 32 weeks
    - Transabdominal – 8%
    - Transvaginal – 33%
      - p = .008

1. Shennan A, et al. MAVRIC: a multicenter randomized controlled trial of transabdominal vs transvaginal cervical cerclage. Am J Obstet Gynecol. 2020 Mar;222(3):261.e1-261.e9.

25

Laparoscopic Abdominal Cerclage

- Laparoscopic vs open abdominal cerclage [1]
  - 43 observational studies
    - Mean increase in gestational age post cerclage
      - Open - 13 weeks
      - Laparoscopic - 15 weeks
    - Gestational age > 34 weeks
      - Open – 75%
      - Laparoscopic – 79%
- Laparoscopic vs open abdominal cerclage [2]
  - 26 studies (1,116 patients) – laparotomy
  - 15 studies (726 patients) – laparoscopy
    - Neonatal survival
      - Laparotomy – 89.9%
      - Laparoscopy – 90.8%
    - Neonatal Survival (excluding first trimester losses)
      - Laparotomy – 90.1%
      - Laparoscopy – 96.3%
    - Deliveries > 34 weeks
      - Laparotomy – 76%
      - Laparoscopy – 82.9%
    - Gestational age at delivery (23 – 33.6 weeks)
      - Laparotomy – 14.8%
      - Laparoscopy – 6.8%
    - Second trimester losses
      - Laparotomy – 7.6%
      - Laparoscopy – 3.2%
- Better Exposure [3]
  - Can place uterine manipulator
  - Uterus smaller
- No risk of injury to pregnancy
  - Less risk of bleeding
- Preconception vs early pregnancy [4]
  - 14 observational studies reviewed (1990 – 2013)
  - N = 678
  - Similar live birth rates
- Subsequent observational study [5]
  - N = 161
  - 34 weeks or greater gestation
    - Preconception - 95%
    - Early pregnancy – 74%
  - Surgical complications (bladder injury, bleeding > 500 mL)
    - Preconception – 0/86
    - Early pregnancy – 34/65

1. Marchand G, et al. Efficacy of laparoscopic and trans-abdominal cerclage (TAC) in patients with cervical insufficiency: A systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2022 Mar;270:111-120.
2. Maswadi GN, et al. Systematic Review of Transabdominal Cerclage Placed via Laparoscopy for the Prevention of Preterm Birth. J Minim Invasive Gynecol. 2018 Feb;25(2):277-286.
3. Burger ML, et al. Preconceptional laparoscopic abdominal cerclage: a multicenter cohort study. Am J Obstet Gynecol. 2012 Oct;207(4):275.e1-12.
4. Tulandi T, et al. Pre and post-conceptional abdominal cerclage by laparoscopy or laparotomy. Minim Invasive Gynecol. 2014 Nov-Dec;21(6):987-93.
5. Osmond E, et al. Transabdominal cerclage preconceptual versus first trimester insertion. Eur J Obstet Gynecol Reprod Biol. 2016 Apr;199:210-211.

26

Laparoscopic Abdominal Cerclage

Laparoscopic cervical cerclage and pregnancy outcomes in consecutive pregnancies – an observational study

- 170 underwent cerclage
- 145 achieved pregnancy
- 229 pregnancies
- 6% uterine wall perforation
- 2% postoperative infection
- 185 pregnancies >20 weeks
  - 92% delivered ≥34 weeks
  - 98% neonatal survival
  - 97% survived without major morbidity
- 50 patients had more than one pregnancy >20 weeks
  - 100% neonatal survival in second and third pregnancies

- Krogh LQ, et al. Laparoscopic cervical cerclage and pregnancy outcomes in consecutive pregnancies: An observational study. Acta Obstet Gynecol Scand. 2006 Mar;105(3):492-498.

27

Original Research

ajog.org

OBSTETRICS

Laparoscopic transabdominal cerclage: preconception versus postconception placement

Stephanie L. Kaus, MD; Emma Brenner, MD; Melanie Holz, MD; Sarah Pachtman Shetty, MD; Ji Yoon Lee, MS; Michael L. Nimaroff, MD

- 69 underwent cerclage
- 40 preconception laparoscopic transabdominal cerclage
  - 30 ≥ 34 weeks
- 29 pregnant
  - 26 ≥ 34 weeks

- Kaus SL, et al. Laparoscopic transabdominal cerclage: preconception versus postconception placement. Am J Obstet Gynecol. 2020 Jul;205(1):195-204.

28

Laparoscopic Abdominal Cerclage

- Procedure
  - General anesthesia
  - Dorsal lithotomy position
  - Place Foley catheter in bladder
  - Preconception – place uterine manipulator
  - Early pregnancy – use sponge stick in vagina or transvaginal ultrasound
  - Open vesicouterine peritoneum across lower uterine segment
  - Reflect bladder caudal
  - Open medial posterior broad ligament peritoneum sightly above and lateral to insertion of uterosacral ligaments at cervix
  - Use nonabsorbable suture
    - Most common: 5 mm Mersilene polyester tape with CTX or BP-1 needles
      - #1 nonabsorbable suture is optional
    - Use both needles or one; straighten needle(s) to ease placement through port
  - Use ultrasound guidance in pregnancy to avoid entrance into amniotic cavity
- Procedure (cont'd)
  - Can place suture as follows at cervicoisthmic junction
    - 2 needles
      - Anterior; anterior – tie posterior
      - Posterior; posterior – tie anterior
    - 1 needle
      - Anterior to posterior – tie anterior
      - Posterior to anterior – tie posterior
    - Prefer tying anteriorly
    - Note - if placement too medial, impacts cerclage performance; if placement too lateral, risk of bleeding
    - Intracorporeal suturing after placing Hegar 6 Dilator in cervix
    - With anterior suturing tack ends of the Mersilene tape to lower uterine segment with 2-0 silk suture
      - Allows identification of cerclage
      - Lower risk of erosion into bladder



A single Mersilene tape (12-inch length, 5-mm width) with double-armed blunt point needles is used for laparoscopic abdominal cerclage. The curved needles are straightened to allow for insertion through laparoscopic trocars and to aid in needle handling.

29

Laparoscopic Abdominal Cerclage



30

Dr. Charles Miller – Lecture References

- Liu L, et al. Diagnostic Accuracy of Transvaginal Ultrasound and Magnetic Resonance Imaging for Adenomyosis: Systematic Review and Meta-Analysis and Review of Sonographic Diagnostic Criteria. J Ultrasound Med. 2021 Nov;40(11):2289-2306.
- Tellum T, et al. Diagnosing adenomyosis with MRI: a prospective study revisiting the junctional zone thickness cutoff of 12 mm as a diagnostic marker. Eur Radiol. 2019 Dec;29(12):6971-6981.
- Li X., et al. Clinical profiles of 710 premenopausal women with adenomyosis who underwent hysterectomy. J Obstet Gynaecol Res. 2014 Feb;40(2):485-94.
- Fadhlaoui A, et al. Endometriosis and infertility: how and when to treat? Front Surg. 2014 Jul 2:1:26.
- Macer ML, Taylor HS. Endometriosis and infertility: a review of the pathogenesis and treatment of endometriosis-associated infertility. Obstet Gynecol Clin North Am. 2012 Dec;39(4):535-49
- Garcia L, et al. Adenomyosis: review of the literature. J Minim Invasive Gynecol. 2013 Jul-Aug;18(4):428-37.
- Aleksandrovych V, et al. Current facts constituting an understanding of the nature of adenomyosis. Adv Clin Exp Med. 2019 Jun;28(6):839-846.
- Tan J, et al. A critical review of recent advances in the diagnosis, classification, and management of uterine adenomyosis. Curr Opin Obstet Gynecol. 2019 Aug;31(4):212-221.
- Dueholm M, et al. Magnetic resonance imaging and transvaginal ultrasonography for the diagnosis of adenomyosis. Fertil Steril. 2001 Sep;76(3):588-94.
- Harada T, et al. The Impact of Adenomyosis on Women's Fertility. Obstet Gynecol Surv. 2016 Sep;71(9):557-68.
- Osuga H. Uterine adenomyosis and adenomyoma: the surgical approach. Fertil Steril. 2018 Mar;109(3):406-417.
- Jiang L, et al. Pregnancy Outcomes after Uterus-sparing Operative Treatment for Adenomyosis: A Systematic Review and Meta-analysis. J Minim Invasive Gynecol. 2023 Jul;30(7):543-554.
- Mikos T, et al. The Outcome of Fertility-Sparing and Nonfertility-Sparing Surgery for the Treatment of Adenomyosis. A Systematic Review and Meta-analysis. Minim Invasive Gynecol. 2020 Feb;27(2):309-331.e3.
- Moawad G, et al. The Impact of Conservative Surgical Treatment of Adenomyosis on Fertility and Perinatal Outcomes. J Clin Med. 2024 Apr 25;13(9):2531.
- Pedon G, et al. Adenomyosis and Infertility: A Literature Review. Medicina (Kaunas). 2023 Aug 26;59(9):1551.
- Liu L, et al. Image-guided thermal ablation in the management of symptomatic adenomyosis: a systematic review and meta-analysis. Int J Hyperthermia. 2021;38(1):948-962.
- Nam JH. Pregnancy and symptomatic relief following ultrasound-guided transvaginal radiofrequency ablation in patients with adenomyosis. J Obstet Gynaecol Res. 2020 Jan;46(1):124-132.
- Seaman SJ, et al. Uterine isthmocele: obstetric outcomes after robotic-assisted laparoscopic repair. J Robot Surg. 2025 Jun 14;19(1):293.
- Almasurwah S, et al. Robotic-assisted laparoscopic repair of isthmocele: the feasibility of operative treatment and recommendations for patient selection. Ther Adv Reprod Health. 2026 Mar 4:20:26334941261426108.
- Schröder C, et al. Reproductive and clinical outcomes after minimally invasive isthmocele repair: a comparison of robotic-assisted and laparoscopic approaches. Arch Gynecol Obstet. 2026 Jul 27;313(1):236.
- Shennan A, et al. MAVRIC: a multicenter randomized controlled trial of transabdominal vs transvaginal cervical cerclage. Am J Obstet Gynecol. 2020 Mar;222(3):261.e1-261.e9.
- Marchand G, et al. Efficacy of laparoscopic and trans-abdominal cerclage (TAC) in patients with cervical insufficiency: A systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2022 Mar;270:111-125.
- Moawad GN, et al. Systematic Review of Transabdominal Cerclage Placed via Laparoscopy for the Prevention of Preterm Birth. J Minim Invasive Gynecol. 2018 Feb;25(2):277-286.
- Burger NB, et al. Preconceptional laparoscopic abdominal cerclage: a multicenter cohort study. Am J Obstet Gynecol. 2012 Oct;207(4):272.e1-12.
- Tulandi T, et al. Pre and post-conceptional abdominal cerclage by laparoscopy or laparotomy. Minim Invasive Gynecol. 2014 Nov-Dec;21(6):987-93.
- Dawood F, et al. Transabdominal cerclage: preconceptual versus first trimester insertion. Eur J Obstet Gynecol Reprod Biol. 2016 Apr;199:27-31.
- Krogh LQ, et al. Laparoscopic cervical cerclage and pregnancy outcomes in consecutive pregnancies: An observational study. Acta Obstet Gynecol Scand. 2026 Mar;105(3):492-498.
- Kass SL, et al. Laparoscopic transabdominal cerclage: preconception versus postconception placement. Am J Obstet Gynecol. 2026 Jul;235(1):195-204.

31

Hysteroscopy in the Infertile Couple

Keith Isaacson, MD
Audubon Fertility
Ochsner Health System
New Orleans, LA
USA

1

Disclosures

Nothing to Disclose

2

Learning Objectives

- Become familiar with office hysteroscopy equipment
- Be aware of indications and findings for hysteroscopy in the infertile population
- Become familiar with hysteroscopic procedure techniques

3

Infertility Evaluation

- Semen Analysis
- Ovarian Reserve Assessment
- Tubal patency
- Uterine cavity assessment

4

Intrauterine pathology impacting fertility

- Intrauterine polyps
- Uterine fibroids
- Intrauterine Adhesions
- Uterine septum
- Adenomyosis
- Proximal Tubal occlusion

5

Evaluation of the Uterine Cavity

- D&C
- Hysterosalpingogram
- Ultrasound
- Sonohysterography
- Office hysteroscopy

Should office hysteroscopy be a routine part of the fertility evaluation?

6



- Will miss up to 40% of focal lesions such as polyps and fibroids.
- Equal to Pipelle office biopsy for detecting diffuse endometrial carcinoma.
- Only indicated when office biopsy can not be obtained.

Loffer FD Obstet Gynecol 73(1): 16-20 1989

7

Diagnostic accuracy of sonohysterography, transvaginal sonography, and hysterosalpingography in patients with uterine cavity diseases

- 69 Infertile women age 19-43
- All underwent TVUS, SIS, HSG and Hysteroscopy (gold standard)

Soares S et al. Fertil Steril 73, FEBRUARY 2000

8

Polyp Diagnosis

TABLE 1

Diagnostic accuracy parameters of HSG, TVS, and SHG for polypoid lesions of the uterine cavity.

Examination	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
HSG	58.0 (17.4–82.6)	82.5 (69.6–90.8)	28.6 (9.6–58.0)	92.2 (80.3–97.5)
TVS	75.0 (35.6–95.5)	96.3 (86.8–99.4)	75.0 (35.6–95.5)	96.5 (86.8–99.4)
SHG	100 (59.8–100)	100 (92.1–100)	100 (59.8–100)	100 (92.1–100)

Note: The numbers in parentheses are the limits of the 95% confidence interval. HSG = hysterosalpingography; SHG = sonohysterography; TVS = transvaginal sonography; PPV = positive predictive value; NPV = negative predictive value.

9

Intrauterine Adhesions

TABLE 3

Diagnostic accuracy parameters of HSG, TVS, and SHG for intrauterine adhesions.

Examination	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
HSG	75.0 (21.9–98.7)	95.1 (83.4–98.7)	50.0 (13.9–86.1)	98.3 (89.7–99.9)
TVS	0.0 (0.0–69.0)	95.2 (83.6–98.7)	0.0 (0.0–69.0)	95.2 (83.6–98.7)
SHG	75.0 (21.9–98.7)	93.4 (83.3–97.9)	42.9 (11.8–79.8)	98.3 (89.5–99.9)

Note: The numbers in parentheses are the limits of the 95% confidence interval. HSG, hysterosalpingography; SHG, sonohysterography; TVS, transvaginal sonography; PPV, positive predictive value; NPV, negative predictive value.

Source. Diagnostic accuracy. Fertil Steril 2000.

10

Uterine Malformations

TABLE 2

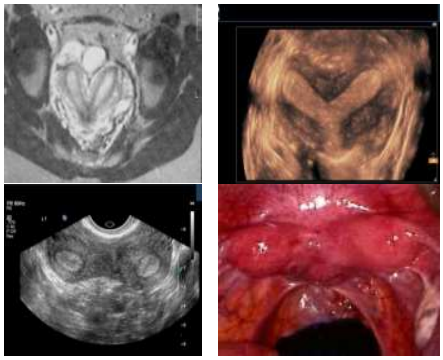
Diagnostic accuracy parameters of HSG, TVS, and SHG for uterine malformations.

Examination	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
HSG	44.4 (13.3–77.3)	96.4 (80.6–99.4)	66.7 (24.1–94.0)	91.5 (80.0–96.8)
TVS	44.4 (13.3–77.3)	100 (92.0–100)	100 (39.6–100)	91.8 (81.2–96.9)
SHG	77.8 (40.2–96.1)	100 (92.0–100)	100 (50.1–100)	96.6 (87.6–99.4)

Note: The numbers in parentheses are the limits of the 95% confidence interval. HSG, hysterosalpingography; SHG, sonohysterography; TVS, transvaginal sonography; PPV, positive predictive value; NPV, negative predictive value.

Source. Diagnostic accuracy. Fertil Steril 2000.

11



12

Table 2

Number of bicornuate and septate uterus diagnosed with 3D SHG, Hysteroscopy and MRI, and concordance with operative hysteroscopy or laparoscopy

	3D SHG	Office hysteroscopy	MRI	Operative endoscopy
Bicornuate uterus	2	5	7	2
Septate uterus	29	25	24	29
False-positive diagnosis of bicornuate uterus	0	3	5	–
False diagnosis length of the septum	0	0	2	–
Concordance with operative hysteroscopy or laparoscopy	31/31 (100%)	27/31 (90%)	24/31 (77%)	–

13

Hysteroscopic Findings in ART Patients

- Lorusso, F et al[1] (866 cycles)
  - 555 pts before first IVF
  - 311 after 2 or more failed IVF
  - 40% with intrauterine pathology
- Hinkley MD et al [2] 1000 patients prior to IVF
  - 32% with polyps
  - 3% submucus myomas
  - 3% adhesions
  - 0.5% septum
  - 0.3% retained POCs
  - 0.3% bicornuate

1. Gynecol Endocrinol Aug 2008 2. JSLS April 2004

14

Hysteroscopic Findings in ART Patients

- Akmai-El-Mazny et al
  - 145 patients prior to IVF with normal HSG
  - 51 with prior ART failure
- Results
  - 33% (48) with cavity abnormality (45% with prior ART failure)
  - 5.5% polyps
  - 4% myoma
  - 4% adhesions
  - All others <3% each

Fertil Steril Jan 2011

15

Findings Following Normal HSG & TVS

- 217 patients
  - 95 with prior ART failure
    - 42% with intrauterine abnormality
  - 122 with no prior ART
    - 24% with intrauterine abnormality
- Hysteroscopic pathologic findings (217 patients)
  - Submucosal fibroids 28 (13%)
  - Polyps 26 (12%)
  - Septum 12 (6%)
  - Synechia 3 (1.5%)

Bakas p, Hassiakos D et al JMIG 2013

16

Recurrent IVF failure

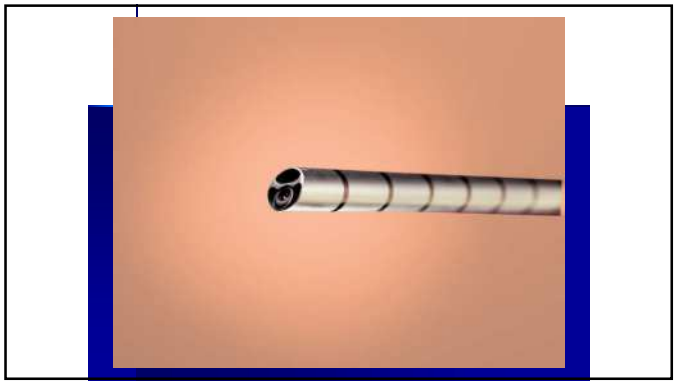
- 421 pts - randomized
  - 211 with no OH – 21% PR
  - 210 with OH
    - 154 normal cavities – 32% PR
    - 56 abnormal cavities (26%) repaired at diagnosis– 30% PR P=0.044

Dimirol A, Gurgan T Reproductive Med Online 8:590 2004

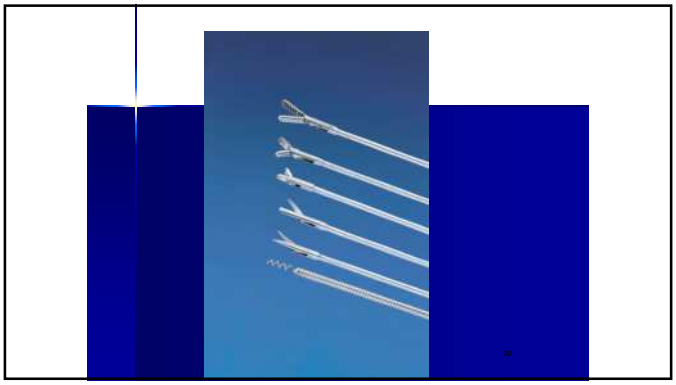
17



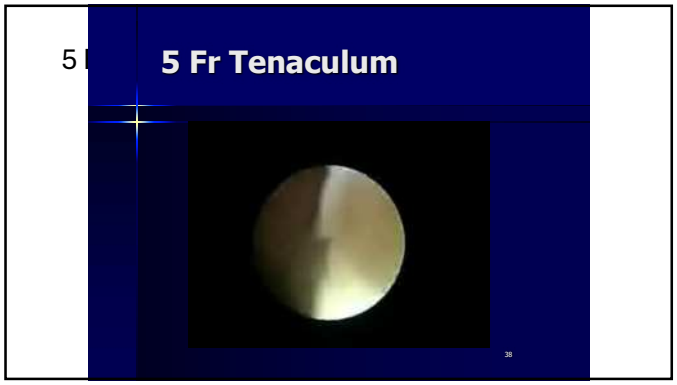
18



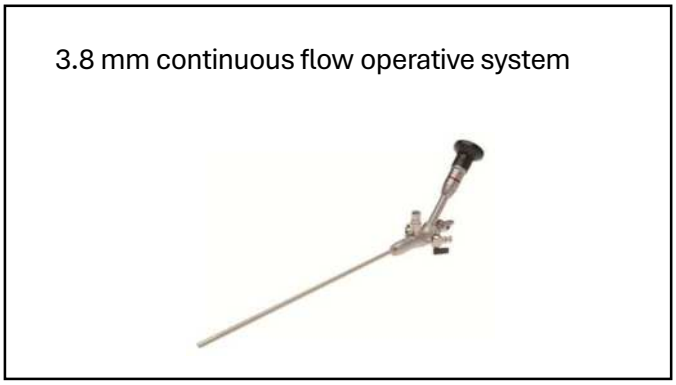
19



20



21



22



23



24

Diagnostic hysteroscopy



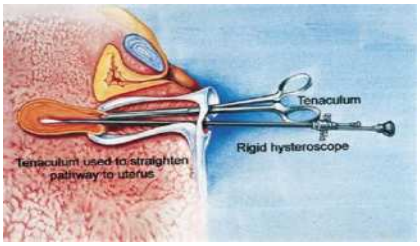
25

Office Hysteroscopic procedures to enhance fertility

- Diagnostic Hysteroscopy
- Visually directed endometrial biopsy
- Polypectomy
- Myomectomy
- Adhesiolysis
- Metroplasty

26

Standard Hysteroscopy



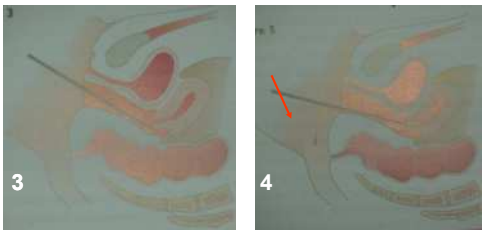
27

Vaginoscopie : Technique



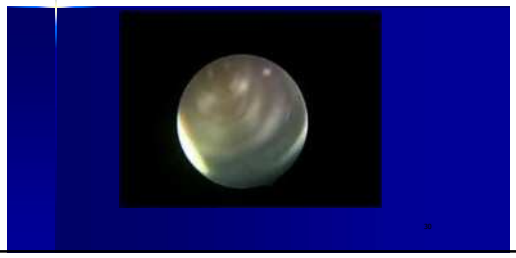
28

Vaginoscopie : Technique



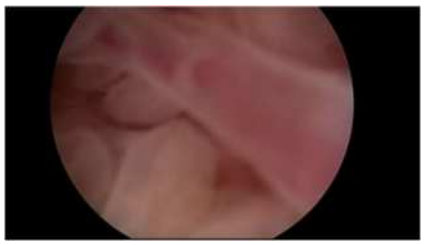
29

Vaginoscopic polypectomy



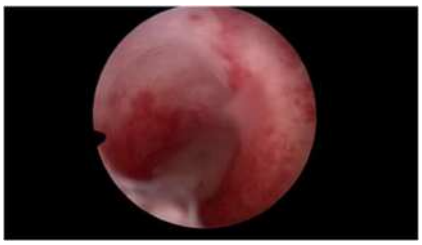
30

Office myomectomy



31

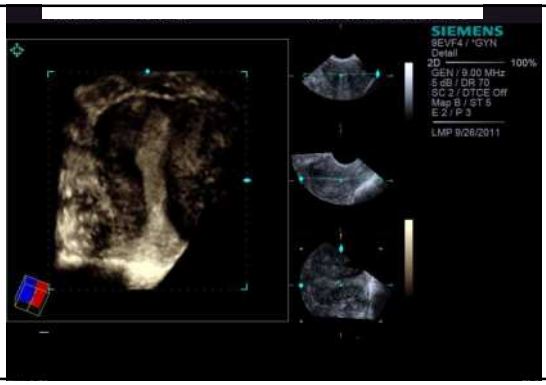
Septum repair



32



33



34

Asherman's



35

Multiple polyps



36

Pa

Polyp	
Adenomyosis	
Leiomyoma	Submucosal
Malignancy & hyperplasia	Other

Coagulopathy
Ovulatory dysfunction
Endometrial
Iatrogenic
Not yet classified

Leiomyoma subclassification system



SM - Submucosal	0	Pedunculated intracavitary
	1	<50% intramural
	2	≥50% intramural
O - Other	3	Contacts endometrium; 100% intramural
	4	Intramural
	5	Subserosal ≥50% intramural
	6	Subserosal <50% intramural
	7	Subserosal pedunculated
	8	Other (specify e.g. cervical, parasitic)
Hybrid leiomyomas (impact both endometrium and serosa)	Two numbers are listed separated by a hyphen. By convention, the first refers to the relationship with the endometrium while the second refers to the relationship to the serosa. One example is below.	
	2-5	Submucosal and subserosal, each with less than half the diameter in the endometrial and peritoneal cavities, respectively.

37







38

Mini resectoscope myoma



39

Myoma resection





40

Hysteroscopic Morcellation
Patient Selection



41

Complications: Is a morcellator safer than a resectoscope?



Where do the chips go?



"There were some complications. It looked way easier on YouTube." But I did save 8 minutes!

42

Loss of distention or Orientation in Hysteroscopy

- Stop resection. No more energy
- Check the fluid management
  - fluid in the bags
  - kink in the tubing
  - fluid deficit
- Consider perforation
  - Without energy
  - With energy



Common, internal and external ileac V – Morcellator



Colon, small bowel and Appendix. - Morcellator

43

43

Maude Database Patient Injury 2018-2023

- Myosure
  - 239 reports
- TruClear
  - 69 reports
- Resectoscope
  - 5 reports



44

44

Injectable Local Anesthetics

Anesthetic	Concentration	Onset (min)	Duration (hours)	Maximal Dose (mg / kg)	Maximum Dose (mL /70 kg)
Lidocaine (Xylocaine®)	1%, 2%	<2	1.5-2	4 mg/kg not to exceed 280 mg	28mL (1%); 14 mL (2%)
Mepivicaine (Carbocaine®)	1%	3-5	0.75-1.5	4 mg/kg not to exceed 280 mg	28 mL
Prilocaine (Citanest®)	1%	<2	>1	7 mg/kg not to exceed 500 mg	50 mL
Lidocaine with Epinephrine	Lidocaine 0.5%, 1%, 2% Epinephrine 1:100,000, 1:200,000	<2	2-6	7 mg/kg not to exceed 500 mg	100 mL (0.5%) 50 mL (1%) 25 mL (2%)
Bupivicaine (Marcaine®)	0.25%	5-8	2-4	2.5mg/kg not to exceed 175 mg	50 mL
Etidocaine (Duranest®)	0.25 , 1%	4-6	2-3	4 mg/kg not to exceed 300 mg	50 mL (0.5%) 25 mL (1%)

45

45

ACLS Algorithms to Memorize?

- VF/VT
- Asystole
- Bradycardia (chest pain, s.o.b., decreased consciousness, low BP, shock, pulmonary congestion)
- Tachycardia with serious signs or symptoms
- Hypotension

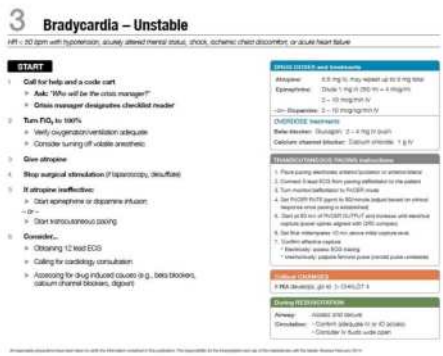
46

46



47

47



48

48



49

AAGL 55TH GLOBAL CONGRESS · PG-26210

Don’t Put All Your Eggs in One Basket

Adnexal surgery in patients seeking fertility



Pietro Bortoletto, MD, MSc
Reproductive Endocrinology & Infertility · Terra Fertility, Boston, MA
Boston · Friday, November 13, 2026

Disclosure: I have no financial relationships with ineligible companies to disclose. No off-label uses will be discussed.

1

Learning objectives

1
Quantify how ovarian surgery spends ovarian reserve, and use technique to protect it

2
Know which tubal operations change IVF outcomes, and which ones IVF has replaced

3
Sequence surgery and IVF with your REI, and hand off what they need from the OR

Maps to course objectives 2 and 3 (adnexal surgery; collaboration and sequencing with IVF practices)

2

She is on your OR schedule Monday

The patient

- 34 years old, trying to conceive for 14 months
- Bilateral endometriomas, 4 cm and 5 cm
- AMH 1.1 ng/mL, antral follicle count 8
- Moderate dysmenorrhea, controlled on NSAIDs
- Partner’s semen analysis normal

What do you do?

A. Bilateral laparoscopic cystectomy

B. Refer straight to IVF, no surgery

C. Bank eggs or embryos first, then decide

D. Expectant management for 6 more months

Hypothetical case for discussion · show of hands or audience poll

3

PART 1 · THE OVARY

The ovary is a non-renewable basket. Every adnexal decision either spends eggs or protects them.

AMH and AFC measure quantity
They predict how many eggs an IVF cycle retrieves, not whether she can conceive

Age sets quality
In 1,140 PGT-A patients, AMH was not linked to embryo euploidy after adjusting for age

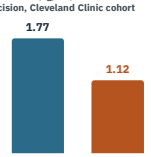
So loss matters more with age
Fewer eggs × lower euploid fraction = fewer chances at a transferable embryo

Stovezky YR, Romanski PA, Bortoletto P, Spandorfer SD. Fertil Steril 2023;119:444–453

4

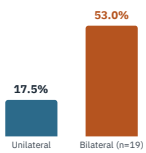
Endometrioma cystectomy spends ovarian reserve

Mean AMH (ng/mL) after endometrioma excision, Cleveland Clinic cohort



Significant drop at 1 month; still below baseline at 6 months, no longer significant

AMH decline at 1 month, by laterality



Larger cysts and higher baseline AMH also predicted a bigger drop

−1.13
ng/mL pooled fall in AMH after endometrioma excision (8 prospective studies, 237 patients)

Peritoneal-only endometriosis and negative laparoscopy: no significant AMH change

Goodman LR, Goldberg JM, Flyckt RL, et al. Am J Obstet Gynecol 2016;215:589.e1–6 · Raffi F, Metwally M, Amer S. J Clin Endocrinol Metab 2012;97:3146–54

5

Technique decides how many eggs you spend

Protect the cortex

- Enter the true plane at the cyst–cortex junction
- Traction–countertraction; strip the wall, don’t peel cortex
- Stay away from the hilum and ovarian vessels
- Close or seal instead of desiccating the bed
- If energy is needed: low power, short bursts, targeted
- Remove only what you must; drain or ablate when excision would cost too much tissue

Hemostasis after endometrioma excision

6.95%

less AMH decline at 3 months with suture or hemostatic sealant than with bipolar desiccation

Meta-analysis, 4 studies, 213 women · 95% CI −13.0% to −0.9%

▷ [Video: cystectomy plane and suture hemostasis, ~45 s]

Ata B, Turkgeldi E, Seyhan A, Urman B. J Minim Invasive Gynecol 2015;22:363–72 (includes ASRM and AAGL meeting abstracts)

6

Endometrioma: when to operate, and when not to

Operate first	IVF (or egg/embryo banking) first
Pain not controlled medically	Main goal is pregnancy, pain is controlled
Imaging cannot exclude malignancy	Bilateral cysts or prior ovarian surgery
Cyst blocks transvaginal access to follicles	Low AMH or AFC for age
Young, good reserve, wants to try naturally	Age ≥35, or other IVF indications (tubal, male factor)

Live birth with IVF, cystectomy vs none

OR 0.90 (0.63–1.28)

5 studies, 655 women: no benefit from operating first

ASRM Practice Committee

No evidence that removing endometriomas before IVF improves outcomes; operate for pain, diagnosis or access

ASRM Practice Committee. Fertil Steril 2012;98:591–8 · Hamdan M, Dunselman G, Li TC, Cheong Y. Hum Reprod Update 2015;21:809–25

7

After endometriosis excision: temporary ovarian suspension

The problem

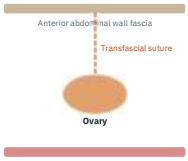
After stage III–IV excision, a raw ovary lies on a raw ovarian fossa and the two heal together

Why your REI cares

An ovary stuck low and behind the uterus is harder to reach at transvaginal retrieval, and periadnexal adhesions work against natural conception

How it is done

- Suture through the utero-ovarian ligament, out through a 3 mm skin incision with a fascial closure device, tied over fascia
- Absorbable plain gut releases itself; nylon is cut at about 1 week
- Also gives free exposure of the fossa and ureter during excision



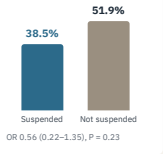
Abuzeid OM, Raju R, Hebert J, et al. J Minim Invasive Gynecol 2018;25:26–7 · Thompson R, Cesta M, Pasic R. J Minim Invasive Gynecol 2021;28:1678

8

Suspension: what the evidence shows

Study	Design	Finding
Giampaolino 2019	Review: 2 RCTs + 6 cohorts	Fewer adhesions in pooled RCTs
Hoo 2014	Blinded RCT, n = 52, 36–48 h	No significant reduction
Abuzeid 2018 (Michigan)	152 cases, 1998–2017	No major complications
Chaichian 2022	RCT, n = 50	Hyaluronic acid gel beat suspension

Low cost, low risk, mixed efficacy. The negative RCT used a short duration; its authors suggested longer suspension may work better.



My practice: suspend after extensive fossa or sidewall excision in patients headed to IVF, for longer than 48 hours.

Giampaolino P, et al. JMIG 2019;26:53–62 · Hoo WL, et al. Hum Reprod 2014;29:670–6 · Abuzeid OM, et al. Facts Views Vis Obgyn 2018;10:71–9 · Chaichian S, et al. BMC Womens Health 2022;22:33

9

Other ovarian scenarios, same principle

Scenario	Fertility-protective approach
Torsion	Detorse and conserve regardless of how the ovary looks; remove only if necrotic tissue falls apart
Recent IVF stimulation	Enlarged, heavy ovaries torse; low threshold to scope, detorse, and leave the ovary
Dermoid	Cystectomy sparing normal cortex; same hemostasis rules as endometrioma
Suspicious or borderline mass	Fertility-sparing surgery with gynecologic oncology; ask about banking before definitive treatment
Incidental functional cyst	Leave it alone

Rule of thumb: if you would not remove that much cortex from the only ovary, don't remove it from either.

ACOG Committee Opinion No. 783: Adnexal torsion in adolescents. Obstet Gynecol 2019;134:e56–63

10

PART 2 · THE TUBE

A hydrosalpinx cuts IVF success in half

~50%
lower clinical pregnancy rate per transfer

~50%
lower implantation rate, in fresh and frozen transfers

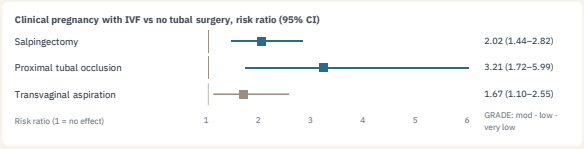
>2×
higher miscarriage rate

Meta-analysis of 6,713 IVF cycles (1,144 with hydrosalpinx); tubal fluid flowing back into the cavity is the leading explanation

Zeyneloglu HB, Arici A, Olive DL (Yale). Fertil Steril 1998;70:492–9

11

Fix the tube before the transfer



ASRM: salpingectomy or proximal occlusion before IVF for hydrosalpinx

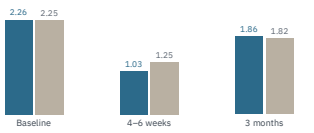
Occlude, don't dissect when the tube is buried in dense adhesions

Melo P, et al. Cochrane Database Syst Rev 2020;10:CD002125 (11 RCTs, 1,386 women) · ASRM Practice Committee. Fertil Steril 2021;115:1143–50

12

Taking the tube does not take the eggs

Mean AMH (ng/mL), salpingectomy vs none at laparoscopic hysterectomy (pilot RCT, n = 30)



■ Salpingectomy (left bar) ■ No salpingectomy (right bar) · no difference at any time point

Technique

- Divide the mesosalpinx right against the tube
- Spare the utero-ovarian and infundibulopelvic supply
- Minimal, targeted energy near the ovary
- Neosalpingostomy only for young patients with mild distal disease who want natural conception

ACOG: salpingectomy does not appear to affect ovarian function, by AMH or IVF response

Findley AD, Siedhoff MT, Hobbs KA, et al. (UNC) Fertil Steril 2013;100:1704–8 · ACOG Committee Opinion No. 774. Obstet Gynecol 2019;133:e279–84

13

Tubal ectopic: salpingostomy buys little when the other tube is normal

ESEP RCT, n = 446	Salpingostomy	Salpingectomy
Cumulative ongoing pregnancy, 36 mo	60.7%	56.2%
Persistent trophoblast	7%	<1%
Repeat ectopic	8%	5%
Converted for bleeding	20%	–

Fecundity rate ratio

1.06 (0.81–1.38)

No fertility advantage to keeping the tube

For the REI: photograph and describe the contralateral tube. Its status decides between trying naturally and going to IVF.

Mol F, et al. Lancet 2014;383:1483–9 (Europe and US sites, incl. Penn and Wake Forest) · ACOG Practice Bulletin No. 193. Obstet Gynecol 2018;131:e91–103

14

Sterilization reversal or IVF?

Favors tubal anastomosis	Favors IVF
Younger age, normal reserve	Age ≥41 or low reserve
Clip or ring; long healthy segments	Cautery damage, short segments, or prior salpingectomy
Normal semen analysis	Male factor or other IVF indication
Wants more than one child	Wants one child, or wants PGT

Cost per ongoing pregnancy, US model (2014 USD)

Tubal anastomosis: $16k–$223k

IVF: $33k–$112k

Anastomosis was more cost-effective under 41; IVF was more cost-effective at 41 and older

Note: as salpingectomy replaces tubal ligation for sterilization, reversal stops being an option for many future patients.

Messinger LB, et al. (NICHD) Fertil Steril 2015;104:32–8 · ASRM Practice Committee. Fertil Steril 2021;115:1143–50

15

Sequencing: surgery first, IVF first, or both?

Emergency: torsion, rupture, suspected cancer? Yes → Operate now; detorse and conserve tissue

No ↓

Hydrosalpinx on imaging? Yes → Salpingectomy or occlusion before transfer; retrieval can come first

No ↓

Bilateral ovarian disease, low AMH/AFC, or age ≥35? Yes → Bank eggs or embryos first; operate afterward if still needed

No ↓

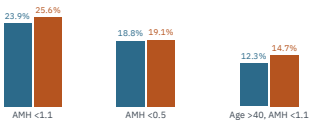
Otherwise → Reserve-sparing surgery if symptoms demand it; shared plan with the REI

Proposed framework (expert opinion) drawing on ASRM Practice Committee opinions: Fertil Steril 2012;98:591–8 and 2021;115:1143–50

16

A few months is cheaper than ovarian tissue

Live birth after fresh transfer, diminished ovarian reserve (n = 1,790)



■ IVF started within 90 days ■ Started 91–180 days · OR 1.08 (0.85–1.38)

Even with low reserve, a delay of up to 6 months did not lower live birth.

So there is time to get an AMH, see the REI, and bank first. What cannot be undone is the cortex removed in the OR.

Romanski PA, Bortoletto P, Rosenwaks Z, Schattman GL. Hum Reprod 2020;35:1630–6

17

What your REI wants from you

Before you cut

- AMH and antral follicle count
- Partner semen analysis, prior treatment
- A call if reserve is low, disease is bilateral, or IVF is already planned
- Time to bank first if needed

In the op note

- Photos of both adnexa and the cul-de-sac
- Patency of each tube on chromopertubation; fimbrial status
- What ovarian tissue was removed, and how hemostasis was achieved
- Disease staging; whether ovaries were suspended

After

- When she is cleared to start stimulation
- Pathology
- Your recommendation: try naturally, or go to IVF
- One named contact for questions

The best fertility outcome is a joint plan made before the first incision.

Referral and co-management checklist · author's practice

18

Back to Monday's patient: C, bank first

Why

- Bilateral cystectomy: expect roughly half her AMH to go (Goodman 2016)
- Her AMH is already 1.1 ng/mL
- Cystectomy does not raise IVF live birth (Hamdan 2015)
- Her pain is controlled; the cysts do not block retrieval
- A few months' wait costs little (Romanski 2020)

The plan

1. 1–2 retrievals; bank embryos
2. Transfer, or operate first if pain worsens, cysts grow, or imaging changes
3. If surgery: suture or sealant hemostasis, suspension after fossa excision
4. Op note and photos to the REI

A or B could also be right for a different patient. The point is to choose together.

Goodman LR, et al. AJOG 2016 · Hamdan M, et al. Hum Reprod Update 2015 · Romanski PA, et al. Hum Reprod 2020

19

Take-homes

1. The oocyte is the currency. Know AMH and AFC before elective ovarian surgery.
2. Don't remove endometriomas just to improve IVF. Operate for pain, diagnosis or access.
3. When you do operate: true plane, no bipolar on the bed, consider suspension after fossa excision.
4. A hydrosalpinx comes out, or is occluded, before embryo transfer.
5. Call your REI before you cut, and send photos after.

Pietro Bortoletto, MD, MSc · Terra Fertility, Boston, MA

20

References (1 of 2)

1. Stovezky YR, Romanski PA, Bortoletto P, Spandorfer SD. Antimüllerian hormone is not associated with embryo ploidy… Fertil Steril 2023;119:444–53.
2. Goodman LR, Goldberg JM, Flyckt RL, et al. Effect of surgery on ovarian reserve in women with endometriomas, endometriosis and controls. Am J Obstet Gynecol 2016;215:589.e1–6.
3. Raffi F, Metwally M, Amer S. The impact of excision of ovarian endometrioma on ovarian reserve. J Clin Endocrinol Metab 2012;97:3146–54.
4. Ata B, Turkgeldi E, Seyhan A, Urman B. Effect of hemostatic method on ovarian reserve following laparoscopic endometrioma excision. J Minim Invasive Gynecol 2015;22:363–72.
5. Practice Committee of the ASRM. Endometriosis and infertility: a committee opinion. Fertil Steril 2012;98:591–8.
6. Hamdan M, Dunselman G, Li TC, Cheong Y. The impact of endometrioma on IVF/ICSI outcomes. Hum Reprod Update 2015;21:809–25.
7. Abuzeid OM, Raju R, Hebert J, et al. A modified technique of temporary suspension of the ovary to the anterior abdominal wall. J Minim Invasive Gynecol 2018;25:26–7.
8. Thompson R, Cesta M, Pasic R. Improved exposure in minimally invasive excision of endometriosis with temporary ovarian suspension. J Minim Invasive Gynecol 2021;28:1678.
9. Giampaolino P, Della Corte L, Saccone G, et al. Role of ovarian suspension in preventing postsurgical ovarian adhesions in stage III–IV endometriosis. J Minim Invasive Gynecol 2019;26:53–62.
10. Hoo WL, Stavroulis A, Pateman K, et al. Does ovarian suspension following laparoscopic surgery for endometriosis reduce postoperative adhesions? An RCT. Hum Reprod 2014;29:670–6.
11. Abuzeid OM, Hebert J, Ashraf M, et al. Safety and efficacy of two techniques of temporary ovarian suspension. Facts Views Vis Obgyn 2018;10:71–9.

21

References (2 of 2)

12. Chaichian S, Saadat Mostafavi SR, Mehdizadehkashi A, et al. Hyaluronic acid gel application versus ovarian suspension… a double-blind RCT. BMC Womens Health 2022;22:33.
13. ACOG Committee Opinion No. 783: Adnexal torsion in adolescents. Obstet Gynecol 2019;134:e56–63.
14. Zeyneloglu HB, Arici A, Olive DL. Adverse effects of hydrosalpinx on pregnancy rates after IVF-ET. Fertil Steril 1998;70:492–9.
15. Melo P, Georgiou EX, Johnson N, et al. Surgical treatment for tubal disease in women due to undergo IVF. Cochrane Database Syst Rev 2020;10:CD002125.
16. Practice Committee of the ASRM. Role of tubal surgery in the era of assisted reproductive technology. Fertil Steril 2021;115:1143–50.
17. Findley AD, Siedhoff MT, Hobbs KA, et al. Short-term effects of salpingectomy during laparoscopic hysterectomy on ovarian reserve: a pilot RCT. Fertil Steril 2013;100:1704–8.
18. ACOG Committee Opinion No. 774: Opportunistic salpingectomy as a strategy for epithelial ovarian cancer prevention. Obstet Gynecol 2019;133:e279–84.
19. Mol F, van Mello NM, Strandell A, et al. Salpingotomy versus salpingectomy in women with tubal pregnancy (ESEP study). Lancet 2014;383:1483–9.
20. ACOG Practice Bulletin No. 193: Tubal ectopic pregnancy. Obstet Gynecol 2018;131:e91–103.
21. Messinger LB, Alford CE, Csokmay JM, et al. Cost and efficacy comparison of IVF and tubal anastomosis for women after tubal ligation. Fertil Steril 2015;104:32–8.
22. Romanski PA, Bortoletto P, Rosenwaks Z, Schattman GL. Delay in IVF treatment up to 180 days does not affect pregnancy outcomes in women with diminished ovarian reserve. Hum Reprod 2020;35:1630–6.

22

ENDO FERTILITY

Unlocking Pelvic Factor Infertility Using a Fertility Sparing Approach to Endometriosis

@ENDO_FERTILITY

@DR.SADIKAHBEHBEHANI

Sadikah Behbehani, MD
Center for Endometriosis and Fertility

Associate Professor, University of California, Riverside School of Medicine
Reproductive Endocrinology and Infertility
Minimally Invasive Gynecologic Surgery

1

Endometriosis and Fertility

1. Ovaries
2. Fallopian tubes
3. Peritoneal disease
4. Deep infiltrative endometriosis of other organs

2

Endometriosis and Fertility

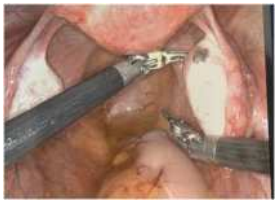
Will this surgical step improve her path to pregnancy—or could it compromise it?

3

Endometriosis

Typical Locations: Ovary





4

Endometriosis and Fertility

The infertility surgeon's dilemma — when endometriosis is contributing to infertility and when surgery may help versus harm.

5

Endometriosis and Fertility

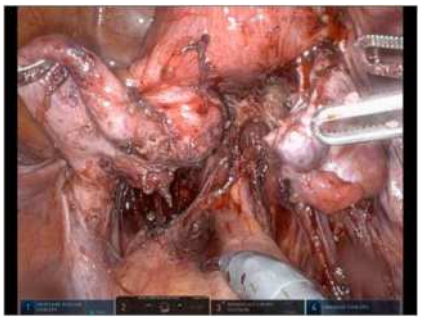
How endometriosis causes pelvic-factor infertility



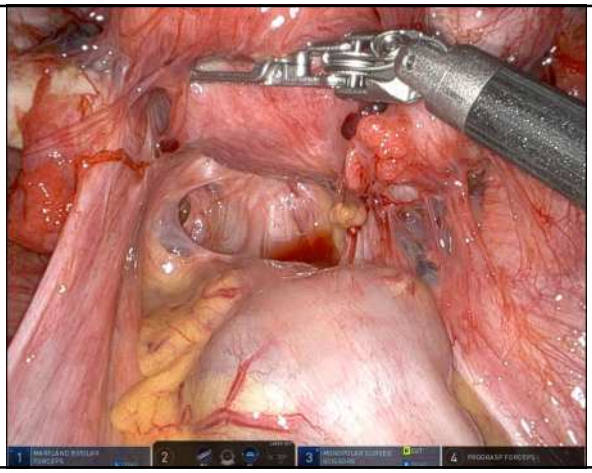
6



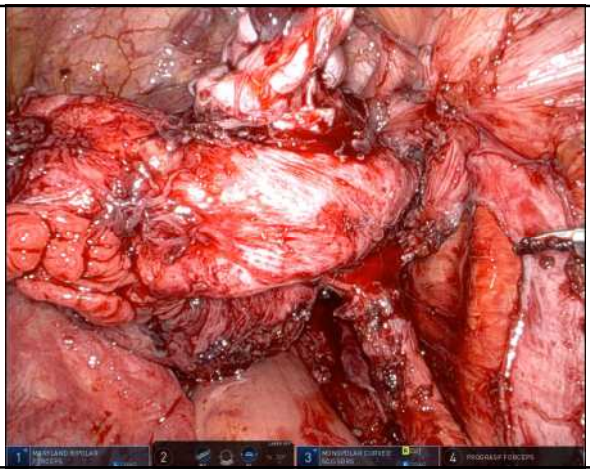
7



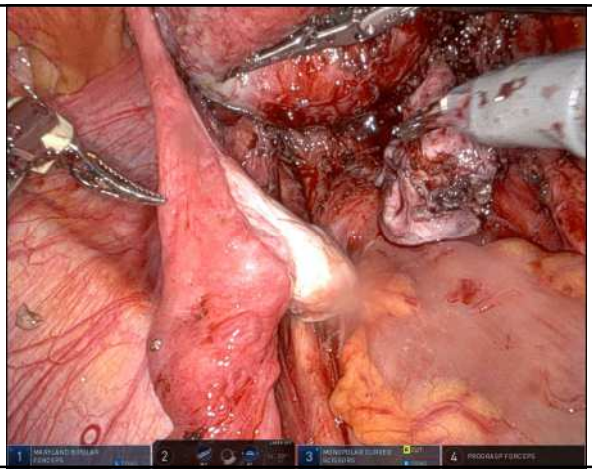
8



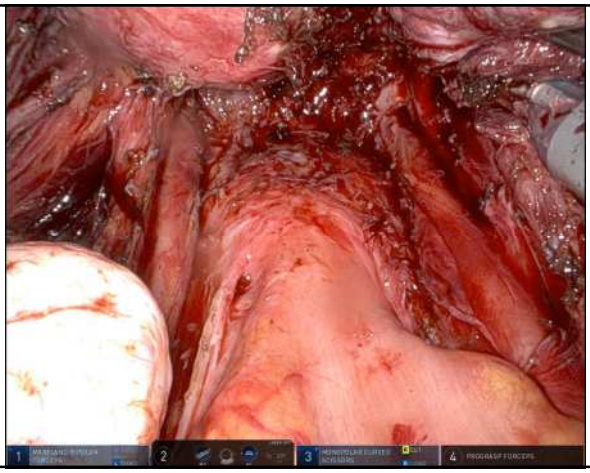
9



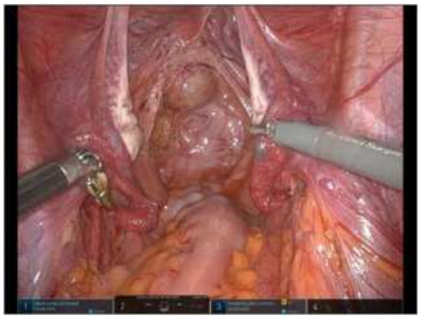
10



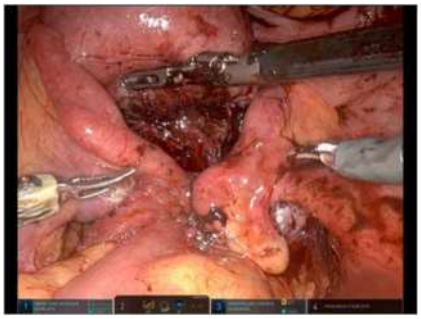
11



12



13



14

Endometriosis and Fertility

What surgery can actually "unlock" — distorted anatomy, adhesions, tubal–ovarian relationships, inflammatory disease, endometriomas and deep disease.



15

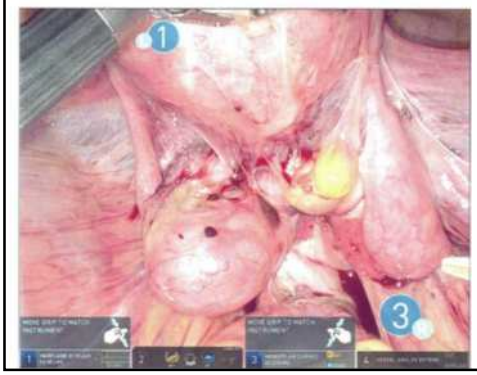
Endometriosis and Fertility

The fertility-sparing surgical mindset

- preserve ovarian reserve
- minimize thermal injury
- protect blood supply
- preserve tubes/ovaries when reasonable
- avoid unnecessary radical surgery

16

Then we find this:

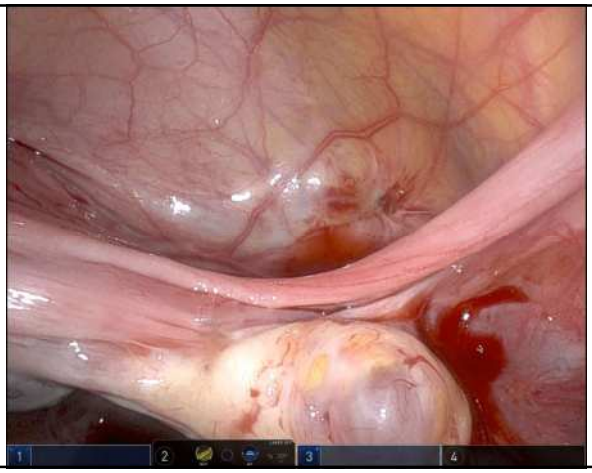


17

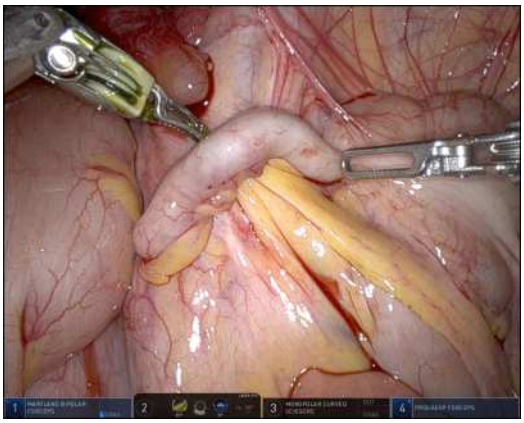
Then we find this:



18

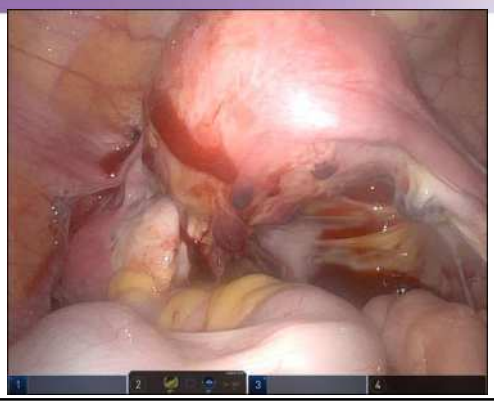


19



20

We want to go from this:

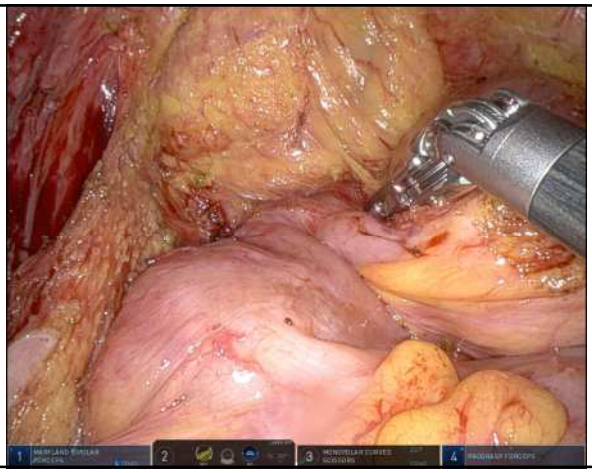


21

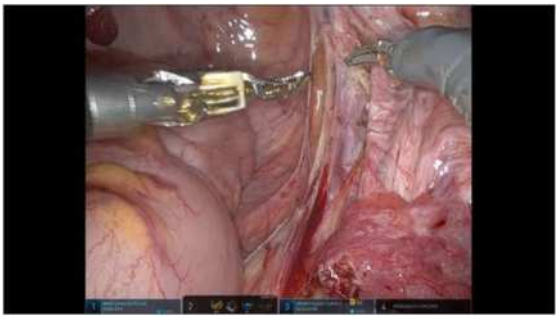
To this:



22



23



24

> J Minim Invasive Gynecol. 2025 Mar 22:S1553-4650(25)00095-0. doi: 10.1016/j.jmig.2025.03.010. Online ahead of print.

Factors Associated with Spontaneous Conception Leading to Live Birth in Infertility Patients After Endometriosis Surgery

Anthony D Nguyen [1], Hannah L Marshall [2], Meg W Sidle [3], Veronica D Galaviz [4], Peter L Stisco [5], Keith T Downing [6]

Affiliations + expand

PMID: 40127888 DOI: 10.1016/j.jmig.2025.03.010

Abstract

Study objective: To determine factors associated with spontaneous conception leading to live birth in infertility patients after endometriosis surgery.

Design: Retrospective cohort study.

Setting: Multi-hospital health system of Catholic Health in Long Island, NY.

Participants: Infertility patients, between ages 18 and 45, who underwent endometriosis surgery with complete excision or ablation with or without excision and continued follow-up care for at least one year between January 1st, 2016 and March 31st 2022.

25

Pregnancy after surgery:

- **50/100** patients conceived naturally within 1 year after surgery
- Predictors of pregnancy:
  Age <35 **(3.2 times more likely)**
  Complete excision **(x 4.2 fold)**
- **The pregnancy rate for AAGL Stage**
- I: 42%
- II: 32%
- III: 46%
- IV: 42%.

26

Review > J Minim Invasive Gynecol. 2021 Jul;28(7):1303-1312.e5. doi: 10.1016/j.jmig.2021.02.007. Epub 2021 Feb 11.

Impact of Surgery for Deep Infiltrative Endometriosis before In Vitro Fertilization: A Systematic Review and Meta-analysis

Gemma Casals [1], María Carrera [2], José Antonio Domínguez [3], Maurício Simões Abrão [4], Francisco Carmona [5]

Affiliations + expand

PMID: 33582380 DOI: 10.1016/j.jmig.2021.02.007

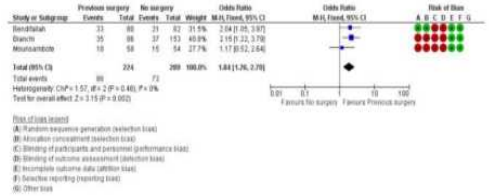


Fig. 3 Pregnancy rate per cycle in the IVF with previous surgery for DIE lesions group compared with that in the IVF with no p

27

Review > J Minim Invasive Gynecol. 2021 Jul;28(7):1303-1312.e5. doi: 10.1016/j.jmig.2021.02.007. Epub 2021 Feb 11.

Impact of Surgery for Deep Infiltrative Endometriosis before In Vitro Fertilization: A Systematic Review and Meta-analysis

Gemma Casals [1], María Carrera [2], José Antonio Domínguez [3], Maurício Simões Abrão [4], Francisco Carmona [5]

Affiliations + expand

PMID: 33582380 DOI: 10.1016/j.jmig.2021.02.007

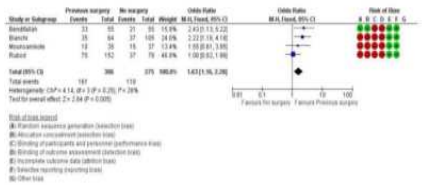


Fig. 5 Pregnancy rate per patient in the IVF with previous surgery (complete and incomplete) for DIE lesions group compared with that in the IVF without previous surgery group. DIE = deep infiltrative endometriosis; IVF = in vitro fertilization.

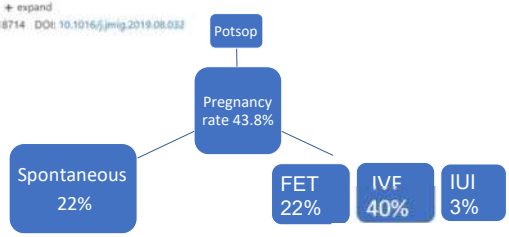
28

Pregnancy Rates After Surgical Treatment of Deep Infiltrating Endometriosis in Infertile Patients With at Least 2 Previous In Vitro Fertilization or Intracytoplasmic Sperm Injection Failures

Pauline Breteau [1], Isabella Chanavaz-Lacheray [1], Chrystele Rubod [2], Mélusine Turck [2], Sophie Sanguin [4], Ionut Pop [5], Benoit Resch [6], Horace Roman [7]

Affiliations + expand

PMID: 31518714 DOI: 10.1016/j.jmig.2019.08.032



29

Unexplained infertility

- 2024 systematic review of 1,707 women:
- Laparoscopically confirmed endometriosis was found in 44%
  - 74% were stage I–II
  - 20% severe adhesions

30

Unexplained infertility

- In that same 2024 systematic review:
  - Endometriosis: 44%
  - Tubal pathology: 20%
  - Adhesions: 16%

Previous fertility treatment: 75% chance of abnormal findings

No previous fertility treatment: 53% chance of abnormal findings

31

Endometriosis Staging

Early stage vs advanced stage endometriosis,

Endometriosis Fertility index

Early stage 1-2 excision vs no excision:

- Implantation rate 30% vs 23%, p= 0.02
- Pregnancy rate 40% vs 29%, p= 0.004

32

Conclusion



Excision of endometriosis works!

33

References:

The effect of endometriosis on IVF/ICSI and perinatal outcome: A systematic review and meta-analysis Huiling Qu [1], Yanbo Du [1], Yi Yu [1], Meng Wang [1], Ting Han [2], Lei Yan [3] PMID: 35905901 DOI: 10.1016/j.jogoh.2022.102446 2022 Nov;51(9):102446. doi: 10.1016/j.jogoh.2022.102446. Epub 2022 Jul 26.

Interventions for endometriosis-related infertility: a systematic review and network meta-analysis
Ruth Mary Hodgson [1], Hui Linn Lee [2], Rui Wang [3], Ben Willem Mol [4], Neil Johnson [5]PMID: 32106991 DOI: 10.1016/j.fertnstert.2019.09.031 doi: 10.1016/j.fertnstert.2019.09.031. . 2020 Feb;113(2):374-382.e2.

The impact of endometrioma on IVF/ICSI outcomes: a systematic review and meta-analysis
M Hamdan [1], G Dunselman [2], T C Li [3], Y Cheong [4] PMID: 26168799 DOI: 10.1093/humupd/dmv035

4. **Impact of Surgery for Deep Infiltrative Endometriosis before In Vitro Fertilization: A Systematic Review and Meta-analysis**
Gemma Casals [1], María Carrera [2], José Antonio Domínguez [3], Maurício Simões Abrão [4], Francisco Carmona [5] doi: 10.1016/j.jmig.2021.02.007. Epub 2021 Feb 11. . 2021 Jul;28(7):1303-1312.e5.

Impact of the hemostatic approach after laparoscopic endometrioma excision on ovarian reserve: Systematic review and network meta-analysis of randomized controlled trials
Gaetano Riemma [1], Pasquale De Franciscis [1], Marco La Verde [1], Mariangela Ravo [1], Pietro Fumiento [1], Diego Domenico Fasulo [1], Luigi Della Corte [2], Carlo Ronsini [1], Marco Torella [1], Luigi Cobellis [1] 2022 Dec 11. doi: 10.1002/ijgo.14621. Online ahead of print.

The Effect of Laparoscopic Endometrioma Surgery on Anti-Müllerian Hormone: A Systematic Review of the Literature and Meta-Analysis
José Moreno-Sepulveda [1,2], Carolina Romeral [1,3], Geraldine Niño [4], Assumpció Pérez-Benavente [1,5] PMID: 34755503 DOI: 10.5935/1518-0557.20210060 JBRA Assist Reprod 2022 Jan 17;26(1):88-104. doi: 10.5935/1518-0557.20210060.

Systematic review and meta-analysis of the effect of bipolar electrocoagulation during laparoscopic ovarian endometrioma stripping on ovarian reserve
Paula Deckers [1], Sérgio Conti Ribeiro [1], Ricardo Dos Santos Simões [1], Camila Barião da Fonseca Miyahara [1], Edmund Chada Baracat [1] 2018 Jan;140(1):11-17. doi: 10.1002/ijgo.12338. Epub 2017 Oct 28. PMID: 28980317 DOI: 10.1002/ijgo.12338

Effects of excision of ovarian endometrioma on the antral follicle count and collected oocytes for in vitro fertilization
Benny Almog [1], Boaz Sheizaf, Einat Shalom-Paz, Fady Shehata, Ayman Al-Talib, Togas Tulandi 2010 Nov;94(6):2340-2.
doi: 10.1016/j.fertnstert.2010.01.055. Epub 2010 Mar 2. PMID: 20189556 DOI: 10.1016/j.fertnstert.2010.01.055

34

References:

EFFECT OF HEMOSTATIC METHODS USED IN LAPAROSCOPIC SURGERY FOR OVARIAN ENDOMETRIOMA ON OVARIAN RESERVE: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS OF RANDOMIZED TRIALS. FertilSteril VOLUME 118, ISSUE 4, SUPPLEMENT Erkan Kalafat, M.D. M.ScBatuhan Aslan, M.D.Metehan Berkkan, MrMurat Sonmezer, M.D. Cem Somer Atabekoglu, M.D.Baris Ata, M.D. M.Sc https://doi.org/10.1016/j.fertnstert.2022.08.636

The effect of endometriosis on IVF/ICSI and perinatal outcome: A systematic review and meta-analysis 2022 Nov;51(9):102446. doi: 10.1016/j.jogoh.2022.102446. Epub 2022 Jul 26
Huiling Qu [1], Yanbo Du [1], Yi Yu [1], Meng Wang [1], Ting Han [2], Lei Yan [3] PMID: 35905901 DOI: 10.1016/j.jogoh.2022.102446

Long-term GnRH agonist therapy before in vitro fertilisation (IVF) for improving fertility outcomes in women with endometriosis
Ektoras X Georgiou [1], Pedro Melo [1], Philip E Baker [2], Hassan N Sallam [3], Aydin Arici [4], Juan A Garcia-Velasco [5], Ahmed M Abou-Setta [6], Christian Becker [7], Ingrid E Granne [7]
2019 Nov 20;2019(11):CD013240. doi: 10.1002/14651858.CD013240.pub2.

Effect of GnRH agonist before IVF on outcomes in infertile endometriosis patients: a randomized controlled trial
Elisabet Rodríguez-Tárrega [1], Ana M Monzo [2], Ramiro Quiroga [3], Patrocinio Polo-Sánchez [2], Pedro Fernández-Colom [3], Mercedes Monterde-Estrada [3], Edurne Novella-Maestre [4], Antonio Pellicer [5]. 2020 Oct;41(4):653-662. doi: 10.1016/j.rbmo.2020.06.020. Epub 2020 Jul 5

Impact of Surgery for Deep Infiltrative Endometriosis before In Vitro Fertilization: A Systematic Review and Meta-analysis
Gemma Casals [1], María Carrera [2], José Antonio Domínguez [3], Maurício Simões Abrão [4], Francisco Carmona [5] 2021 Jul;28(7):1303-1312.e5. doi: 10.1016/j.jmig.2021.02.007. Epub 2021 Feb 11.

Complete surgical removal of minimal and mild endometriosis improves outcome of subsequent IVF/ICSI treatment
H K Opalen [1], P Fedorcsak, T Byholm, T Tanbo 2011 Sep;23(3):389-95.
doi: 10.1016/j.rbmo.2011.06.002. Epub 2011 Jun 15.

35

CULTURAL AND LINGUISTIC COMPETENCY & IMPLICIT BIAS

The California Medical Association (CMA) outlines standards for Cultural Linguistic Competency and Implicit Bias in CME. The goal of the standards is to support the role of accredited CME in advancing diversity, health equity, and inclusion in healthcare. These standards are relevant to ACCME-accredited, CMA-accredited, and jointly accredited providers located in California. AAGL is ACCME-accredited and headquartered in California.

CMA developed the standards in response to California legislation (Business and Professions (B&P) Code Section 2190.1), which directs CMA to draft a set of standards for the inclusion of cultural and linguistic competency (CLC) and implicit bias (IB) in accredited CME.

The standards are intended to support CME providers in meeting the expectations of the legislation. CME provider organizations physically located in California and accredited by CMA CME or ACCME, as well as jointly accredited providers whose target audience includes physicians, are expected to meet these expectations which began on January 1, 2022. AAGL has been proactively adopting processes that meet and often exceed the required expectations of the legislation.

CMA CME offers a variety of resources and tools to help providers meet the standards and successfully incorporate CLC & IB into their CME activities, including FAQ, definitions, a planning worksheet, and best practices. These resources are available on the CLC and IB standards page on the CMA website.

Important Definitions:

Cultural and Linguistic Competency (CLC) – The ability and readiness of health care providers and organizations to humbly and respectfully demonstrate, effectively communicate, and tailor delivery of care to patients with diverse values, beliefs, identities and behaviors, in order to meet social, cultural and linguistic needs as they relate to patient health.

Implicit Bias (IB) – The attitudes, stereotypes and feelings, either positive or negative, that affect our understanding, actions and decisions without conscious knowledge or control. Implicit bias is a universal phenomenon. When negative, implicit bias often contributes to unequal treatment and disparities in diagnosis, treatment decisions, levels of care and health care outcomes of people based on race, ethnicity, gender identity, sexual orientation, age, disability and other characteristics.

Diversity – Having many different forms, types or ideas; showing variety. Demographic diversity can mean a group composed of people of different genders, races/ethnicities, cultures, religions, physical abilities, sexual orientations or preferences, ages, etc.

Direct links to AB1195 (CLC), AB241 (IB), and the B&P Code 2190.1:

Bill Text – AB-1195 Continuing education: cultural and linguistic competency.
Bill Text – AB-241 Implicit bias: continuing education: requirements.
Business and Professions (B&P) Code Section 2190.1

CLC & IB Online Resources:

Diversity-Wheel-as-used-at-Johns-Hopkins-University-12.png (850×839) (researchgate.net)
Implicit Bias, Microaggressions, and Stereotypes Resources | NEA
Act, Communicating, Implicit Bias (racialequitytools.org)
https://www.contemporaryobgyn.net/view/overcoming-racism-and-unconscious-bias-in-ob-gyn
https://pubmed.ncbi.nlm.nih.gov/34016820/
https://hr.ucdavis.edu/departments/learning/certificate/implicit-bias
https://pmc.ncbi.nlm.nih.gov/articles/PMC7011228/