5/st GLOBAL CONGRESS ON MIGS

December 1-4, 2022 | Gaylord Rockies Resort and Convention Center | Aurora, Colorado

SYLLABUS

REPRO-613: How to Think Like a Reproductive Surgeon: Preservation, Restoration, and Reconstruction

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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).

Linda J. Bell, Admin Support, AAGL*

Linda D. Bradley, MD, Medical Director, AAGL*

Erin T. Carey, MD, MSCR Honorarium: Med IQ Research Funding: Eximis Mark W. Dassel, MD*

Linda Michels, Executive Director, AAGL*

Vadim Morozov, MD Speaker: AbbVie

Consultant: Medtronic, Lumenis

Erinn M. Myers, MD

Speakers Bureau: Intuitive Surgical

Amy J. Park, MD Speaker: Allergan

Nancy Williams, COO, CME Consultants*

Harold Y. Wu, MD*

Charles E. Miller, MD - Advisory Board: AbbVie;

Temple

Therapeutics; Consultant: AbbVie; AbiaCare; Espiner Medical Inc.; Gynesonics; LiNA Medical; Medtronic: RF Medical. Co. Ltd.: Seikagaku

SCIENTIFIC PROGRAM COMMITTEE Andrew I.

Sokol, MD*

Medical Legal Defense: Johnson & Johnson Angela Chaudhari, MD - Consultant: Johnson & Johnson Cara R. King, DO*

Mario Malzoni, MD – Consultant: KARL STORZ Jessica Opoku-Anane, MD, MS – Consultant: Boston

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Linda D. Bradley, MD, Medical Director* Linda Michels, Executive Director, AAGL*

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Francisco Carmona, MD, PhD - Consultant:

Medtronic; Myovant; Organon; Speakers Bureau:

Medtronic; Gedeon Richter; Adamed

Rebecca L. Flyckt, MD*

Antonio Gargiulo, MD – Consultant: Lumenis, Inc.

(now with

Boston Scientific); Medicaroid, Inc.

Keith B. Isaacson, MD - Consultant: Rejoni Charles E. Miller, MD - Advisory Board: AbbVie;

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Therapeutics; Consultant: AbbVie; AbiaCare; Espiner Medical Inc.; Gynesonics; LiNA Medical; Medtronic; RF Medical, Co. Ltd.; Seikagaku

REPRO-613: How to Think Like a Reproductive Surgeon: Preservation, Restoration, and Reconstruction

Co-Chairs: Rebecca L. Flyckt, MD, Charles E. Miller, MD

Faculty: Francisco Carmona, Antonio R. Gargiulo, Keith B. Isaacson

Course Description

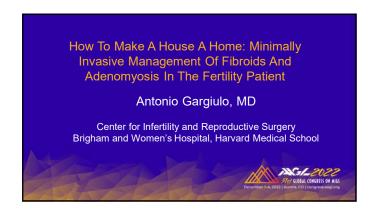
As minimally invasive gynecologic surgeons, we pride ourselves on our ability to fully excise disease and, for the most part, we take a radical approach to pelvic pathology. Unfortunately, this bold approach may at times have a negative effect on current or future ability to attain pregnancy; for example, increased risk of adhesion formation or decreased ovarian function. In no patient is this more impactful than the patient interested in fertility preservation or fertility enhancing surgery. Although many of the core surgical procedures and pathologies are similar across disciplines, this course is intended to illustrate what makes a reproductive procedure distinct. Speakers will convey surgical pearls as well as outline current trends in performing high-level, complex reproductive procedures on patients who hold current or future fertility as a priority.

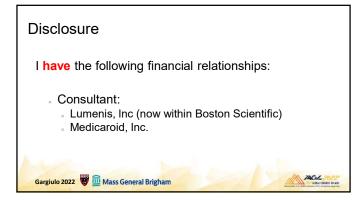
Learning Objectives

At the conclusion of this course, the participants will be able to: 1) Apply techniques for uterine conservation and enhancement when treating common uterine pathology such as fibroids, isthmocele, and adenomyosis; 2) Recognize how and when best to manage endometriosis and ovarian pathology while reducing the impact on ovarian reserve and optimizing reproductive success; and 3) Explore what's new in treating early pregnancy failures hysteroscopically and performing abdominal cerclage.

Course Outline

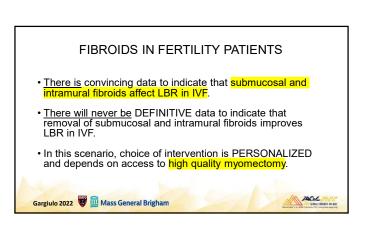
2:30 pm	Welcome, Introduction and Course Overview	R.L. Flyckt/C.E. Miller
2:35 pm	How to Make a House A Home: Minimally Invasive Management of Fibroids and Adenomyosis in The Fertility Patient	A.R. Gargiulo
2:55 pm	Hysteroscopic Management of Fibroids and Adenomyosis While Taking Care of The Endometrium	K.B. Isaacson
3:15 pm	When, How, and Why Removal of DIE Helps Achieve Pregnancy	F. Carmona
3:35 pm	Handle Me with Care: How Best to Preserve Ovarian Function During Reproductive Surgeries	R.L. Flyckt
3:55 pm	Become an Expert in Robotic and Hysteroscopic Isthmocele Repair	C.E. Miller
4:15 pm	Reproductive Surgery on the Cutting Edge: Hysteroscopic Treatment of Early Pregnancy Failure	R.L. Flyckt
4:25 pm	Reproductive Surgery on the Cutting Edge: Cerclage Techniques	C.E. Miller
4:35 pm	Tips, Tricks and Pearls – Faculty Discussion	All Faculty
4:45	Questions and Answers	
5:00	Adjourn	

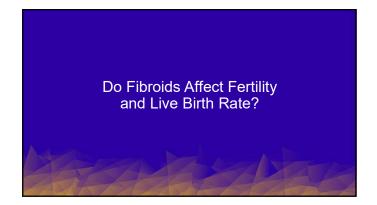


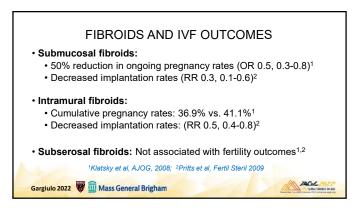


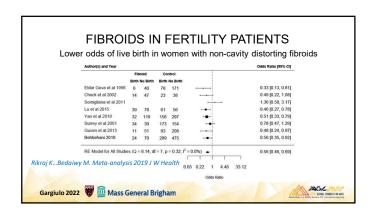
Define the impact of fibroids and adenomyosis - in their variable manifestations - on human reproduction Define the role of surgery in the management of fibroids and adenomyosis in the fertility patient

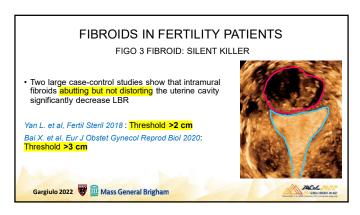
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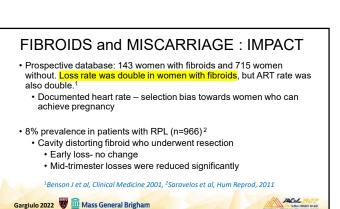


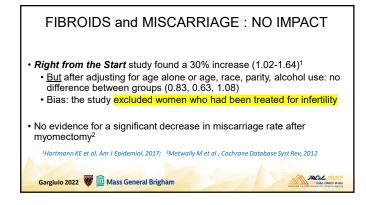






FIBROIDS IN FERTILITY PATIENTS There is insufficient evidence to conclude that myomas reduce the likelihood of achieving pregnancy with or without fertility treatment. (Grade C) 3 Practice Committee of the ASRM, Fertil Steril, 2017 Gargiulo 2022 Mass General Brigham







MYOMECTOMY FOR CAVITY-DISTORTING FIBROIDS

- Prospective, RCT n=181 seeking fertility <35 years
 - Pregnancy rates higher in women with surgery in SM/SM-IM1 submucosal 27% → 43%
 - submucosal-Intramural 15%→36%
 - No major differences in women with subserosal fibroids
- Retrospective Case-Control study using donor oocyte or IVF: myomectomy vs. controls
 - No difference in on-going pregnancy or implantation rates²
 - · In well selected cases, myomectomy was appropriate

¹Casini ML et al, Gynecol Endocrinol, 2006; ²Surrey E et al, Fertil Steril, 2005

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MYOMECTOMY FOR NON-CAVITY-DISTORTING FIBROIDS

- Cohort (n=163)1
 - no difference in myomectomy vs. in situ vs. no fibroids
- Prospective (n=212)2
 - Higher pregnancy rates in myomectomy (42%) vs. no surgery (11%) vs. infertility controls (25%)
 - No discussion of differences in age & patients chose treatment

¹Aboulghar et al, Mid East Fertil Soc J, 2004; ²Bulletti C et al, J Am Assoc Gynecol Laparoscopists, 1999

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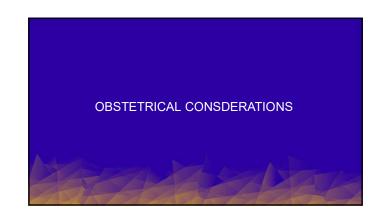


MYOMECTOMY: CURRENT ASRM GUIDELINES

- Fair evidence that hysteroscopic myomectomy improves clinical pregnancy rates & does not impair reproductive outcomes after
- In women with asymptomatic cavity-distorting myomas, myomectomy may be considered to optimize pregnancy outcomes.
 - · Generally not advised to improve pregnancy rates if non-cavity distorting

Practice Committee of the ASRM, Fertil Steril, 2017

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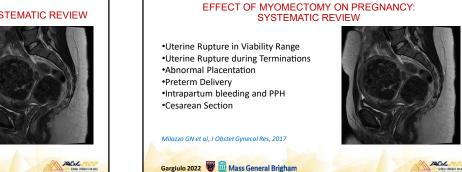
EFFECT OF FIBROIDS ON PREGNANCY: SYSTEMATIC REVIEW

- - · Most common findings:
 - · higher c-section rates,
 - · malpresentation,
 - preterm labor
 - Abruption may be related to retroplacental fibroids
 - Postpartum hemorrhage risk elevated

Klatsky, AJOG, 2008







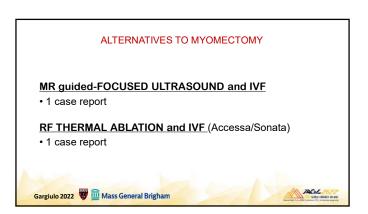


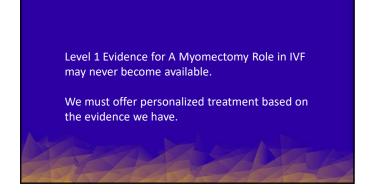




ALTERNATIVES TO MYOMECTOMY ULIPRISTAL and IVF 1 small case-control study + 2 single case reports on PubMed European Commission RESTRICTS USE (November 2020): remains available to treat premenopausal women who could not have surgery (or for whom surgery had not worked). Never available in USA Voluntary (temporary?) withdrawal in Canada, 2020

ALTERNATIVES TO MYOMECTOMY UTERINE ARTERY EMBOLIZATION and IVF 1 case report Miscarriage 64%, 56% and 34% in 1 RCT and 2 cohort studies (on spontaneous pregnancy) Most updated review: Ludwig et al. Br J Radiol 2020 pregnancy is attainable fertility rate remains uncertain increased risk of PTD and spontaneous abortion (vs. Myomectomy)





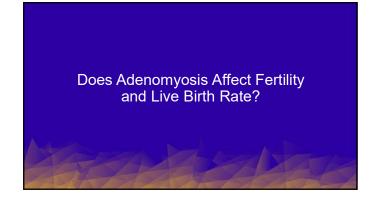








No longer a "condition of the MULTIPARA" PREVALENCE of ADENOMYOSIS in INFERTILE WOMEN: • 24.4% in women 40 years and above • 7.5–22% in women < 40 years Abu Hashim H, et al. Reprod Biomed Online 2020 Puente JM, et al. Reprod Biol Endocrinol 2016 Gargiulo 2022 W Dass General Brigham

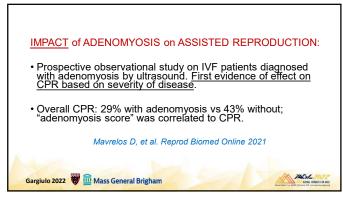


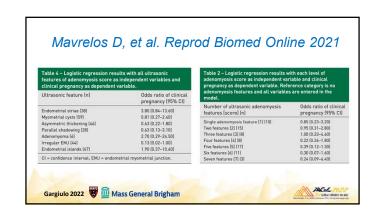
IMPACT of ADENOMYOSIS on ASSISTED REPRODUCTION:

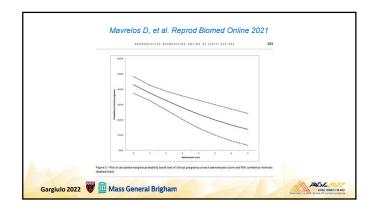
- Meta-analysis 1: Vercellini P, et al. Hum Reprod 2014
- 28% lower IVF clinical pregnancy rate (CPR) in patients with adenomyosis vs controls.
- 56% higher miscarriage rate in patients with adenomyosis vs controls.
- Meta-analysis 2: Younes G and Tulandi T, et al. Fertil Steril 2017
 41% lower IVF live birth rate (LBR) in patients with adenomyosis vs controls.
 Miscarriage OR 2.2 in patients with adenomyosis vs controls.
- Meta-analysis 3: Miscarriage OR 3.4 in patients with adenomyosis vs controls.
 Horton J. et al. Hum Reprod Update 2019
- Meta-analysis 4: Miscarriage OR 2.8 in patients with adenomyosis vs controls. Huang Y, et al. Biomed Res Int 2020

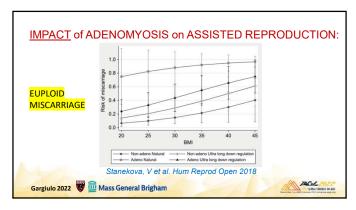
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IMPACT of ADENOMYOSIS on OBSTETRICAL OUTCOMES: Meta-analysis: Higher odds of PTD (OR=3.09) and SGA (OR=3.23) in patients with adenomyosis vs. controls. Meta-analysis: Higher odds of PTD (OR=3.05), SGA (OR=3.22) and preeclampsia (OR=4.35) in patients with adenomyosis vs. controls. Bruun MR, et al. Acta Obstet Gynecol Scand 2018 Rizavi M, et a. Int J Gynaecol Obstet 2019

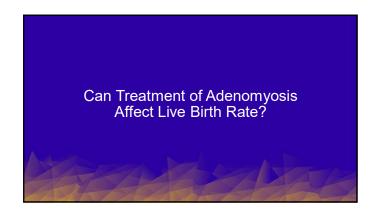
No accepted classification, no staging system: WE CANNOT DESIGN MEANINGFUL STUDIES (PROSPECTIVE OR RETROSPECTIVE) WITHOUT A STAGING SYSTEM We need studies that take in account ASSOCIATED ENDOMETRIOSIS We need studies that use EUPLOID EMBRYOS, because we are dealing with patients who are mostly in advanced maternal age (> 35yo)

· We need to understand MEDICAL OPTIONS and consider SURGICAL

TECHNIQUES THAT MAKE ANATOMICAL SENSE!

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REAL PROBLEM, NO CLEAR SOLUTION



ADENOMYOSIS: CONSERVATIVE OPTIONS

- MEDICAL TREATMENT
- ADENO-MYOMECTOMY FOR FOCAL ADENOMYOSIS
- CYTOREDUCTION FOR **DIFFUSE** ADENOMYOSIS
- NON-EXCISIONAL PROCEDURES

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ADENOMYOSIS: CONSERVATIVE OPTIONS

- MEDICAL TREATMENT
 - · Adenomyosis: sex steroid hormone-dependent disorder, characterized by a) increased inflammation
 - b) impaired apoptosis
 - c) neuroangiogenesis

Vannuccini S, et al. Reprod Biomed Online 2017

- Adenomyosis: hyperestrogenism (\uparrow ER expression, \uparrow ARO, \downarrow Estrogen Catabolism), and **progesterone resistance** (↓ PR expression)
- NO FDA-LABELED MEDICTION EXISTS FOR ADENOMYOSIS

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• COMMONLY USED MEDICAL TREATMENTS

• GnRH-AGONISTS (with and without progestin add back) reduce the inflammatory reaction and angiogenesis and to significantly induce apoptosis

ADENOMYOSIS: CONSERVATIVE OPTIONS

- PROGESTINS antagonize progesterone-resistance: oral NETA and DIENOGEST (endometrial decidualization and mild hypo-estrogenism), vaginal DANAZOL (androgenic/hypoestrogenic milieu), LNG-IUS (endometrial atrophy) for uteri <150 cc volume
- COMBINATION CONTRACEPTIVES (widely used, no studies available)
- · NSAIDs (widely used, no studies available)
- TRANEXAMIC ACID (widely used, no studies available)

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ADENOMYOSIS: CONSERVATIVE OPTIONS

- PROMISING NOVEL MEDICAL TREATMENTS
 - AROMATASE INHIBITORS: Aromatase cytochrome P450 present in endometrium of adenomyosis, fibroids and endometriosis patients (only). RCT VS GnRHa shows comparable effect. Badawy AM, et al. Acta Obstet Gynecol Scand 2012
 - SELECTIVE PROGESTERONE RECEPTOR MODULATORS: progesterone agonist and antagonist activities in the endometrium. Clinical use limited by regulatory restrictions in place. Recently published RCT VS placebo shows high efficacy in adenomyosis. Capmas P et al. J Gynecol Obster Hum Reprod 2021
 - GnRH <u>ANT</u>AGONISTS: act competitively preventing GnRH from binding to the pituitary receptor. Thus, allow dose-dependent modulation. Most promising option, with progestin add back. Muneyyirci-Delale O et al. Fertil Steril Reports 2021

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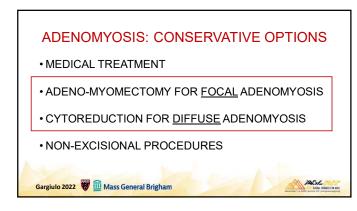
ADENOMYOSIS: CONSERVATIVE OPTIONS

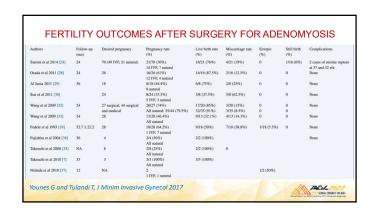
- BEST EVIDENCE FOR MEDICAL TREATMENT IN INFERTILITY: GnRHa
 - Retrospective. Long GnRHa suppression (>3 months) before FRESH IVF ET in 74 endometriosis patients, no LBR difference in high-stage endometriosis-only (n=50) vs high-stage endometriosis plus adenomyosis (n=24). Mijatovic V, et al. Eur J Obstet Gynecol Reprod Biol 2010
 - Retrospective. 339 patients planning FROZEN ET. Long GnRHa suppression (2 months) before ET. Ongoing Pregnancy Rate in treated group 49% vs untreated group 21%. Niu Z et al. Gynecol Endocrinol 2013
 - Retrospective. 295 patients. Groups: A) FRESH IVF, B) FRESH IVF after GnRHa (2-3 months), C) FROZEN ET after GnRHa (2-3 months). CPR higher in group C, but not significant. Park CW, et al. Clin Exp Reprod Med 2016

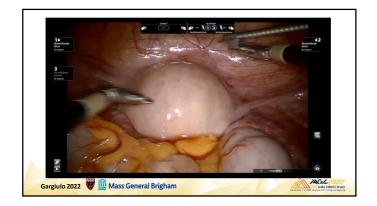
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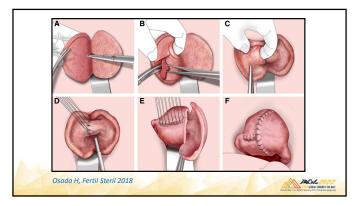


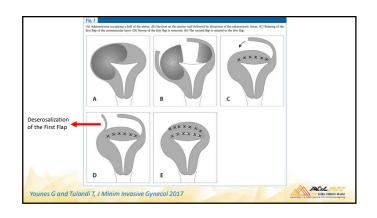














ADENOMYOSIS: HANDLE WITH CARE

- MEDICAL TREATMENT REMAINS FIRST-LINE
- ADENO-MYOMECTOMY and CYTOREDUCTION CAN BE CONSIDERED IN SELECT CASES

Col. 2022

Grant Contact Contact to a sick

December 1-a. 2022 (Autora, CO) (Integrates analysis)

• THIS FIELD IS RIPE FOR HIGH-QUALITY REPRODUCTIVE SURGERY INVESTIGATION OPPORTUNITY





Preserving the endometrium when resecting myomas and adenomyosis

Keith Isaacson MD Harvard Medical School Boston, Massachusetts USA

Disclosures

• Rejoni – Consultant

Three Questions

- Does the pathology (myoma and adenomyosis) impact fertility?
- How do we reduce the risk of intrauterine scar tissue?
- What is appropriate hysteroscopic tool to address the pathology?

Why is adenomyosis an unknown problem?

- We cannot see it at laparoscopy
- Peak incidence in 40's?
- · Increase risk with deliveries?
- Tissue diagnosis TLH
- Imaging diagnosis -
 - MRI poor screening tool
 - US recent and currently being refined no histology



If its uterine pain – it is likely uterine disease

Adenomyosis and fertility

- Baboons 2004 Barrier et al F&S
 - 37 with adenomyosis vs 38 without (necropsy)
 - Concurrent endometriosis OR 31.5 (Cl 4.2-1,328)
 Lifelong infertility OR 20.6 (2.7-897)

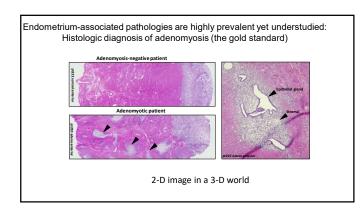
 - Endometriosis alone OR 3.6 (0.9-15.8) NS
- Humans with DIE and Adenomyosis Vercellini et al 2014 Reprod Biomed Online
 - DIE with adenomyosis 7/59 conceived
 - DIE without adenomyosis 74/172 conceived
 - RR 0.32 (0.16-0/66 Cl) 68% reduction of pregnancy

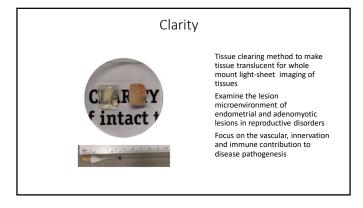
Complete evaluation of anatomy and morphology of the infertile patient in a single visit; the modern infertility pelvic ultrasound examination

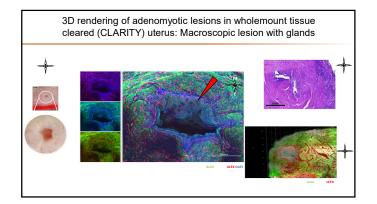


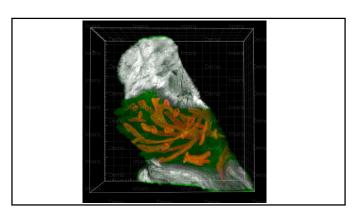


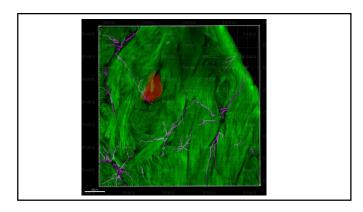






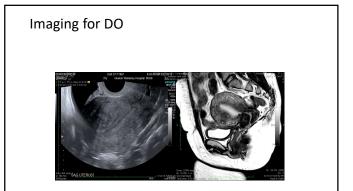




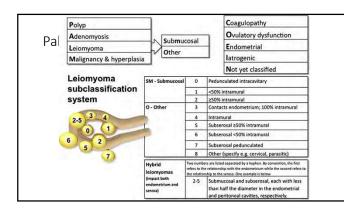


Patient D.O.

- 37 y.o. G7P1061 presents with h/o of recurrent pregnancy loss and abnormal HSG
- Recurrent pregnancy loss: 3 SAB previous to c-section, 2 SAB following
- 6/2017 22 weeks miscarriage with cerclage , delivered
- 4/15/18: HSG Uterine cavity: Enlarged, irregular contour, ?fibroids,difficult distension, no filling of tubes bilaterally
- Menses: 8 years HMB, lasting 4 days, wearing tampon+ pads and diaper at night, reports quarter size clots, changing pads every 30 min
- Denies dysmenorrhea
- +dyspareunia, with deep penetration, sometimes postcoital bleeding







FIGO Type 0, I,II,III and fertility

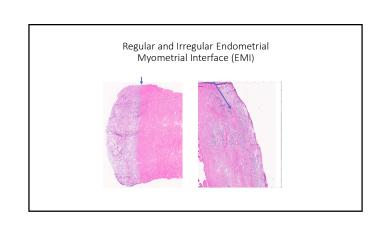
- Type 0, I, II no controversy
- Type III Fertil Steril May;109(5):817-822

Effect of type 3 intramural fibroids on in vitro fertilization-intracytoplasmic sperm injection outcomes: a retrospective cohort study

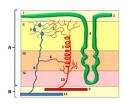
- 153 Type III matched with 453 controls
- Myoma group
 - Lower implantation
 - Lower clinical pregnancy rate
 - Lower live birth rate

Etiology of Asherman's Syndrome

- Trauma that denudes or damages the basalis layer of the endometrium
 - 90% occur in a recently pregnant uterus
 - 1-4 weeks after delivery (40% risk) or induced Ab
 - 22% with PP hemorrhage, 67% with therapeutic abortion (1856 women Shenker et al, 1982)
 - Other myomectomy, C/S, diagnostic D&C, TB, irradiation



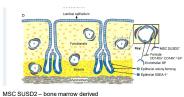
Endometrial repair (conventional theory)



- Proliferation of glandular stumps from the basal layer
- Free edgeendometrial reepithelialization
- Mesenchymal epithelial transition: stromal cells to glandular

Endometrial regenerative cells or stem cells E2 and P4 influence

Multiple sources of endometrial stem/progenitor cells



MSC SUSD2 – bone marrow derived eMSC – endometrial mesenchymal stem cells (cD146 and 140b) = pericytes Endothelial SP – side population cells (similar properties to stem cells) Epithelial colony forming and SSEA-1 – progenitor cells with less differentiation capacity than stem cells

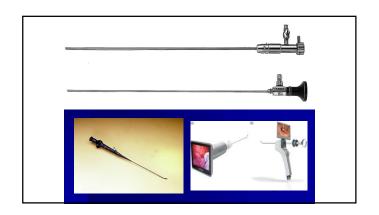
Moville, Pet al. Hum Reprod 2020 Dec 1;35(12):2746-2754 Embryo Transfer Outcome by Endometrial Thickness Meas 6.0-6.9 7.0-7.9 8.0-8.9 mm mm mm Qs: 6.50 mm Qs: 7.51mm Qs: 8.40 mm

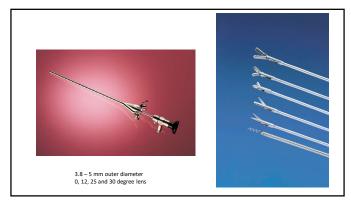
Choosing the appropriate equipment for the pathology

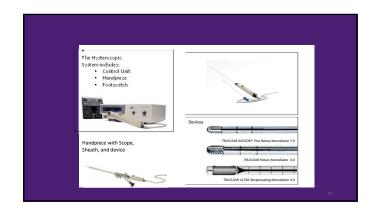
Hysteroscopic Goals

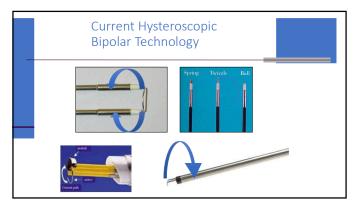
Primary - Restore normal anatomy

- Remove the entire pathology not partial
- Minimize the risk of damage to normal tissue
 - Surrounding endometrium
 - Thermal injury
 - Control the depth of the resection
 - Do not remove normal tissue with the tissue shaver
 - Deep myometrium. -
 - Stay within the pseudocapsule if possible









Principals of Saline Bipolar Resectoscopy

- $\blacksquare V = IR P = VI P = I^2R$
- Saline low resistance (R) 20 ohms
- Tissue high resistance 100 ohms
- Vapor or steam- high resistance
- High resistance is created around the electrode (tissue and vapor) to create sufficient power (heat) to cut tissue
- \blacksquare Higher voltage settings with Bipolar RF energy





Follow-up after incomplete hysteroscopic removal of uterine fibroids

Van Dongen H, Emanuel MH, Smeets J, Trimbos, B and Jansen FW

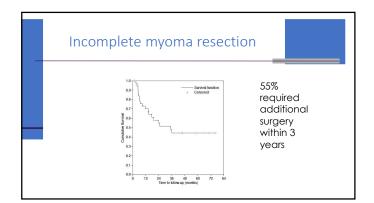
• 528 Hysteroscopic myomectomies

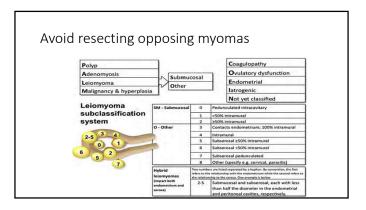
• 91 Incomplete resections (17%)

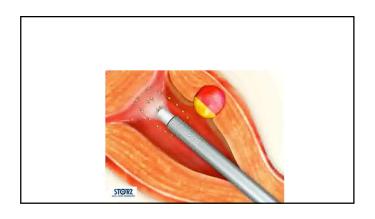
• 37 repeated immediately for fertility

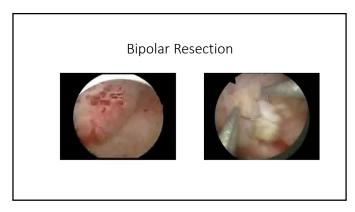
• 41 observed for menorrhagia

Acta Obstetricia et Gynecologica. 2006; 85: 1463–1467



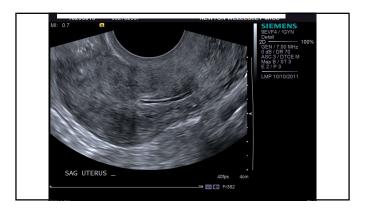


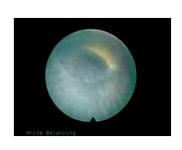




Patient EB

- 39 y/o G2P0 post tissue shaver multiple myomectomy and bipolar dessication with infertility
- Hysteroscopic LOA by March 12/10 and 4/11. On E2 for last 6 mos

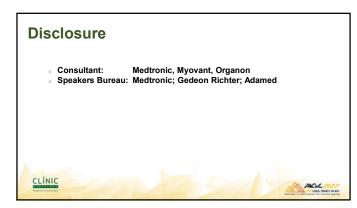




Conclusions

- Become familiar with 3-4 operative hysteroscopic tools
- Choose the best tool to accomplish the mission in the appropriate location (office vs OR)
 Removal of entire pathology with minimal damage to normal tissue to achieve the most optimal patient outcome
- Be familiar with the costs of your instruments.
 - Disposable vs reusable
 - Cost of reprocessing and sterilization
- Be familiar with the peer reviewed literature, not industry
- handouts
 Tissue shavers are not safer than bipolar instruments
 - No difference in perforation rates or damage to internal organs after perforation



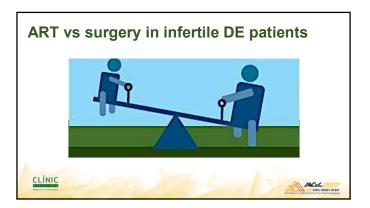


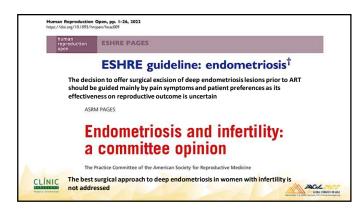
Objectives

- To review the relationships between deep endometriosis and infertility
- To describe the relevance of excision of endometriosis in the setting of infertility
- To explain when, how and why DE removal helps achieve pregnancy

CLÍNIC





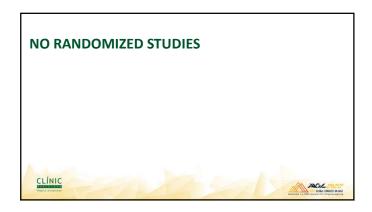


REASONS TO RECOMMEND ART

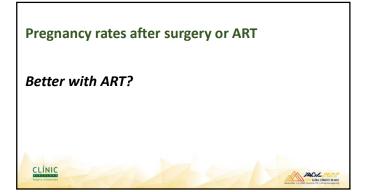
- ART capacity to circumvent the anatomical distortion and the possible detrimental pelvic milieu
- · Considerable risks of a demanding intervention
- Pregnancy rates after surgery worse than after ART
- Insufficient evidence to support a causal relationship between DIE and infertility
- Confounders (AMH, adenomyosis,..) are more likely to explain the association

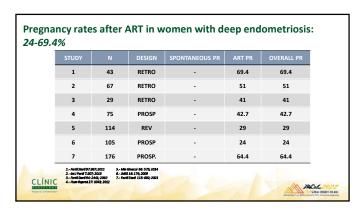


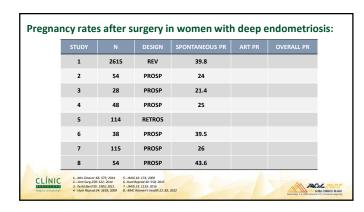


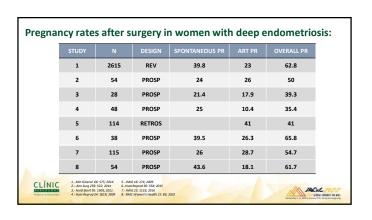




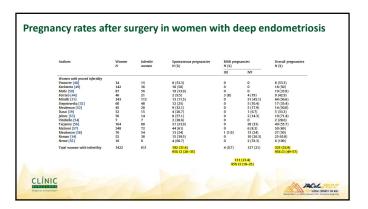


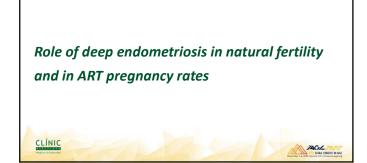


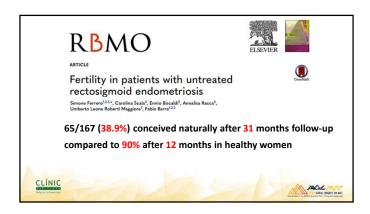


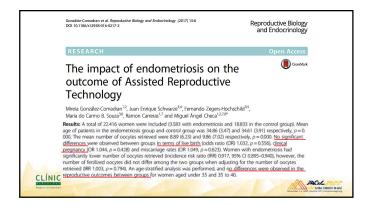


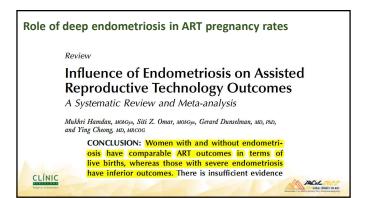


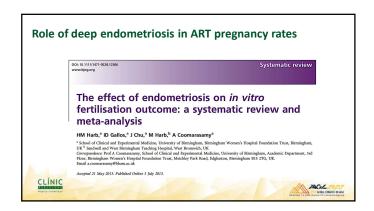


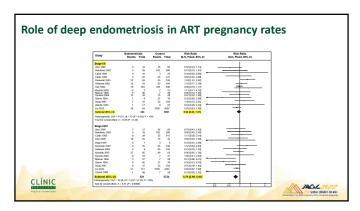




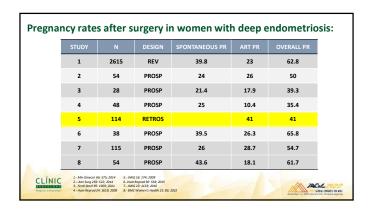


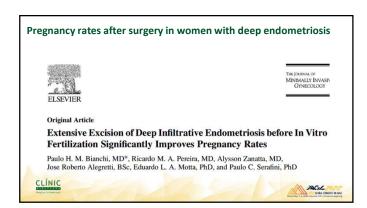


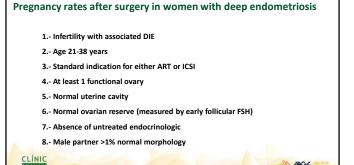


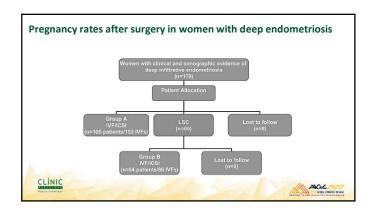


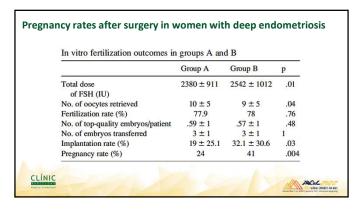
Role of deep endometriosis in ART pregnancy rates 155 ART patients with endometriosis related infertility First cycle from Jan 2016 to Dec 2016 65 (42%) with DIE Overall CPR 38.7% (65/155) 35.9±2.8 36.6±2.7 Age DIE (%) 31.4 59.8 .02 Endometrioma (%) 42.2 53.8 NS Adenomyosis (%) 43.2 Previous Surgery (%) Total FSH dose (IU) 35.3 54.8 .03 2201±809 2338±945 NS Oocytes (n) 11.3±2.8 CLÍNIC Embryos (n) 9.1±2.1 7.6±2.3

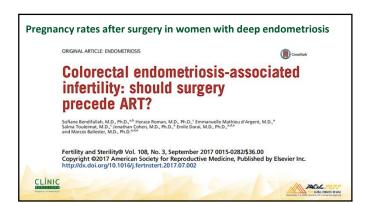


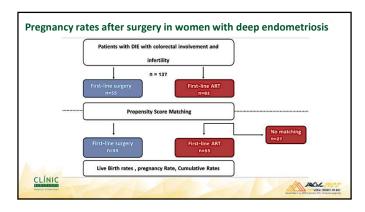


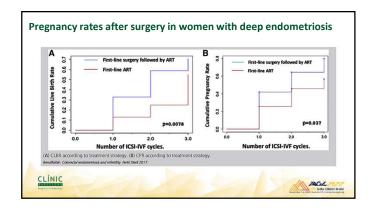


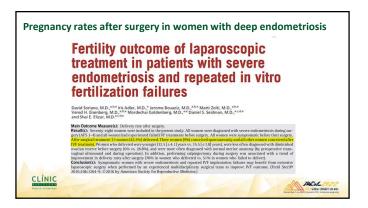


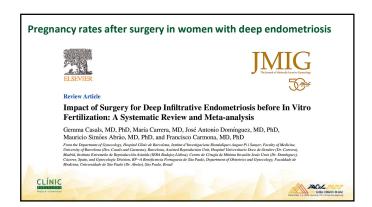


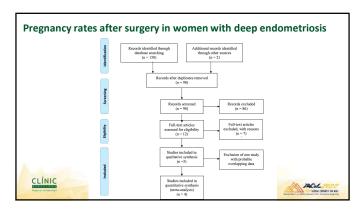


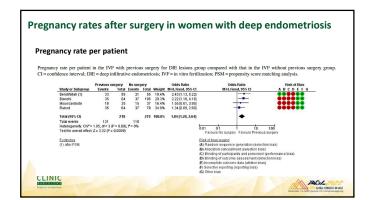


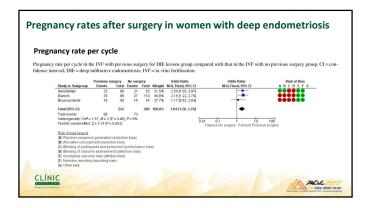


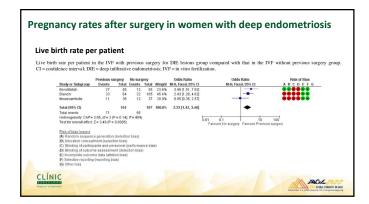


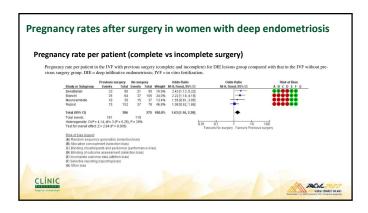


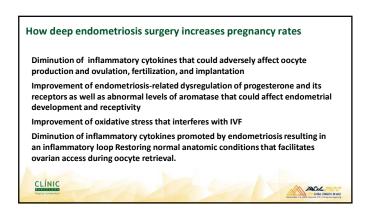


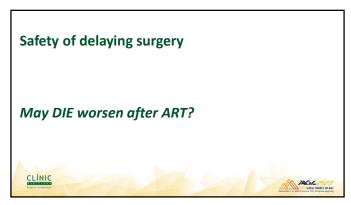


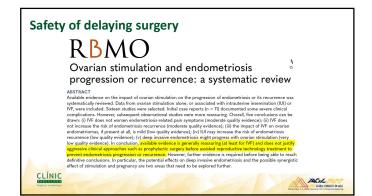






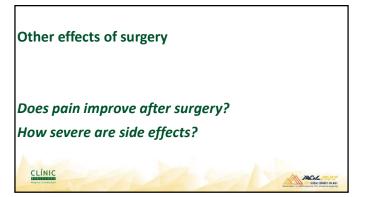


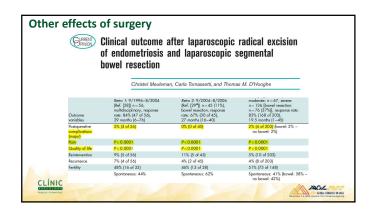


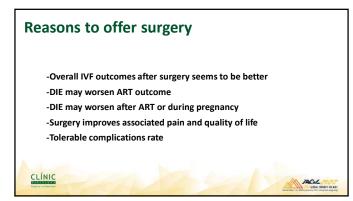


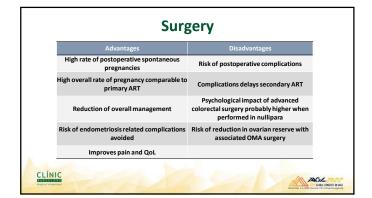


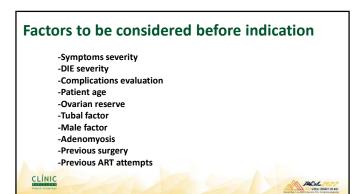


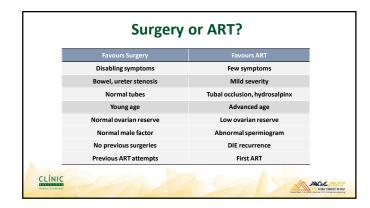


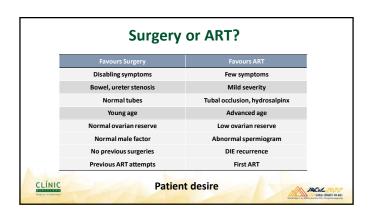












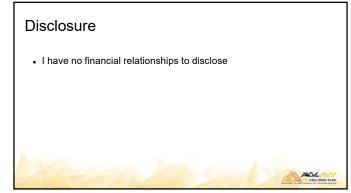








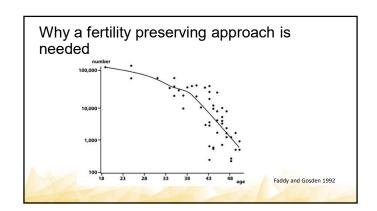




Objectives

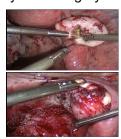
- Understand key areas of risk to ovarian fertility that are associated with common gynecologic surgeries
- Apply intraoperative techniques for preserving ovarian function
- Recommend when fertility preservation options should be pursued

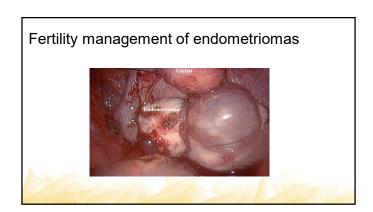




Ovarian fertility can be affected by GYN surgery

- Diminished blood flow
- Inadvertent excision/ablation of follicles
 - Ovariolysis
 - Cystectomy
 - Ablation
 - Post surgical inflammation/edema
- Adhesion formation post op can interfere
 with subsequent egg release / pickup





Why remove endometriomas?

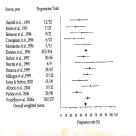
Relief of pain

- Clinical presentation: Porpora et al. 2010
 - Dysmenorrhea: 76 %
 - Chronic pelvic pain: 53 %
 - Dyspareunia: 43 %

Why remove endometriomas?

Improved fertility in uncontrolled studies

- Vercellini et al. 2009
 - 14 studies; approximately 1500 patients; overall weighted mean was 50 %
 - Assume ½ of this observation:

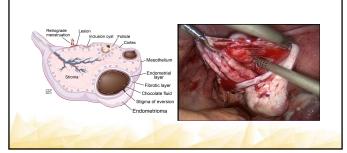


Why remove endometriomas?

ART considerations

- Increases the risk of infection after oocyte retrieval
- · Puncture of endometrioma
- · Ovarian abscess
- · Contamination of oocyte obtained with endometriosis cyst contents
- Technically challenging to retrieve eggs
- · Cannot exclude malignancy without surgery

Surgery decreases ovarian reserve



Anti-Müllerian hormone, endometrioma, pelvic peritoneal endometriosis, and no endometriosis

Variable	Endometrioma (n = 58), mg/mL ^a	Pelvic peritoneal endometriosis (n = 29), mg/mL ^a	No endometriosis (n = 29), mg/mL^a	<i>P</i> value
Baseline	1.77 (1.18-2.37)	2.29 (1.34-3.25)	3.20 (1.96-4.43)	.06
1 Month	1.12 (0.81-1.45)<.01	2.38 (1.26-3.50).41	3.22 (2.04-4.49).78	<.01
6 Months	1 41 (0 97-1 85)-22	2 76 (1 58-3 95):12	3 14 (1 83-4 43).67	01

Superscripts indicate probability values compared with baseline preoperative values.

a Data are given as mean (95% confidence interval).

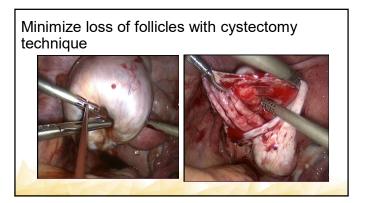
Goodman et al. Endometriomas and ovarian reserve. Am J Obstet Gynecol 2016.

Strategies to reduce the impact of surgery on the ovary

- · Awareness of anatomy
- · Meticulous dissection
- Hemostatic agents
- Adhesion barriers



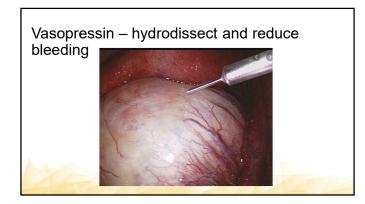
Adherent to pelvic side wall- lysis of adhesions

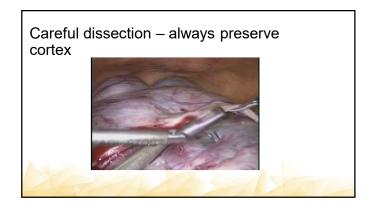


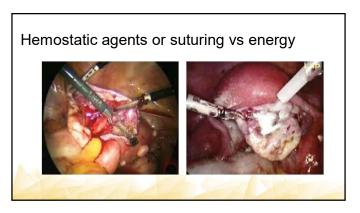
Techniques to minimize bleeding

- Vasopressin
- Careful dissection
- Hemostatic agents, suture, bipolar if needed
- Consider partial stripping and ablation of remainder









Partial stripping and ablation

	(n = 10)	steb stribbing		vaporization (n = 10)		
Variable	Baseline	Follow-up	P value	Baseline	Follow-up	P value
AFC	2.0 ± 1	2.4 ± 0.8	NS	1.3 ± 0.5	4.36 ± 0.8	.02
Mean (±SE) ovarian volume (mL)	89.7 ± 29.63	11.5 ± 4.8	NS	77.7 ± 23.6	11.0 ± 2.9	NS
FSH (mIU/mL)	7.2 ± 0.8	16.3 ± 3.8	NS	7.7 ± 0.8	11.1 ± 3.8	NS
LH (mlU/mL)	4.45 ± 0.8	6.5 ± 0.9	NS	5.7 ± 0.8	6.6 ± 0.9	NS
E 2 (pg/mL)	97.8 ± 25.9	74.9 ± 22.5	NS	48.7 ± 25.9	48.9 ± 22.5	NS
Inhibin B (pg/mL)	107.5 ± 13.9	122.5 ± 22	NS	103 ± 10.6	93.1 ± 12.6	NS
AMH (ng/mL)	3.9 ± 0.4	2.9 ± 0.2	.026	4.5 ± 0.4	3.99 ± 0.6	NS



ESHRE consensus

- "In women with endometrioma >3 cm... consider cystectomy prior to assisted reproductive technologies only to improve endometriosis-associated pain or the accessibility of follicles" (but not to improve LBR)
- "Recommends that clinicians obtain tissue for histology in women undergoing surgery for ovarian endometrioma and/or deep GPP infiltrating disease, to exclude rare instances of malignancy."

Fertility preservation techniques

- Fertility preservation (ART) can be undertaken perioperatively when ovarian damage is anticipated
 - Egg / embryo freezing
- Ovarian tissue freezing
- Fertility preserving surgery when pelvic radiation is planned
 - · Ovarian transposition

Ovarian tissue cryopreservation

- Surgical procedure to remove ovarian tissue and cryopreserve for future use
 - Can be combined with other surgeries
- · First described in 2001
- · Mainly performed at select centers
- >100 live births reported worldwide





Fertility Preservation Options

- Surgery- ovarian transposition
 - Opportunity to freeze ovarian tissue during the same procedure

 Ovarian transposition may be applied to preserve endocrine function rather than fertility





Key concepts

- Know when surgical management will optimize fertility and alleviate
- symptoms in a fertility patient
 Beware of different steps in ovarian surgery that can deplete oocytes and damage ovarian function and use strategies that can mitigate this damage
 - Awareness of anatomy
 - Meticulous dissection
 - Hemostatic agents
- Consider fertility preservation prior to surgery or fertility preserving techniques

References

Faddy MJ, Gosden RG, Gougeon A, Richardson SJ, Nelson JF. Accelerated disappearance of ovarian follicles in mid-life: implications for forecasting menopause. Hum Reprod. 1992 Nov;7(10):1342-6.

Porpora MG, Pallante D, Ferro A, Crisafi B, Bellati F, Benedetti Panici P. Pain and ovarian endometrioma recurrence after laparoscopic treatment of endometriosis: a long-term prospective study. Fertil Steril. 2010 Feb;93(3):716-21.

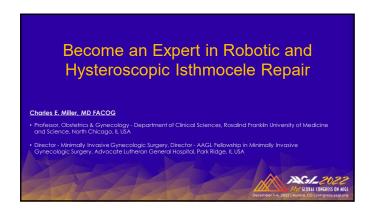
Vercellini P, Somigliana E, Viganò P, De Matteis S, Barbara G, Fedele L. The effect of second-line surgery on reproductive performance of women with recurrent endometriosis: a systematic review. Acta Obstet Gynecol Scand. 2009;88(10):1074-82.

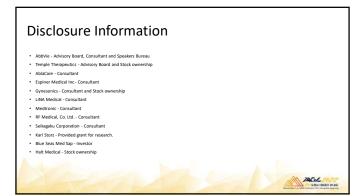
Goodman LR, Goldberg JM, Flyckt RL, Gupta M, Harwalker J, Falcone T. Effect of surgery on ovarian reserve in women with endometriomas, endometriosis and controls. Am J Obstet Gynecol. 2016;215: 589.e1–589.e6.

Tsolakidis D, Pados G, Vavilis D, et al. The impact on ovarian reserve after laparoscopic ovarian cystectomy versus threestage management in patients with endometriomas: a prospective randomized study. Fertil Steril. 2010;94:71–77.

Ata B., Turkgeldi E., Seyhan A., Urman B.: Effect of hemostatic method on ovarian reserve following laparoscopic endometrioma excision; comparison of suture, hemostatic sealant, and bipolar dessication. A systematic review and meta-analysis. J Minim Invasive Gynecol 2015; 22: pp. 363-372. www.cdc/gov/ART







Objectives

- Define isthmocele
- Describe techniques in the diagnosis of an isthmocele.
- Describe risk factors.
- Define signs and symptoms of an isthmocele.
- Outline current hysteroscopic, vaginal and laparoscopic treatment regimens for isthmocele repair.



Surgical Treatment of Symptomatic Isthmocele

Isthmocele – Definition

Diverticula

- Isthmocele
 Previous Cesarean Scar Defect
 Deficient Cesarean Scar
 Deficient Cesarean Scar
- Uterine Niche
 - Uteroperitoneal Fistula





- Sonographic finding of a triangular anechoic area at the presumed site of incision (no size defined)
- Myometrial thinning at site of CS scar



Surgical Treatment of Symptomatic Isthmocele

<u>Isthmocele – Definition</u> First described by Morris in 1995

- · Reviewed 51 hysterectomy specimens with a history CS
- Hysterectomy performed for menorrhagia (72%), dyspareunia, dysmenorrhea, lower abdominal pain refractory to medical management
- Distortion and widening of LUS (75%)
- "Free" red blood cells in endometrial stroma of scar (59%)
- Fragmentation and breakdown of endometrium of scar (37%)
- latrogenic adenomyosis (28%)





Surgical Treatment of Symptomatic Isthmocele

Diagnosis

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

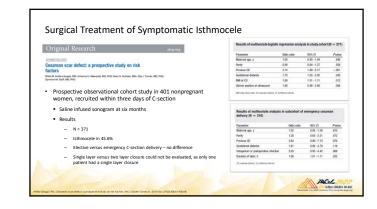


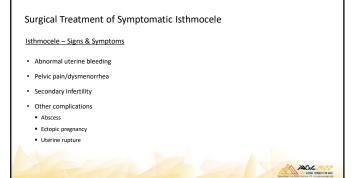


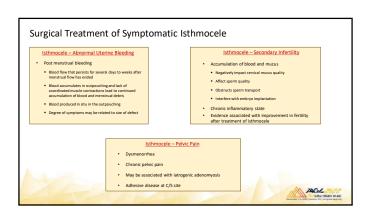
Surgical Treatment of Symptomatic Isthmocele Isthmocele – TVUS vs SIS • Osser 2010: 108 women with history of one or more CS and no other uterine surgeries • TVUS ultrasound → SIS • Scar defect = any indentation at the site of the scar TVUS SIS One CS (N = 68) 42 (62%) 53 (78%) Two CS (N = 32) 22 (88%) 31 (19%) Three CS (N = 8) 8 (100%) 8 (100%)

Coloni control on nice

More scar defects were identified on SIS vs. TVUS





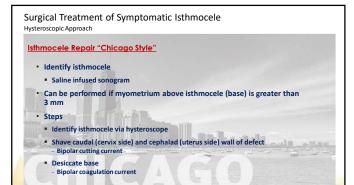


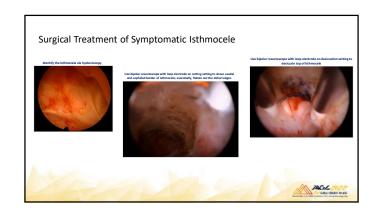
	Author/Year	Study Type	Patients	Approach	Technique	Success
	Fabres 2005 ¹	Retrospective	24	Hysteroscopic	Shave caudal border Desiccate base (60W monopolar)	84%
	Gubbini 2008 ²	Prospective	26	Hysteroscopic	Shave cephalad border Pure monopolar cut	100%
	Chang 2009 ³	Sur Prospective	gical Trea Causing	tment of Abnorma	Symptomatic Isthmocele Letterine Bleeding 1-9	63.3%
	Florio 2011 ⁴	Retrospective	39	Hysteroscopic 20 Hormonal	Shave caudal and cephalad border Monopolar loop Roller ball desiccation of base	Hysteroscopic 100%
	Feng 2012 ⁵	Retrospective	57	Hysteroscopic	Resection of flap or shaving, if no flap	66.7%
	Raimondo 2015 ⁸	Prospective	118	Hysteroscopic	Shave caudal border Desiccate base – monopolar loop	84%
	Vegas Carrillo de Albornoz 2019 ?	Prospective	38	Hysteroscopic	Shave caudal border Desiccate base	96.8%
	Luo 2012 ⁴	Retrospective	42	Vaginal	Incide vaginal wall mucosa Open vesticocrucial space Mobilize biadore Mobilize biadore Escita estimocele Escita estimocele Ciolaria: Cio	93%
al Surgical F cal Resectors il Resectors d A retroque Mytheorasis a et al Hydro u de Ribarnat Vagual rept A companio	Xie 2014 9	Retrospective	77	Hysteroscopic vs. Vaginal	Vagnal surgery − 55 mins. Hysteroscopic surgery − 25 mins (p < 0.01) Vagnal surgery blood loss − 50cc Hysteroscopic surgery blood loss − 10cc (n < 0.01)	93,5% Vaginal 64,5% Hysteroscopic

	Author/Year	Study, Type	Patients	Approach	Technique	Success	
	Donney 2008 ¹⁰	Retospective	3	Lagueroecopio	CO; team Faur layer closure - Polygladin 910 (2/0, 3/0) Fertoneum closed Three month convalescence	forus muscetturo 2.1 mm or less	
						East-or, momething	
Si	irgical	Treatn	nent o	f Symr	tomatic Isthmoo	ele Causi	nσ
31	ingical		ient o	Jynn	Baser perferent	10 Tell liner	16
	, , , , , , , , , , , , , , , , , , ,	\bnorr	nal Ut	erine E	Bleeding (cont'd)	10-10 _{00%}	
	Merette 2013 ¹⁷	Retospective	*	Laparracopis	Two layer closure - Polygladin 910 (2/0) Partioneum rynning closure - Folialeraenna 26	17 x 0.09 mm	
						East-se momethics 8.6 a 1.04 mm	
	2014 11	Retrospective	15	Lapartecepie	Ultrasonic energy Single layer closure - Polyglactin \$10 (1.0) Participant regained	93.3%	
	Donnez 2017 **	Propedire	38 S8.13s Intermentual Interfing \$5.25 Cysmanophias \$1.50s Chronic paint pain 25.25 Chep Engeracia	Laparoscopio	CO, lease Two layer crosses - Polyglactin 910 (20, 3-0) Similar residence or Leo 2012	91% Pain and bleeding MBI Pre-up implication 1.4.9.07 mm Post-up importation 8.0.1.2 mm	
	254ng 2016 ¹⁰	Retrospective	124	55 Transvaginal 28 Lapanssoops	Zinciosoziali interripate figure-I sulures. Then mattress alcertainis sulure Lesexiosozia Literature interiori suni hysterosopio guidance Three hyper reper - continuous alcertainis sulure con - sul historicasis Luyer the - intrinsiesis Luyer the - intrinsiesis Luyer the - intrinsiesis	225 Transceptual 2025 Lapantecipio	
Donnes C, et al. Esparaccopic repair of wide and rationistys T, et al. Nations accorded Esparaccopic F Ministra ML, et al. Esparaccopic Repair of Post Cr LI C, et al. Hydronoscopic and Esparaccopic manage Donnes C, et al. Operationistic and additionation of	He 2020 **	Mate-analysis f. Rendomized controlled	655	Hysteroscopic Vaginal Laperoscopic	Laparrecopie Hysterscopic Laparrecopic / Mystersacopic //apmil	Laparoscopic approach superior to Hustinoscopic approach (p = .007)	MG/L 2022

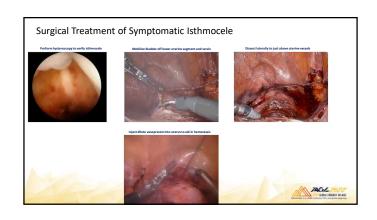
Surgical Treatment of Symptomatic Isthmocele Laparoscopic/Robotic Assisted Treatment of Symptomatic Isthmocele • Yunan 2020: meta-analysis comparing laparoscopy, hysteroscopy, combined laparoscopy/hysteroscopy and vaginal repair • 10 studies - 4 randomized controlled trials, 6 observational studies • Results - Laparoscopic approach - greater reduction in abnormal uterine bleeding than either hysteroscopic approach (1.36; 95% Cl, 0.37–2.36; p = 0.07) or vaginal approach (1.58; 95% Cl, 0.37–2.19; p < 0.001) - Laparoscopic approach reduced depth of myometrial defect post repair more than vaginal repair (1.57; 95% Cl, 0.54–2.61; p = .003)

	Author/Year	Study Type	Patients	Approach	Technique	Success	
	Febres 2005 ¹	Retrospective	11	Hysteroscopio	Shave caudel border (82W monopolar) Desiccete base (82W monopolar)	82%	
	Oubbini 2006 ²	Prospective	۰	Hystercecopic	Shave caudal and cephaled borders Ultra-monopolar loop Roller ball deslocation of base	72.0%	
S	urgical	Mana	gemen	t of lst	hmocele Causing	Infertilit	V
	Vegas Carrillo de Albornoz 2019 *	Prospective	7	Hysteroecopic	Shave lower wall Desicoste base	42.0%	
	Dennez 2008 ^c	Retrospective	3	Laparoscopio	CO ₂ laser Four layer closure – Polyglactin 910 (210, 3(0)	33.3%	
	Marotta 2013 °	Retrospective	13	Laparoscopio	CO: Isser Two layer closure – Polyglactin 910 (210) Peritoneum unning closure Polyglacaprone 25	Four patients spontaneously prognant after three months abstinence	
	U 2014 ⁷	Retrospective	17	Laparoscopio	Ultraporic energy Single layer closure – Polyglactin 910 (1/0) Peritoneum repaired separately	After six months of abstinence, four patients achieved pregnancy	
	Tenimura 2015 °	Prospective	22	Hysteroscopic if mycometrial thickness 22,5mm with a mid or entertexed sterus Otherwise, laparoscopic	Net stated	44 Patients pregnant in the hysteroscopic group 50/15 Patients pregnant in the lapentscopic group	
	Miller 2016 ¹	Retrospective	15	Robotic-Assisted Laparoscopic	Rebotio-Assisted - Monopolar selesors Lapanoscopic - Ultrasonic energy Layer one - 3-4 methras sotores 3-5 Polydeosenone	80% Pregnant 50%	
					Layer two - imbricating, running, 3-0 knotices beford subme. Layer 3 - 3-0 bested subme on peritoneum.	Delivered / Ongoing	
Makes, C., et al. Surgical treatment and failther-upo culdates of, et al. Rest-choosings convention of the "y culdates of, et al. Register representage treatment the state of the stat	Donnez 2017 ¹⁰	Prospective	18/38	Laparoscopio	COs later Two layer olosure – interrupted Polyglacein s12 Peritoneum repaired – Poligliceaprone 25 sub-re Round ligament shortening, if uterus retroflexed.	50% Delivered or engoing	LONGINGE TO DESCRIPTION OF MESSAGE AND ADDRESS OF MESSAGE AND ADDRES
23. Donney Cl. et al. Gynesological and abdetocal outsi					Hysteroscopic evaluation post repair		

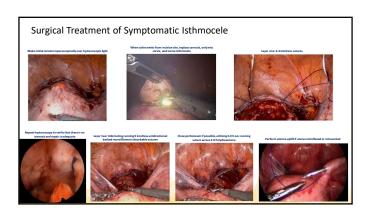


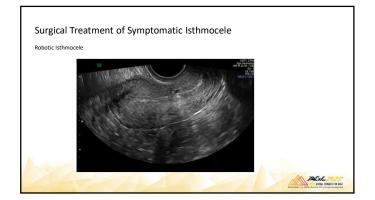


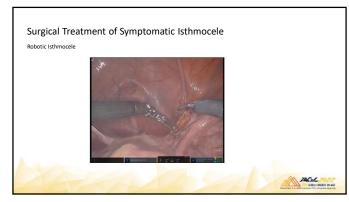


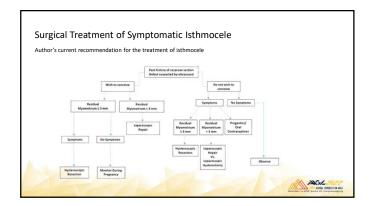












Surgical Treatment of Symptomatic Isthmocele

- Results of laparoscopic 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 polients delivered or ongoing pregnancy
- 21 polients unsuccessful
- 9 potlents did not oftempt pregnancy
- 15 patients of yet cleared to aftermpt pregnancy or have aftempted pregnancy less than one year
- 69.1% delivered or ongoing pregnancy

Surgical Treatment of Symptomatic Isthmocele

Conclusion

- Studies are poor in defining niche site
- Asymptomatic patients should not be treated without further desire of pregnancy
- The anterior uterine wall must be imaged in case of symptomatic patient with previous C/S to rule out isthmocele saline infused sonogram is recommended
- Symptoms are greatest in patients with larger niches
- · Abnormal uterine bleeding secondary to niche, responds well to surgical treatment
- · Studies are minimal regarding pelvic pain and C/S niche
- In regards to infertility, laparoscopic treatment of the C/S niche should be reserved for the patient with fluid in the endometrial cavity, myometrium less than 3 mm, above niche, or continued implantation failure when all factors normalized



Surgical Treatment of Symptomatic Isthmocele

Laparoscopic Excision of Cesarean Scar Pregnancy With Scar Revision



Laparoscopic Excision of **Cesarean Scar Pregnancy** with Scar Revision



Surgical Treatment of Symptomatic Isthmocele

Laparoscopic Excision of Cesarean Scar Pregnancy With Scar Revision





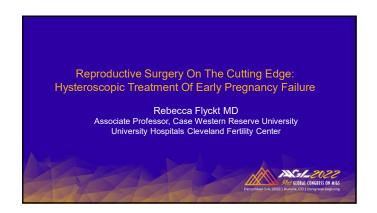
References

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Disclosure I have no financial relationships to disclose

Objectives

- Utilize hysteroscopy as a novel technique for management of missed abortion in patients desiring fertility
- Articulate the benefits of office hysteroscopy for infertility patients

Management of Missed Abortion

First trimester / early pregnancy loss

- Expectant management
- · Medical management
 - Mifepristone + Misoprostol vs. Misoprostol alone
- Surgical management
 - MVA, blind D&C, ultrasound-guided D&C, hysteroscopic resection

Surgical management is 99% effective versus 70-90% effective with medical or expectant management





How Are REI Patients Different?

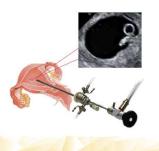
- Often nulligravid
- · Concomitant pathology
- · Medically inexperienced
- Highly emotional context
- · Partner or family present
- Urgency for completion of procedure



Hysteroscopic Resection

Method:

- Intrauterine morcellation of tissue under direct visual guidance
- Distention of cavity with isotonic fluid



Operative Hysteroscopy Office Set Up

Potential Benefits of Hysteroscopic Resection

- Less likely to require second procedure for retained products
- Faster return to negative HCG for patient desiring pregnancy
- · Reduced risk of adhesion formation
- · Lower likelihood of perforation/injury
- · Optimal tissue sample for fetal karyotype analysis



Lessons Learned

- · Patient selection
 - Up to 8-9 weeks EGA
- Ideal: hx Asherman syndrome, RPL
- Visualization
 - Prepare for initial flash with loss of visualization
- · Fluid management
- · Vasoconstrictive agents
 - Vasopressin (can mix with paracervical block)
- Contraindications
 - PUL, contraindication to hysteroscopy, poor surgical candidate

References

Walker, S. H., and L. Gokhale. "Safety Aspects of Hysteroscopy, Specifically in Relation to Entry and Specimen Retrieval: A UK Survey of Practice." Gynecological Surgery, vol. 15, no. 1, Jan. 2018, p. 2. BioMed Central, doi:10.1186/s10397-018-1036-6.

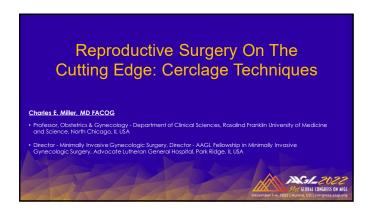
de Codt, Matthieu, et al. "Hysteroscopic Resection for Missed Abortion: Feasibility, Operative Technique and Potential Benefit Compared to Curettage." Frontiers in Surgery, vol. 7, 2020. Frontiers, doi:10.3389/fsurg.2020.00064.

Hooker AB, et al. Long-term complications and reproductive outcome after the management of retained products of conception: a systematic review. 2016 Jan;105(1):156-64.

Rein DT, et al. Hysteroscopic management of residual trophoblastic tissue is superior to ultrasound-guided curettage. J Minim Invasive Gynecol. 2011Nov-Dec;18(6):774-8.

Cholkeri-Singh, MD, et al. Increased Fetal Chromosome Detection with the Use of Operative Hysteroscopy During Evacuation of Products of Conception for Diagnosed Miscarriage JMIG 2019.





Disclosure Information Abbüle - Advisory Board, Consultant and Speakers Bureau Temple Therapeutics - Advisory Board and Stock ownership AblaCare - Consultant Epiner Medical Inc. - Consultant Gynesonics - Consultant Gynesonics - Consultant Higher Medical - Consultant Medical - Consultant Medical - Consultant Medical - Consultant Seikagaku Corporation - Consultant Seikagaku Corporation - Consultant Half Storz - Provided grant for research. Blue Seas Med Sap - Investor Halt Medical - Stock ownership

Objectives

- . List two indications for the performance of an abdominal cerclage.
- Describe the success rate of abdominal cerclage.
- Outline the advantages of a laparoscopic vs an abdominal approach to cerclage.
- Describe the steps in performing a laparoscopic abdominal cerclage.



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



Laparoscopic Transabdominal Cerclage

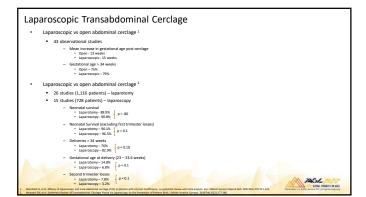
- Open transabdominal vs transvaginal cerclage (MAVRIC Trial)
 - N = 111 patients with previous failed vaginal cerclage and loss or preterm birth between 14 and 28 weeks gestation
 - Preterm birth rate < 32 weeks
 - Transabdominal 8%
 - Transvaginal 33%
 p = .008



Laparoscopic Abdominal Cerclage

- 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





Laparoscopic Abdominal Cerclage

- · Contraindications in pregnancy
 - Fetal anomaly incompatible with life
 - Intrauterine infection/chorioamnionitis
 - Active uterine bleeding
 - Active preterm labor
 - · Preterm labor rupture of membranes
 - Fetal demise
- · Relative contraindication
 - Prolapsing fetal membranes through external os secondary to risk of iatrogenic rupture of membranes may exceed 50% 1,2



Laparoscopic Abdominal Cerclage

- · Issues with placement in early pregnancy
 - Place late in first trimester/early second trimester to minimize risk of spontaneous miscarriage
 - Major anomalies in fetus can be detected prior on ultrasound
 - Aneuploidy screening completed
 - Uterus still relatively small



Laparoscopic Abdominal Cerclage

Internal placement vs placement in pregnancy

- No risk of injury to pregnancy
- Less risk of bleeding
- Preconception vs early pregnancy ²
 - 14 observational studies reviewed (1990 2013)
 N = 678
 Similar live birth rates

 - Subsequent observational study ³
 N = 161
 - N = 1b1

 34 weeks or greater gestation
 Preconception 90%
 Early pregnancy 74%
 Surgical complications (bladde
 Preconception 0/96
 Early pregnancy 34/65
 - dder injury, bleeding > 500 mL)



Transabdominal Cerclage

- - 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: S mm Mersilene polyester tape with CTX or BP-1 needles
 If 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





Transabdominal Cerclage

- · Procedure (cont'd)
 - Can place suture as follows at cervicoisthmic junction

 - 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 to 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 slik suture
 Allows identification of cerclage
 Lower risk of erosion into bladder



References

- Senson A, et al. MARKC: a multiconter randomised controlled from tolled for all of transablement in crannosignical cervical cervical, early a. N Dotted Operacit. 2000 Mar; 222(5); 251. st. 256. st.

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CULTURAL AND LINGUISTIC COMPETENCY & IMPLICIT BIAS

The California Medical Association (CMA) announced new 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. <u>AAGL is ACCME-accredited and headquartered in California</u>.

CMA developed the standards in response to California legislation (<u>Business and Professions (B&P) Code Section 2190.1</u>), 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 beginning 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 <u>CLC and IB standards page</u> 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)

Cultural Competence In Health and Human Services | NPIN (cdc.gov)

Cultural Competency – The Office of Minority Health (hhs.gov)

Implicit Bias, Microaggressions, and Stereotypes Resources | NEA

Unconscious Bias Resources | diversity.ucsf.edu

Act, Communicating, Implicit Bias (racialequitytools.org)

https://kirwaninstitute.osu.edu/implicit-bias-training

https://www.uptodate.com/contents/racial-and-ethnic-disparities-in-obstetric-and-gynecologic-care-and-role-of-implicitbiases

https://www.contemporaryobgyn.net/view/overcoming-racism-and-unconscious-bias-in-ob-gyn

https://pubmed.ncbi.nlm.nih.gov/34016820/