Endometriosis, surgery or medical treatment? if pregnancy is desired.

- A. Mehdizadeh MD
- Prof. of Gyn. MIS
- Iran Medical University
Endometriosis, surgery or medical treatment, if pregnancy is desired.
Endometriosis is an enigmatic disease characterized by development of endometrial tissue outside of the uterus, causes pain and infertility.

A good correlation exists between amount, type, and location of endometriotic lesions and the painful symptoms.

By contrast, links between endometriosis and infertility are less clear.

Effects of endometriosis on human reproduction

**Pelvic cavity**
- Inflammatory changes in peritoneal fluid
- Proliferation of macrophages and phagocytic dysfunction
- Release of proinflammatory and angiogenic factors
- Changes in peritoneal fluid can affect sperm–oocyte interaction

**Uterus**
- Activation of steroidogenic factor 1 and aromatase
- Production of oestrogen in situ
- Resistance to progesterone
- Changes affect endometrium itself

**Ovaries**
- Functional ovarian tissue (ovarian reserve) reduced by endometriomas or surgery
- Response to controlled ovarian hyperstimulation (ART) hampered
Pathophysiology of infertility in Endometriosis

- **Pelvis**
  - Pelvic inflammation, a classic feature of endometriosis.
  - Evidence for inflammatory changes in endometriosis that could affect peritoneal fluid includes:
    - proliferation, activation, and phagocytic dysfunctions of macrophages; secretion of proinflammatory, growth, and angiogenic factors.

Pathophysiology of infertility in Endometriosis

- **Pelvis**

Some published data (but not all) suggest that peritoneal fluid from women with endometriosis leads to immobilization of sperm, mainly through action of macrophages.

- Interleukins 1 and 6 directly affect sperm mobility.
- Tumor necrosis factor (TNF) causes DNA damage.

Pathophysiology of infertility in Endometriosis

- **Ovaries**
  - Endometriosis sometimes extends to the ovaries, forming endometriomas (OMA).
  - By space-occupying effects, local reactions, or both, cysts can reduce the amount of functional ovarian tissue available, which could be aggravated further by surgery of ovarian reserve.
Pathophysiology of infertility in Endometriosis

- **Uterus**

- Findings suggest that the endometrium is altered in women with endometriosis.

- Endometrial alterations recorded in women with endometriosis are independent of circulating concentrations of estradiol and progesterone rather, they stem from local events.

- Anomalies are of two types:
  1. abnormal, inflammation-related, in-situ production of estradiol
  2. overt resistance to the effects of progesterone.

The compounding role of pain

In women with endometriosis, pelvic pain and, particularly, dyspareunia affect a couple’s ability to have regular sexual intercourse and, thus, will compound infertility problems.

Practical benefit of medical treatment and surgery on conception chances

- **Natural conception**
  - To date almost all forms of medical treatment available for endometriosis block ovarian function and are, thus, contraceptive (GnRh.A, progestins, and OCs).
  - These agents are effective on pain and reduce the risk of recurrence of symptoms after surgery.
  - Contrary to earlier beliefs, fecundity does not rebound on termination of treatment.
  - Medical treatments are, thus, **not indicated for infertility associated with endometriosis**, either as a common option or after surgery.

Practical benefit of medical treatment and surgery on conception chances

- The issue of whether surgical removal of endometriotic lesions—either by laparoscopy or laparotomy—improves a woman’s chances of spontaneous (natural) conception is complex.

- Confusion based on the different forms of endometriosis (superficial endometriosis, OMA, and DIE), types of surgery undertaken, and modes of fertility assessed.

- The propounded effect through which surgery would enhance the chances of natural conception is by reduction of pelvic inflammation, but this suggestion was never verified.

Practical benefit of medical treatment and surgery on conception chances

- First-line evidence in support of surgery for superficial endometriosis came from a RCT reported by Marcoux and colleagues.

- They reported an increased odds ratio for spontaneous conception of $1.66$ (95% CI $1.09$-$2.51$) after surgical removal of superficial endometriosis.

- Postoperative rates of conception varied from 30% to 67%.

Practical benefit of medical treatment and surgery on conception chances

- When infertility is at the workup stage, mostly believe surgery should be offered early in the course of endometriosis, because the primary benefit of surgery is to enhance the chances of natural conception.
- So, when weighing up the advantages of surgery, considerations should include availability of time, ovarian reserve, and capacity to conceive naturally (tubal and sperm status) rather than disease stage.
- Indeed, sufficient time (at least 12 months) needs to be allocated after surgery to maximize the chances of a natural pregnancy.

Practical benefit of medical treatment and surgery on conception chances

- Before surgery is planned, some verification is needed.
- If Ovarian reserve is altered, or the patient is older than 38 years, or infertility is long lasting, direct ART should be recommended, thus making surgery (in principle) unnecessary.
- Likewise, semen characteristics or tubal status that are incompatible with natural conception mandate going straight to ART.

Practical benefit of medical treatment and surgery on conception chances

- After surgery, couples must attempt to conceive naturally in principle, for at least 1 year.
- If this attempt fails, recommend going directly to IVF.
- IUI, which is sometimes doing before ART in endometriosis is not recommended.

Practical benefit of medical treatment and surgery on conception chances

- When ART is indicated, surgery is generally of little value.
- Medical pretreatment—in principle, 3 months of GnRh analogues or OC—is recommended before ART.
- The rule of no surgery before ART comes with exceptions, including pelvic pain (possibly intensifying during controlled ovarian hyperstimulation), presence of hydrosalpinges, and large endometriomas (especially when doubts exist about their exact nature).
- In all these cases, ART is undertaken directly after surgery.

Infertility workup

Measurement of ovarian reserve

“Emergency” IVF if ovarian function compromised

Semen analysis

IVF if natural conception impossible

Assessment of fallopian tubes

Exceptions:
- Pelvic pain
- Hydrosalpinx
- Large endometrioma

No surgery before ART

Ovarian suppression with GnRH analogues for 3–6 months

Surgery

Allow 6–18 months for spontaneous pregnancy

If not pregnant

IVF or ICSI
Long-Term Fertility After Laparoscopy for Endometriosis-Associated Pelvic Pain in Young Adult Women

Brittany M. Wilson-Harris, MD, Benjamin Nutter, MS, and Tommaso Falcone, MD*

From the Departments of Obstetrics, Gynecology, and Women's Health Institute (Drs. Falcone and Wilson-Harris), Quantitative Health Sciences (Mr. Nutter), Cleveland Clinic Foundation, and Cleveland Clinic Lerner College of Medicine of Case Western Reserve University (Dr. Wilson-Harris), Cleveland, Ohio.

ABSTRACT  Study Objective: To describe the long-term fertility outcomes in young patients with endometriosis-associated pelvic pain treated with laparoscopic surgery.

Design: Retrospective case series (Canadian Task Force classification II-2).

Setting: Tertiary care hospital.

Patients: Women aged 18 to 25 years who underwent laparoscopic surgery between 2000 and 2005 at the Cleveland Clinic Foundation solely to treat endometriosis-associated pelvic pain.

Interventions: Patients answered a telephone or mail survey questionnaire assessing fertility outcome after surgery.

Measurements and Main Results: Twenty-eight of 74 eligible patients (37.8%) were enrolled in the study. With a median (interquartile range) age of 23.5 (1.5) years at follow-up, these patients completed the telephone or postal questionnaire to assess fertility outcomes at follow-up of 102.5 (16.6) months. In most participants the diagnosis was less advanced endometriosis (stage I, 60.7%; stage II, 28.6%). Twenty women (71.4%) had at least 1 pregnancy during follow-up that resulted in a live birth, of which >80% were spontaneous without the use of assisted reproductive technologies.

Conclusion: Long-term pregnancy rates are excellent in young women undergoing laparoscopic surgery to treat pelvic pain. However, a future prospective study is needed to determine whether laparoscopy has any hindrance on future fertility.
Endometriosis-related infertility: assisted reproductive technology has no adverse impact on pain or quality-of-life scores

**Objective:** To evaluate the impact of assisted reproduction technology (ART) on painful symptoms and quality of life (QoL) in women who have endometriosis as compared with disease-free women.

**Design:** Prospective controlled, observational cohort study.

**Setting:** University hospital.

**Patient(s):** Two hundred and sixty-four matched-pairs of endometriosis and disease-free women undergoing ART.

**Intervention(s):** Assessment of pain evolution using visual analogue scale (VAS) during ART; QoL assessment with the Fertility Quality of Life (FertiQoL) tool.

**Main Outcome Measure(s):** VAS pain intensities relative to dysmenorrhea, dyspareunia, noncyclic chronic pelvic pain (NCCPP), gastrointestinal pain, lower urinary tract pain; trends for VAS change between postretrieval and baseline evaluation; FertiQoL score; and statistical analyses conducted using univariate and adjusted multiple linear regression models.

**Result(s):** After excluding canceled cycles and patients lost to follow-up observation, 102 women with endometriosis and 104 disease-free women were retained for the study. The trends for VAS change between the postretrieval and baseline evaluations in the women with endometriosis compared with the disease-free women revealed a statistically significant pain decrease for dysmenorrhea (−1.35 ± 3.23 and 0.61 ± 4.00) and dyspareunia (−1.19 ± 2.58 and 0.14 ± 2.06). For NCCPP, gastrointestinal symptoms, and lower urinary tract symptoms, there were no statistically significant differences between the groups. After multiple linear regression, no worsening of pain was observed in the endometriosis group as compared with disease-free group. In addition, subgroup analysis according to endometriosis phenotype failed to show any increase of pain. The quality of life in the endometriosis group was comparable to that of the disease-free group.

**Conclusion:** As a result, ART may be considered without concern to the symptoms of endometriosis.
CONCLUSION

Our study found that ART has no adverse impact on pain symptoms or QoL in women with endometriosis in the immediate period after the ART, irrespective of the endometriosis phenotype. Reverting to ART is a valid therapeutic option that does not aggravate pain scores in women with endometriosis. The QoL quality of life scores during ART are comparable for both infertile women with endometriosis and those who are disease-free.
Fertility outcome after laparoscopic treatment of advanced endometriosis in two groups of infertile patients with and without ovarian endometrioma

Results: After adjusting covariates, the Kaplan–Meier analysis of cumulative pregnancy rates (CPR) did not show any statistical significance between cases (35.6%) and controls (39.5%) (Log-rank P-value = 0.959). The COX regression analysis of covariates showed there is no significant relationship between cystectomy and fertility outcome. It showed statistical significance effect of age (hazard ratio [HR] = 0.772), years of infertility (HR = 0.224), and previous endometrioma surgery (HR = 0.180), on fertility chance.

Conclusion: In advanced endometriosis with DIE and infertility, fine excision and stripping of the endometrioma along with radical resection of DIE improves fecundity without any significant adverse effect in comparison with patients with intact ovaries.
The effect of surgery for endometrioma on ovarian reserve evaluated by antral follicle count: a systematic review and meta-analysis

Ovarian reserve evaluated with AFC is not reduced after surgical treatment of an endometrioma.

A lower AFC is present for the affected ovary both before and after surgery.

Recently, concerns have been raised as to the reliability of AMH as a marker of ovarian reserve.

Based on the present findings, surgical treatment of an endometrioma may be considered safer for the ovarian reserve than previously thought.

In the absence of pain, the role of surgical management of endometriosis for subfertility is considered next.

The most recent Cochrane review on this topic by Duffy et al. suggests that laparoscopic treatment of mild and moderate endometriosis increases live birth.

One must balance the risk of surgical intervention with the alternative options for enhancing fertility such as (ART).
The role of surgery for DIE and subfertility

- Garcia-Velasco published a thorough and frank review on the topic of managing deep endometriosis in patients with subfertility.

- The bottom line is that many case series report show excellent outcomes of surgical intervention.

- At this point, the main reason to manage deep endometriosis surgically would be to alleviate pain or visceral obstruction in expert hands.

(Fertil Steril 2017;107:549-54. 2017 by American Society for Reproductive Medicine.)
Colorectal endometriosis-associated infertility: should surgery precede ART?

Sofiane Bendifallah, M.D., Ph.D., a, b Horace Roman, M.D., Ph.D., c Emmanuelle Mathieu d’Argent, M.D., a

Objective: To compare the impact of first-line assisted reproductive technology (ART; intracytoplasmic sperm injection [ICSI]-IVF) and first-line colorectal surgery followed by ART on fertility outcomes in women with colorectal endometriosis-associated infertility.

Design: Retrospective matched cohort study using propensity score (PS) matching (PSM) analysis.

Setting: University referral centers.

Patient(s): A total of 110 women were analyzed from January 2005 to June 2014. A PSM was generated using a logistic regression model based on the age, antimüllerian hormone (AMH) serum level, and presence of adenomyosis to compare the treatment strategy.

Intervention(s): First-line surgery group followed by ART versus exclusive ART with in situ colorectal endometriosis.

Main Outcome Measure(s): After PSM, pregnancy rates (PRs), live-birth rates (LBRs), and cumulative rates (CRs) were estimated.

Result(s): After PSM, in the whole population, the total LBR and PR were 35.4% (39/110) and 49% (54/110), respectively. The specific cumulative LBR at the first ICSI-IVF cycle in the first-line surgery group compared with the first-line ART was, respectively, 32.7% versus 13.0%; at the second cycle, 58.9% versus 24.8%; and at the third cycle, 70.6% versus 54.9%. The cumulative LBRs were significantly higher for women who underwent first-line surgery followed by ART compared with first-line ART in the subset of women with good prognosis (age ≤ 35 years and AMH ≥ 2 ng/mL and no adenomyosis) and women with AMH serum level < 2 ng/mL.

Conclusion(s): First-line surgery may be a good option for women with colorectal endometriosis-associated infertility. (Fertil Steril® 2017;108:525–31. ©2017 by American Society for Reproductive Medicine.)

Key Words: Colorectal endometriosis, infertility, propensity score (PS) matching (PSM), ART, surgery
Conclusion

Our results strongly suggest that surgery followed by ART is a good option for women with colorectal endometriosis-associated infertility, especially those with factors negatively impacting fertility outcomes, indicating that first-line ART is not the only option. However, these results must be interpreted with caution. Indeed, future RCTs comparing first-line ART to first-line surgery followed by ART are warranted in such complex management.
The key indication for managing the “asymptomatic” ovarian endometrioma in patients with subfertility is to improve access for ART.

The endometrioma size, location, and transvaginal access for retrieval may all have a factor in determining whether patients require surgery.

Hamdan et al. in their meta-analysis found that the outcome of IVF/ICSI did not differ in women who had their endometriomas treated surgically versus no surgery.

At present multiple studies have shown that removal or occlusion of the tubes, which does eliminate the possibility of natural conception, improves IVF outcomes.

(Fertil Steril 2017;107:549-54. 2017 by American Society for Reproductive Medicine.)
A patient's sociocultural preferences and religious practices can strongly determine ART options. For example, Jewish Law, the Roman Catholic Church, and Islamic Law each have different views on the acceptability of different forms of ART. A frank and open discussion between the care provider and the patient is essential to determining an option that is acceptable. In some cases, surgery may be the only acceptable option.
Patient Choice versus Surgeon Choice

- For medical therapies the limitations may be cost, lack of approval of all medical therapies, cultural barriers (i.e., access to hormonal contraceptives), and provider biases.
- Surgical management has very similar challenges.
- Additional considerations include the availability of experienced surgeons, surgical wait lists, and the public versus private health care system dichotomy.
Optimal management such as surgery versus assisted reproductive technology (ART) for patients with severe endometriosis who desire pregnancy is strongly debated.

The absence of randomized trials comparing primary surgery with first-line in vitro fertilization (IVF) leaves room for individualized interpretation of available studies, most of which are noncomparative, retrospective cohorts.

The European Society of Human Reproduction and Embryology has released its latest recommendations, regardless of the absence of studies with a high level of evidence.

For infertile women with deep endometriosis, there is no evidence to support performing surgical excision of deep nodular lesions before ART to improve reproductive outcomes.
Conclusion

The following may be considered indications for surgery in patients with endometriosis-related subfertility without significant pain:

- Pelvic Mild-to-moderate endometriosis
- Improving access for oocyte retrieval
- Treating hydrosalpinges to improve IVF outcomes
- Patient declines ART due to personal, cultural, or religious reasons
- Deep Endometriosis and Subfertility
- Patient choice for surgery or unable to access interventions such as ART
- ART should not be seen as a technique competing with surgical treatment of endometriosis-associated infertility but as a complementary therapeutic strategy.
Take home

- Medical treatments are, **not indicated for infertility associated with endometriosis (excluding ovulatory agents)**
- Timely medical pretreatment—ovarian suppression with a GnRh analogue for 3 months—has favorable effects on ART outcome in women with endometriosis.
- Pretreatment did not impair the ovarian response to controlled ovarian hyperstimulation (COH).
- **Fertility preservation before advanced surgery.**
- **Consultation with infertility specialists before surgery**
What is Endometriosis???

THANKS FOR YOUR ATTENTION
Fertility outcome of laparoscopic treatment in patients with severe endometriosis and repeated in vitro fertilization failures

David Soriano, M.D.,a,b,e Iris Adler, M.D.,e Jerome Bouaziz, M.D.,a,b,e Matti Zolti, M.D.,a,b,e

Objective: To evaluate fertility outcomes in infertile women with severe endometriosis (The revised American Fertility Society classification [AFS] 3–4) and repeated IVF failures, who underwent surgery due to exacerbation of endometriosis-related symptoms.

Design: Retrospective cohort study.

Setting: University hospital.

Patient(s): All women who failed IVF treatment before surgery and who underwent laparoscopic surgery for severe endometriosis between January 2006 and December 2014.

Intervention(s): All patients were operated by highly skilled surgeons specializing in laparoscopic surgery for advanced endometriosis. Only patients with evidence of endometriosis in the pathology specimens were included in this study.

Main Outcome Measure(s): Delivery rate after surgery.

Result(s): Seventy-eight women were included in the present study. All women were diagnosed with severe endometriosis during surgery (AFS 3–4) and all women were symptomatic before their surgery. After surgical treatment 33 women (42.3%) delivered. Three women (9%) conceived spontaneously and all other women conceived after IVF treatment. Women who delivered were younger (32.5 ±4.1 years vs. 35.5 ±3.8 years), were less often diagnosed with diminished ovarian reserve before surgery (6% vs. 28.8%), and were more often diagnosed with normal uterine anatomy (by preoperative transvaginal ultrasound and during operation). In addition, performing salpingectomy during surgery was associated with a trend of improvement in delivery rates after surgery (70% in women who delivered vs. 51% in women who failed to deliver).

Conclusion(s): Symptomatic women with severe endometriosis and repeated IVF implantation failures may benefit from extensive laparoscopic surgery when performed by an experienced multidisciplinary surgical team to improve IVF outcome. (Fertil Steril® 2016;106:1264–9. © 2016 by American Society for Reproductive Medicine.)
Effect of surgery on ovarian reserve in women with endometriomas, endometriosis and controls

Linnea R. Goodman, MD; Jeffrey M. Goldberg, MD; Rebecca L. Flyckt, MD; Manjula Gupta, PhD; Jyoti Harwalker, MS; Tommaso Falcone, MD

**BACKGROUND:** Many women who experience endometriosis and endometriomas also encounter problems with fertility.

**OBJECTIVE:** The purpose of this study was to determine the impact of surgical excision of endometriosis and endometriomas compared with control subjects on ovarian reserve.

**STUDY DESIGN:** This was a prospective cohort study of 116 women aged 18–43 years with pelvic pain and/or infertility who underwent surgical treatment of suspected endometriosis (n=58) or endometriomas (n=58). Based on surgical findings, the suspected endometriosis group was further separated into those with evidence of peritoneal disease (n=29) and those with no evidence of endometriosis (n=29). Ovarian reserve was measured by anti-Müllerian hormone and compared before surgery and at 1 month and 6 months after surgery.

**RESULTS:** Baseline anti-Müllerian hormone values were significantly lower in the endometrioma vs negative laparoscopy group (1.8 ng/mL [95% confidence interval, 1.2–2.4 ng/mL] vs 3.2 ng/mL [95% confidence interval, 2.0–4.4 ng/mL]; P<.02), but the peritoneal endometriosis group was not significantly different than either of these groups. Only patients with endometriomas had a significant decline in ovarian reserve at 1 month (−48%; 95% confidence interval, −54 to −18%; P<.01; mean anti-Müllerian hormone baseline value, 1.77–1.12 ng/mL at 1 month). Six months after surgery, anti-Müllerian hormone values continued to be depressed from baseline but were no longer significantly different. The rate of anti-Müllerian hormone decline was correlated positively with baseline preoperative anti-Müllerian hormone values and the size of endometrioma that was removed. Those with bilateral endometriomas (n=19) had a significantly greater rate of decline (53.0% [95% confidence interval, 35.4–70.5%] vs 17.5% [95% confidence interval, 3.2–31.8%]; P=.002).

**CONCLUSION:** At baseline, patients with endometriomas had significantly lower anti-Müllerian hormone values compared with women without endometriosis. Surgical excision of endometriomas appears to have temporary detrimental effects on ovarian reserve.

Key words: endometrioma, endometriosis, infertility, ovarian reserve
Take Home

- **Pelvic Pain and Desire to Conceive**
  - Because most medical management options, with the exception of analgesics, prevent pregnancy, surgery may be the only option for treatment in this subgroup.

- **Mild-to-Moderate Endometriosis**
  - Duffy et al. (7) suggests that laparoscopic treatment of mild and moderate endometriosis increases live birth.

- **Deep Endometriosis and Subfertility**
  - The bottom line is that many case series report show excellent outcomes of surgical intervention.
In Vitro Fertilization Success Rates after Surgically Treated Endometriosis and Effect of Time Interval between Surgery and In Vitro Fertilization

ABSTRACT

Study Objective: To evaluate the impact of endometriosis staging and endometriomas on in vitro fertilization (IVF) outcome and to assess the optimal time interval between laparoscopy and IVF.

Design: A retrospective clinical study (Canadian Task Force classification III).

Setting: A university-affiliated private infertility clinic.

Patients: Two hundred sixteen infertile patients with endometriosis and 209 infertile patients without endometriosis.

Interventions: Laparoscopy, IVF.

Measurements and Main Results: Patients with endometriosis were classified according to American Society for Reproductive Medicine criteria; 58, 67, 63, and 28 patients had stages 1 through 4 disease, respectively. Patients with endometriosis had significantly lower estradiol on trigger day (9986 ± 6710 vs 12 220 ± 9414 pg/mL, respectively) and number of retrieved oocytes (12.7 ± 8.6 vs 14.0 ± 10, respectively) compared with controls. We found a consistent decline in clinical and ongoing pregnancy rates with increasing stage of endometriosis. The presence of endometrioma in patients with stages 3 and 4 endometriosis did not alter IVF outcome. Patients with a time interval of 7 to 12 and 13 to 25 months after surgery had a favorable outcome.

Conclusion: IVF pregnancy rate was negatively correlated with endometriosis severity. The presence of endometriomas had no impact on IVF clinical outcome. The optimal time to perform IVF appears to be between 7 and 25 months after endometriosis surgery. Journal of Minimally Invasive Gynecology (2018) 25, 99–104 © 2017 AAGL. All rights reserved.
What is Endometriosis?

Thank you
SURGICAL MANAGEMENT OF OVARIAN ENDOMETRIOMAS

Surgical excision of an ovarian endometrioma in women wishing to preserve fertility or ovarian function has been shown to be effective in managing pain and has a lower recurrence risk than drainage and coagulation alone (26).

However, the risk of affecting ovarian reserve after endometrioma surgery should be considered.

The main question is: how much of an effect does the ovarian endometrioma impact underlying ovarian reserve just by being present versus how much of an impact does surgical intervention have on the remaining reserve or can it improve reserve?
Factors that may predict greater impact of surgical endometrioma management on ovarian reserve have included age and bilateral ovarian cystectomy (32).

Repeat endometrioma surgery may also risk further harm of ovarian tissue, as suggested in a recent small study by Muzii et al.

Another important concept to contemplate when surgery is considered for ovarian endometriomas is the association of this type of disease with severe deep endometriosis, especially in patients with pain symptoms.

As a result, the complexity of the surgical procedure is often beyond simple excision of the endometriotic cyst and may require more extensive dissection and an interdisciplinary approach.

Suboptimal excision of ovarian disease in cases of an oophorectomy may lead to ovarian remnant and hence require further surgical or medical management.
In summary, the management of ovarian endometriomas for women with pain must also consider the individual's plan for future fertility.

For women wishing to conceive in the future, the surgeon must consider the following:

- Ovarian reserve may be lower in women with ovarian endometrioma compared with those women without Surgical excision of an endometrioma is ideal for pain but may lead to reduced ovarian reserve in the short term. Bilateral, compared to unilateral, ovarian cystectomy for endometriomas may result in a greater negative effect on ovarian reserve. Recurrent endometrioma excision may further reduce ovarian reserve compared with primary surgery.
Decline of serum antimüllerian hormone levels after laparoscopic ovarian cystectomy in endometrioma and other benign cysts: a prospective cohort study

Su Kyoung Kwon, M.D., Sung Hoon Kim, M.D., Ph.D., Sung-Cheol Yun, Ph.D., Dae Yeon Kim, M.D., Ph.D., Hee Dong Chae, M.D., Ph.D., Chung-Hoon Kim, M.D., Ph.D., and Byung Moon Kang, M.D., Ph.D.

*Department of Obstetrics and Gynecology and †Division of Biostatistics, University of Ulsan College of Medicine, Asan Medical Center, Seoul, South Korea

**Objective:** To identify the most important factor in predicting ovarian reserve after laparoscopic ovarian cystectomy and to evaluate whether there is any difference in the postoperative decline of ovarian reserve between women with endometrioma and those with other benign ovarian cysts.

**Design:** Prospective cohort study.

**Setting:** University hospital.

**Patient(s):** A total of 100 women who had undergone laparoscopic ovarian cystectomy for endometrioma (n = 68) or other benign ovarian cysts (n = 32).

**Intervention(s):** Serum antimüllerian hormone (AMH) levels measured by enzyme immunoassay preoperatively and at 3 months after surgery.

**Main Outcome Measure(s):** Rate of AMH decline after surgery and follicle numbers retained in cystectomy specimens.

**Results:** Serum AMH levels were obviously decreased at 3 months after the surgery (4.97 ± 2.83 vs. 3.33 ± 2.08 ng/mL, mean ± standard deviation). Adjusting for several parameters, we could see that bilaterality of the ovarian cyst was the only significant factor in predicting the rate of postoperative decline of AMH levels. The rate of AMH decline did not differ between the endometrioma group and the other benign ovarian cyst group.

**Conclusion(s):** Bilaterality of the ovarian cyst is the only significant factor in predicting the rate of decline of AMH level after laparoscopic ovarian cystectomy. The rate of decline of AMH levels after surgery was similar between the endometrioma group and the other benign ovarian cyst group. (Fertil Steril® 2014;101:435–41. © 2014 by American Society for Reproductive Medicine.)

**Key Words:** antimüllerian hormone, endometrioma, endometriosis, ovarian cystectomy, ovarian reserve
Impact of endometriosis on in vitro fertilization outcomes: an evaluation of the Society for Assisted Reproductive Technologies Database

Suneeta Senapati, M.D., M.S.C.E., Mary D. Sammel, Sc.D., Christopher Morse, M.D., and Kurt T. Barnhart, M.D., M.S.C.E.

Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania; Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Philadelphia, Pennsylvania; and Department of Obstetrics and Gynecology, University of Washington, Seattle, Washington

Objective: To assess the impact of endometriosis, alone or in combination with other infertility diagnoses, on IVF outcomes.

Design: Population-based retrospective cohort study of cycles from the Society for Assisted Reproductive Technology Clinic Outcome Reporting System database.

Setting: Not applicable.

Patient(s): A total of 347,185 autologous fresh and frozen assisted reproductive technology cycles from the period 2008–2010.

Conclusion(s): Endometriosis is associated with lower oocyte yield, lower implantation rates, and lower pregnancy rates after IVF. However, the association of endometriosis and IVF outcomes is confounded by other infertility diagnoses. Endometriosis, when associated with other alterations in the reproductive tract, has the lowest chance of live birth. In contrast, for the minority of women who have endometriosis in isolation, the live birth rate is similar or slightly higher compared with other infertility diagnoses. (Fertil Steril® 2016;106:164–71. ©2016 by American Society for Reproductive Medicine.)
چشم‌ها را باید شست
شست
جور دیگر باید دید
The impact of laparoscopic cystectomy on ovarian reserve in patients with unilateral and bilateral endometriomas

Saeed Alborzi, M.D., Pegah Keramati, M.D., Masoomeh Younesi, M.D., Alamtaj Samsami, M.D., and Nasrin Dadras, M.D.

Department of Obstetrics and Gynecology, Infertility Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Objective: To evaluate the effects of laparoscopic cystectomy on ovarian reserve in patients with endometriomas.

Design: Prospective study.

Setting: Private and university hospitals.

Patient(s): A total of 193 patients with endometriomas undergoing laparoscopic cystectomy.

Intervention(s): Serum levels of antimüllerian hormone (AMH), FSH, and E₂, as well as antral follicle count (AFC) were measured preoperatively and 1 week, 3 and 9 months postoperatively for AMH, and 3 months for other values.

Main Outcome Measure(s): Ovarian reserve based on the comparison of AMH alterations. The secondary end points are changes in FSH, E₂, and AFC.

Result(s): Serum AMH level decreased significantly from the baseline (3.86 ± 3.58 ng/mL) to 1 week (1.66 ± 1.92 ng/mL), 3 months (2.06 ± 2.5 ng/mL), and 9 months (1.77 ± 1.76 ng/mL) postoperatively. Those patients with bilateral endometriomas had significantly lower levels of AMH, 1 week, 3 and 9 months after operation. Also, patients older than 38 years had lower postoperative AMH levels. The FSH levels increased significantly from baseline to 3 months postoperatively. The AFC level increased significantly from baseline to 3 months after operation.

Conclusion(s): The AMH level decreased and the FSH level increased after laparoscopic cystectomy for endometriomas, especially in older patients and those with bilateral cysts. (Fertil Steril® 2014;101:427–34. ©2014 by American Society for Reproductive Medicine.)

Key Words: Laparoscopic cystectomy, endometrioma, ovarian reserve
Does laparoscopic excision of endometriotic ovarian cysts significantly affect ovarian reserve? Insights from IVF cycles

E.Somigliana¹, G.Ragni, F.Benedetti, R.Borroni, W.Vegetti and P.G.Crosignani

Infertility Unit, Department of Obstetrics and Gynecology, Clinica ‘L. Mangiagalli’, University of Milan, Milan, Italy

¹To whom correspondence should be addressed at: Department of Obstetrics and Gynecology, Via Commenda 12, 20122, Milano, Italy. E-mail: dadosomigliana@yahoo.it

BACKGROUND: Residual ovarian function after laparoscopic excision of endometriotic ovarian cysts is a major and still unsolved topic. Ultrasonographic evaluation of ovarian response to ovulation stimulation represents a simple yet poorly employed tool to assess residual ovarian function after surgery. METHODS: Data from patients referred for IVF or ICSI between January 2001 and December 2002 were reviewed. Patients were included who previously underwent laparoscopic excision of a monolateral endometriotic ovarian cyst. The operated ovary and contralateral intact ovary were compared in terms of number of follicles with a mean diameter >15 mm at the time of hCG administration. Basal volume of the two ovaries before initiating stimulation was also compared. A paired Student’s t-test was used to investigate differences between the two ovaries. RESULTS: In total, 32 patients and 46 cycles were identified. The mean (± SD) number of follicles >15 mm was 4.2 ± 2.5 in the control ovary and 2.0 ± 1.5 in the previously operated ovary (P < 0.001); this corresponded to a mean reduction of 53% (95% CI 35–72%) but did not seem to be related to the dimension of the excised ovarian cyst. The basal volume of the operated ovaries was also statistically significantly diminished, though this reduction was less relevant. CONCLUSIONS: Excision of endometriotic ovarian cysts is associated with a significant reduction in ovarian reserve. Further studies are required to clarify whether the damage is related to the surgical procedure or to the previous presence of a cyst.

Key words: cyst enucleation/laparoscopy/ovarian cyst/ovarian reserve
Association between surgically diagnosed endometriosis and adverse pregnancy outcomes

Innie Chen, M.D., M.P.H. a,b Shifana Lalani, M.Sc., M.D. a,b Ri-hua Xie, Ph.D., R.N. b,c Minxue Shen, M.D., Ph.D. b

Results: Among the 52,202 eligible mother-infant pairs, we identified 469 mothers with surgically diagnosed endometriosis from a previous hospital encounter. Compared with women without endometriosis, women with endometriosis were on average older and were more likely to be primiparous, have lower gravidity, have a history spontaneous abortion, conceive with assisted reproductive technology, and reside in areas with higher neighborhood income and lower proportion of immigrants. Women with endometriosis were found to have an elevated risk of placenta previa (relative risk [RR], 3.30; 95% confidence interval [CI], 1.65–5.40) and cesarean delivery (RR, 1.24; 95% CI, 1.10–1.40). After adjustment for potential confounding factors, women with endometriosis were found to have a significantly elevated risk of placenta previa compared with women without endometriosis (adjusted RR, 2.54; 95% CI, 1.39–4.64).

Conclusion(s): This study identifies baseline demographic differences between women with and without endometriosis and suggests that women affected by endometriosis have an independently elevated risk of placenta previa in pregnancy. (Fertil Steril® 2018;109:142–7. ©2017 by American Society for Reproductive Medicine.)
The impact of laparoscopic cystectomy on ovarian reserve in patients with unilateral and bilateral endometrioma

Abolfazl Mehdizadeh Kashi, Shahla Chaichian, Shideh Ariana, Masoumeh Fazaeli, Yousef Moradi, Mandana Rashidi, Zahra Najmi

First published: 2 December 2016  Full publication history

DOI: 10.1002/ijgo.12046  View/save citation

Conclusion

Laparoscopic cystectomy was associated with post-operative decreases in serum AMH, particularly with bilateral involvement and endometriomas at least 50 mm in diameter.
Evaluation of risk factors for the recurrence of ovarian endometriomas

Results: There were statistically significant differences in age group (35 years and >35 years), the ToF and DoP between patients with recurrence and those with no recurrence. In Cox regression analysis, age > 35 years and DoP were significant risk factors for presence of recurrence. DoP, ToF, preoperative cyst diameters in ultrasonographic examination were inversely correlated with recurrence interval. In multivariate regression analysis, the DoP was found the only significant risk factor for the recurrence interval. 1.2 mm of DoP was found as the optimum cut off value for presence of recurrence according to Youden index criteria in ROC curve analyze. The sensitivity (62.9%), specificity (75%) were obtained at the cut off value of 1.2 mm for DoP.

European Journal of Obstetrics & Gynecology and Reproductive Biology 203 (2016) 56-60
Treatment of endometrioma for improving fertility

Umberto Leone Roberti Maggiore a,b, Janesh Kumar Guota c, Simone Ferrero a,b,*

Abstract

Endometrioma is a frequent clinical manifestation of endometriosis. It is controversial how endometriomas may affect women’s fertility. This review addresses: the impact of the endometrioma per se and of its surgical treatment on ovarian physiology, on the ovarian reserve, on spontaneous conception and pregnancy outcomes, and on IVF/ICSI outcomes.

Based on current evidence, although there are plausible biological detrimental effects on the ovarian cortex surrounding the endometrioma and an impairment of the normal ovarian physiology, the clinical impact of the endometrioma per se is not significantly altered. There is a negligible detrimental effect on ovarian reserve with spontaneous ovulation not being impaired. Conversely, surgical excision of an endometrioma reduces ovarian reserve as measured by AMH levels. Studies investigating the impact of the endometrioma per se and of its surgical treatment in women requiring IVF/ICSI show similar implantation rates, clinical pregnancy rates and live birth rates between women with endometrioma and controls.
The impact of deep disease on surgical treatment of endometriosis

Marjaleena Setälä a,*, Jyrki Kössi b, Sari Silventoinen a, Juha Mäkinen c

a Department of Obstetrics and Gynecology, Päijät-Häme Central Hospital, Lahti, Finland
b Department of Surgery, Päijät-Häme Central Hospital, Lahti, Finland
c Department of Obstetrics and Gynecology, Turku University Hospital, Turku, Finland

A R T I C L E   I N F O

Article history:
Received 1 February 2011
Received in revised form 9 April 2011
Accepted 30 April 2011

A B S T R A C T

Objective: To compare the difficulty of surgery in patients with and without deeply infiltrating endometriosis.

Study design: Prospective cohort study performed in one hospital specialized in the surgical treatment of endometriosis. 193 consecutive patients undergoing excision of all visible endometriosis by laparoscopy (176 patients, 91.2%) or by laparotomy (17 patients, 8.2%). The duration of surgery, the number of operations, the number of day-surgery operations, the need to operate with a surgeon, the ability to perform complete excision during one operation, and the ability to perform operation by laparoscopy were compared in patients with and without deep lesions.

Results: The mean duration of surgery was 192 (SD 96), and 76 (SD 41) min in patients with and without deep lesions (p < 0.001). Ureterolysis (66% vs 20%, p < 0.001), division of adhesions (92% vs 69%, p < 0.001), and hysterectomy (32% vs 8%, p < 0.001), were more often performed on patients with deep lesions. 41 patients (42%) with deep lesions, and 1 patient (1%) without deep lesions were operated with a surgeon (p < 0.001). Day-surgery was less often performed on patients with deep lesions (11% vs. 45%, p < 0.001). Complete excision during one operation was performed on 95% and on 97% of the patients with and without deep lesions (p = 1.0). Complete excision was less often performed by laparoscopy in patients with deep lesions (79% vs. 95%, p < 0.001).

Conclusions: Surgical treatment of deep lesions is more demanding and time-consuming than surgical treatment of other types of endometriosis, and collaboration with a surgeon is often necessary. Complete excision during one operation is a realistic goal for endometriosis surgery, but it is significantly less often achievable by laparoscopy in patients with deep lesions than in patients without deep lesions.

© 2011 Elsevier Ireland Ltd. All rights reserved.
Conclusion: Histopathological features of ovarian endometriotic cyst may have important roles on predicting the recurrence of the endometrioma.

Predicting the recurrence risk of particular patient is very important in future management of the disease.

Knowing the recurrence risk of an endometrioma will help in deciding the optimal treatment modalities for each individual patient. High risk patients should be offered appropriate treatments according to the clinical status without delay and low risk patients should be protected from overtreatment.

European Journal of Obstetrics & Gynecology and Reproductive Biology 203 (2016) 56-60
Change in Pain and Quality of Life Among Women Enrolled in a Trial Examining the Use of Narrow Band Imaging During Laparoscopic Surgery for Suspected Endometriosis

Lisa Gallicchio, PhD*, Kathy J. Helzlsouer, MD, MHS, Kevin M. Audlin, MD, Charles Miller, MD, Ryan MacDonald, PhD, Mary Johnston, RNFA, BSN, CNOR, and Fermin F. Barreto, MD

From the Mercy Medical Center, Baltimore, Maryland (Drs. Gallicchio, Helzlsouer, Audlin, MacDonald, and Barreto), Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, Maryland (Drs. Gallicchio), Department of Epidemiology, Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland (Dr. Helzlsouer), Advocate Lutheran General Hospital, Park Ridge, Illinois (Drs. Miller and Johnston), and Department of Obstetrics and Gynecology, University of Illinois at Chicago, Chicago, Illinois (Dr. Miller).

**Conclusion:** Laparoscopic surgery for suspected endometriosis is associated with a reduction in pain and an improvement in QOL. The differences in pain reduction and QOL improvement, which are noted at 3 months and remain stable at 6 months after surgery, are similar for those undergoing surgery with WL/NBI compared with those undergoing surgery under traditional white light conditions. Journal of Minimally Invasive Gynecology (2015) 22, 1208–1214 © 2015 AAGL. All rights reserved.

**Keywords:** Endometriosis; Laparoscopy; Narrow band imaging; Pain; Quality of life
Cystectomy is the recommended treatment for ovarian endometrioma because of higher pregnancy rate and lower recurrence rate compared with drainage and ablation.

These guidelines are mainly based on 2 randomized trials comparing cystectomy with cyst ablation using bipolar current.

However, increasing evidence exists about the risk of reducing ovarian reserve because of inadvertent removal of ovarian parenchyma along with the endometrioma wall, with a potential negative impact on fertility.

In a systematic review pooling series of patients having undergone cystectomy, the probability of postoperative pregnancy averaged 50%
Comparing the Efficacy of Surgery with Medical Therapy for Management of Pain in Endometriosis: A Systematic Review and Meta-analysis

a. Shahla Chaichian, MD, Associate Professor of Obstetrics and Gynecology, Minimally Invasive Techniques Research Center of Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran
b. Ali Kabir, MD, MPH, Department of Community Medicine, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
c. Abolfazl Mehdizadehkashi, MD, Professor of Obstetrics and Gynecology, Endometriosis Research Center, Iran University of Medical Sciences,

Results: There was not statistically significant difference in pain improvement between surgical and medical treatment. Interestingly, pain relief was more distinguished during longer follow up. Both clinical trial and cross sectional studies showed higher improvement in pain than cohort studies. High quality studies and lower BMI had higher effect on pain-relief based on meta-regression analysis. All studies were heterogeneous; but, there was no publication bias.
Dyspareunia and quality of sex life after surgical excision of endometriosis: a systematic review

N. Fritzer a,b,*, A. Tammaa b, H. Salzer b, G. Hudelist b,c

a Institute of Psychology, Department of Clinical Psychology and Psychotherapy, Alps-Adria University Klagenfurt, Austria
b Department of Obstetrics and Gynecology/Stage III Center for Endometriosis and Pelvic Pain, Wilhelminospital, Vienna, Austria
c Stiftung Endometrioseforschung SEF, Austria

ABSTRACT

Dyspareunia, a common symptom of endometriosis, severely affects quality of sex life in affected women.

The objective of the present work was to review the effect of surgical resection of endometriosis on pain intensity and quality of sex life. MEDLINE and EMBASE databases were searched for papers investigating the outcome after surgical endometriosis resection on dyspareunia and quality of sex life measured via VAS/NAS respectively via standardised measuring instruments. Data did not permit a meaningful meta-analysis.

Out of 64 papers, three studies fulfilled the predefined inclusion criteria involving 128 patients with endometriosis and dyspareunia preoperatively.

All included studies showed a significant postoperative reduction ($p < 0.05$) of dyspareunia after a follow-up period of 12 up to 60 months. Sex life also improved significantly ($p < 0.05$), and predominantly evaluated parameters like quality of life and mental health, intra- and postoperative complications were described in two out of three studies.

Surgical excision of deep infiltrating endometriosis is feasible and improves dyspareunia and quality of sex life significantly.
Love is a pain? Quality of sex life after surgical resection of endometriosis: a review

N. Fritzer a,⁎, G. Hudelist b, c

ABSTRACT

Dyspareunia, a common symptom of endometriosis and may severely affect quality of sex life in affected patients. The objective of the present work was to review the effect of surgical resection of endometriosis on pain intensity and quality of sex life. MEDLINE and EMBASE databases were searched for papers investigating the outcome after surgical endometriosis resection on dyspareunia and quality of sex life measured via VAS/NAS respectively via standardized measuring instruments. However, data did not permit a meaningful meta-analysis according to current standards. However, out of 69 papers, four studies fulfilled the predefined inclusion criteria involving 321 patients with endometriosis and dyspareunia preoperatively.

All included studies showed a significant postoperative reduction of dyspareunia after a follow-up period of 10 up to 60 months. Sex life as well as predominantly evaluated parameters like quality of life and mental health improved significantly. We therefore conclude that surgical excision of endometriosis is a feasible and good treatment option for pain relief and improvement of quality of sex life in symptomatic women with endometriosis.

© 2016 Elsevier Ireland Ltd. All rights reserved.
By reviewing available literature, excisional cystectomy is the preferred technique for treatment of ovarian endometrioma. Nevertheless, alteration of ovarian reserve due to surgery-related damage and its impact on achieving pregnancy is still controversial.

**Discussion** This historical cohort study demonstrates that excisional treatment of ovarian endometriomas does not deteriorate postoperative fertility outcomes in patients with advanced endometriosis and DIE literature review indicates that the medical treatment of endometriosis is not a suitable treatment modality for improving fertility [12,20,21]. Several guidelines have recommended surgical intervention for treatment of endometriosis associated infertility but there are some controversies in selection of surgical methods and their impact on fertility.
Surgery accelerates the development of endometriosis in mice

Qi Qi Long, MD; Xishi Liu, MD, PhD; Sun-Wei Guo, PhD

BACKGROUND: Surgery is currently the mainstay treatment for solid tumors and many benign diseases, including endometriosis, and women tend to receive substantially more surgeries than men mainly because of gynecological and cosmetic surgeries. Despite its cosmetic, therapeutic, or even life-saving benefits, surgery is reported to increase the cancer risk and promotes cancer metastasis. Surgery activates adrenergic signaling, which in turn suppresses cell-mediated immunity and promotes angiogenesis and metastasis. Because immunity, angiogenesis, and invasiveness are all involved in the pathophysiology of endometriosis, it is unclear whether surgery may accelerate the development of endometriosis.

OBJECTIVE: The objective of the study was to test the hypothesis that surgery activates adrenergic signaling, increases angiogenesis, and accelerates the growth of endometriotic lesions.

STUDY DESIGN: This was a prospective, randomized experimentation. The first experiment used 42 female adult Balb/C mice, and the second used 90 female adult Balb/C mice. In experiment 1, 3 days after the induction of endometriosis, mice were randomly divided into 3 groups of approximately equal sizes, control, laparotomy, and mastectomy. In experiment 2, propranolol infusion via Alzet pumps was used to forestall the effect of sympathetic nervous system activation by surgery. In both experiments, mice were evaluated 2 weeks after surgery. Lesion size, hotplate latency, and immunohistochemistry analysis of vascular endothelial growth factor, CD31-positive microvessels, proliferating cell nuclear antigen, phosphorylated cyclic adenosine monophosphate-responsive element-binding protein, δ2-adrenergic receptor (ADRB)-2, ADRB1, ADRB3, ADRA1, and ADRA2 in ectopic implants.

RESULTS: Both mastectomy and laparotomy increased lesion weight and exacerbated hypalgesia, increased microvessel density and elevated the immunoreactivity against ADRB2, phosphorylated cyclic adenosine monophosphate-responsive element-binding protein, vascular endothelial growth factor, and proliferating cell nuclear antigen but not ADRB1, ADRB3, ADRA1, and ADRA2, suggesting activated adrenergic signaling, increased angiogenesis, and accelerated growth of endometriotic lesions. β-Blockade completely abrogated the facilitory effect of surgery, further underscoring the critical role of β-adrenergic signaling in mediating the effect of surgery.

CONCLUSION: Surgery activates adrenergic signaling, increases angiogenesis, and accelerates the growth of endometriotic lesions in the mouse, but such a facilitory effect of surgery can be completely abrogated by β-blockade. Whether surgery can promote the development of endometriosis in humans warrants further investigation.

Key words: adrenergic receptor, angiogenesis, β-blocker, endometriosis, mouse surgery.
Additionally, recovery of ovarian reserve in the suture hemostasis technique was obviously higher than those in the others, which illustrated that the residual ovarian tissues and vessels were damaged slightly by the hemostasis of suture.
Original Article

Fertility Outcomes After Ablation Using Plasma Energy Versus Cystectomy in Infertile Women With Ovarian Endometrioma: A Multicentric Comparative Study

Oana Mircea, MD, Lucian Puscasiu, MD, PhD, Benoit Resch, MD, Jerome Lucas, MD, Pierre Collinet, MD, PhD, Peter von Theobald, MD, Philippe Merviel, MD, PhD, and Horace Roman, MD, PhD*

Conclusion: Postoperative pregnancy rates were comparable after management of ovarian endometrioma by either ablation using plasma energy or cystectomy despite an overall higher rate of unfavorable fertility predictive factors in women managed by ablation. Journal of Minimally Invasive Gynecology (2016) 23, 1138–1145 © 2016 AAGL. All rights reserved.
The PlasmaJet system has been used in surgery since 2004 and provides a high-energy jet of argon plasma possessing thermal and kinetic energy that can be used to vaporize, coagulate, and cut various tissues surfaces.

The device behaves in a similar way to a CO2 laser because it desiccates and effectively vaporizes tissue by forming a series of layers of eschar without sparking and thus without disrupting the coagulum.

Despite extensive research, the best surgical approach in infertile patients with endometrioma has not yet been defined, but mostly suggest cystectomy, although in this study both methods compares.
Advanced Stage Endometriosis in Adolescents and Young Women

Noam Smorgick MD, MSc *, Sawsan As-Sanie MD, MPH, Courtney A. Marsh MD, Yolanda R. Smith MD, MS, Elisabeth H. Quint MD

Department of Obstetrics and Gynecology, University of Michigan Health System, Ann Arbor, MI

ABSTRACT

Study Objective: To describe the prevalence and characteristics of advanced stage endometriosis in adolescents and young women treated in a tertiary referral center.

Design: Retrospective cohort

Setting: Tertiary referral center.

Patients and Interventions: 86 adolescents and young women (≤22 y) who underwent surgery for endometriosis. The operative reports were reviewed for endometriosis stage, surgical findings, surgical procedures, and pathology.

Main Outcome Measures: Endometriosis stage reported according to the revised American Fertility Society classification.

Results: Early stage endometriosis (stage I or II) was found in 66 (76%) and advanced stage endometriosis (stage III or IV) in 20 (23%). The surgical findings in the 20 patients with advanced stage endometriosis included ovarian endometriomas in 14 cases, rectovaginal nodule in 1 case, and diaphragmatic and pulmonary endometriosis in 1 case. Women with advanced stage endometriosis were found to be slightly older at time of diagnosis than those with early stage disease (mean age 20.4 ± 1.4 y vs 18.7 ± 2.2 y respectively, P < .001).

Conclusion: In adolescents and young women with endometriosis, advanced stage disease is not uncommon. The main presentation of advanced stage endometriosis in this age group is ovarian endometriomas rather than extensive peritoneal or adhesive disease.

Key Words: Endometriosis, Adolescents, Endometrioma
Robotics as a new surgical minimally invasive approach to treatment of endometriosis: a systematic review

Conclusions Few studies have been published and show us that robotic endometriosis surgery is feasible even in severe endometriosis cases without conversion. There is a lack of long-term outcome papers in the literature. Randomized controlled trials are necessary. Copyright © 2011 John Wiley & Sons, Ltd.
CONCLUSIONS Women with endometrioma undergoing IVF/ICSI had similar reproductive outcomes compared with those without the disease, although their cycle cancellation rate was significantly higher. Surgical treatment of endometrioma did not alter the outcome of IVF/ICSI treatment compared with those who did not receive surgical intervention. Considering that the reduced ovarian reserve may be attributed to the presence of endometrioma per se, and the potential detrimental impact from surgical intervention, individualization of care for women with endometrioma prior to IVF/ICSI may help optimize their IVF/ICSI results.