ENDOMETRIOSIS & INFERTILITY

PANEL DISCUSSION

Experts:

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- Dr. Nidhi Jha
- Dr. Tejashri Shrotri Borkar
- Dr. Namita Jain
- Dr. Manjusha Goel
- Dr. Shalini Chawla Khanna
- Dr. Astha Gupta


Hillary Clinton
Katrina Kaif
Endometrios is full of mystery
Marilyn Monroe
Queen Victoria

Endometriosis and Infertility

- 25-30% of infertile women have endometriosis
- 30-50% of women with endometriosis are infertile
- Infertile women are 6-8 times more likely to have endometriosis than fertile women

Even today endometriosis remains an enigma full of mystery

ENDOMETRIOSIS PREVALENCE

Prevalence has been reported to be 5–10% in women of reproductive age

20–30% in women diagnosed with infertility

40–60% in women with chronic pelvic pain

Endometriosis at ALL stages has a negative impact on infertility

More severe is the disease , lesser is the fecundity

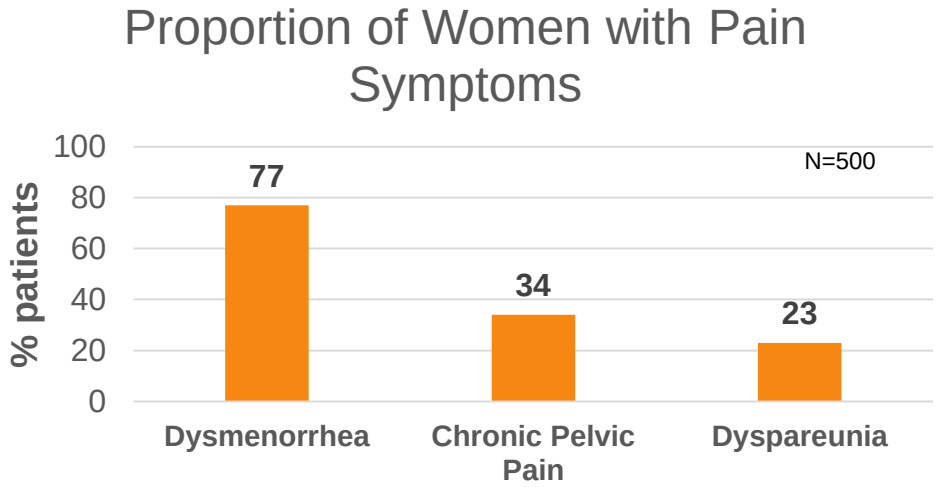
Endometriosis: Epidemiology in India

India's population size is more than **1.4 billion**

42 million affected in India

6-10% of Women of Reproductive age

Data from an Indian study in 500 cohorts of endometriosis patients (Gajbhiye R et. al.)[2]

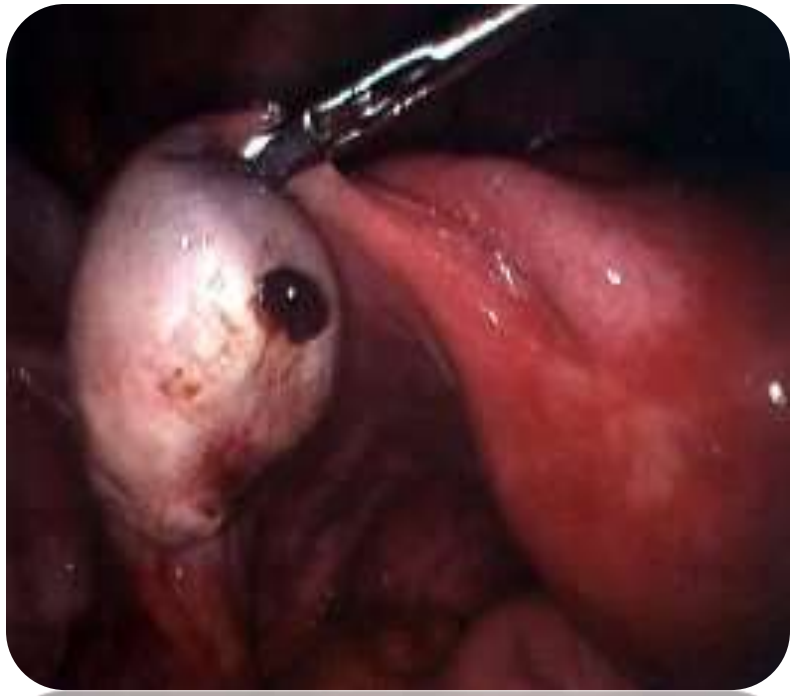


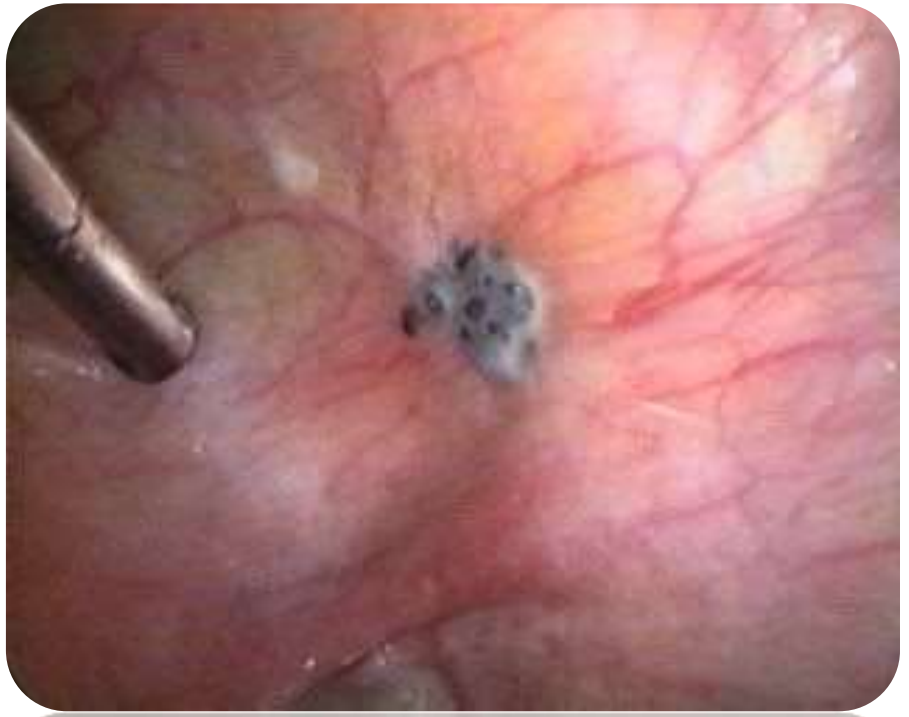
- 63% patients had moderate to severe disease
- > 75% patients had endometriosis associated pain

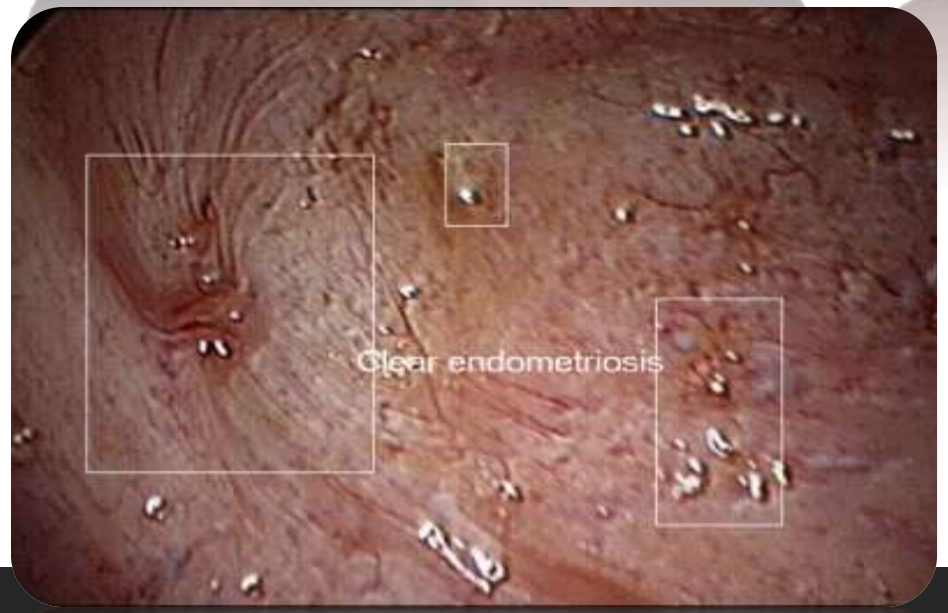
1- FOGSI 2019: Key Practice Points on Endometriosis. Accessed online from https://www.fogsi.org/wp-content/uploads/tog/KPP_Key_Practice_Points_on_Endometriosis_Final.pdf on 08 June 2022.

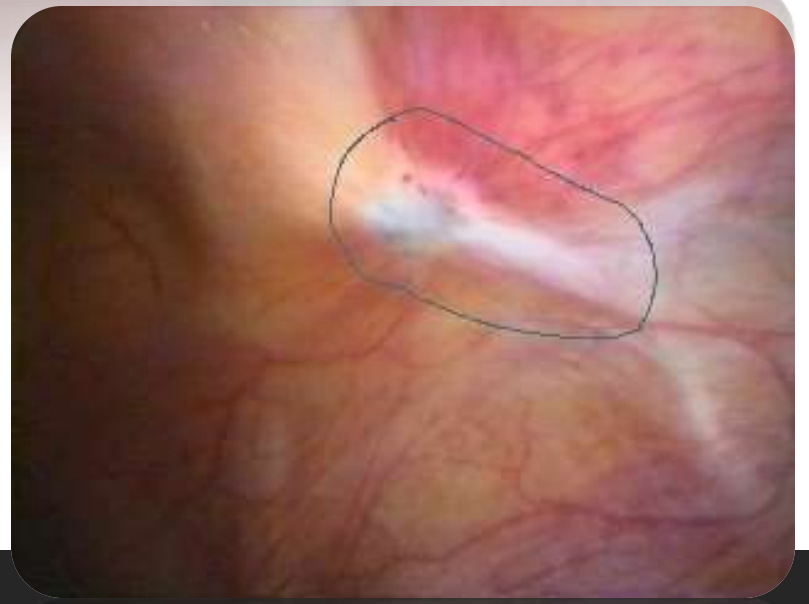
2. The Indian Practitioner 2019;68(7):34-40. Retrieved from https://articles.theindianpractitioner.com/index.php/tip/article/view/589

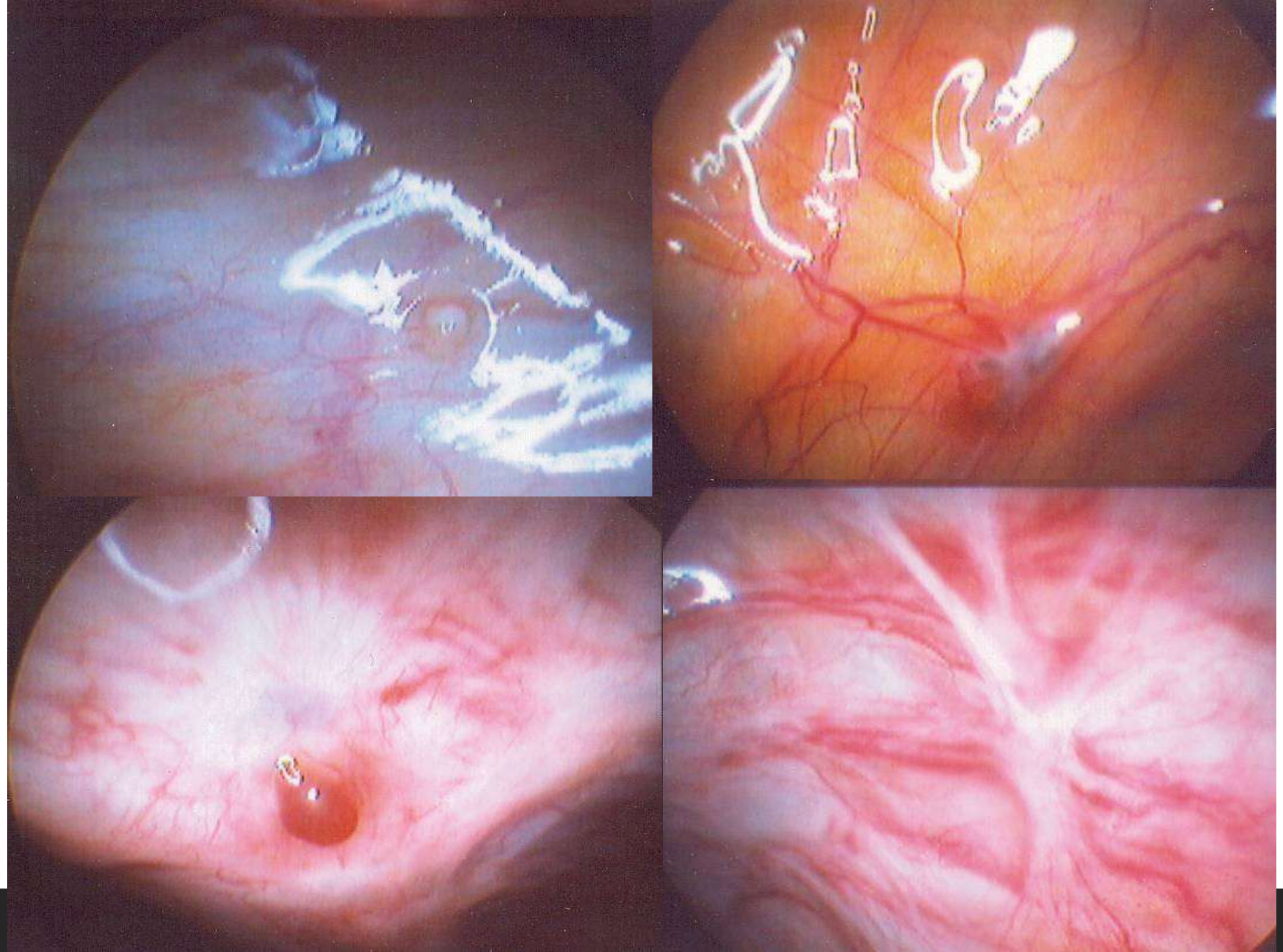
3. Am J Reprod Immunol. 2022 Jul 1;89(2):e13590. doi: 10.1111/aji.13590






Clear endometriosis





Case 1

- 30-year-old, nulliparous, ML x 3yrs, trying since then
- Long-standing H/O dysmenorrhea and dyspareunia
- AMH: 2.2, HSA: normal, HSG: B/L tubes normal

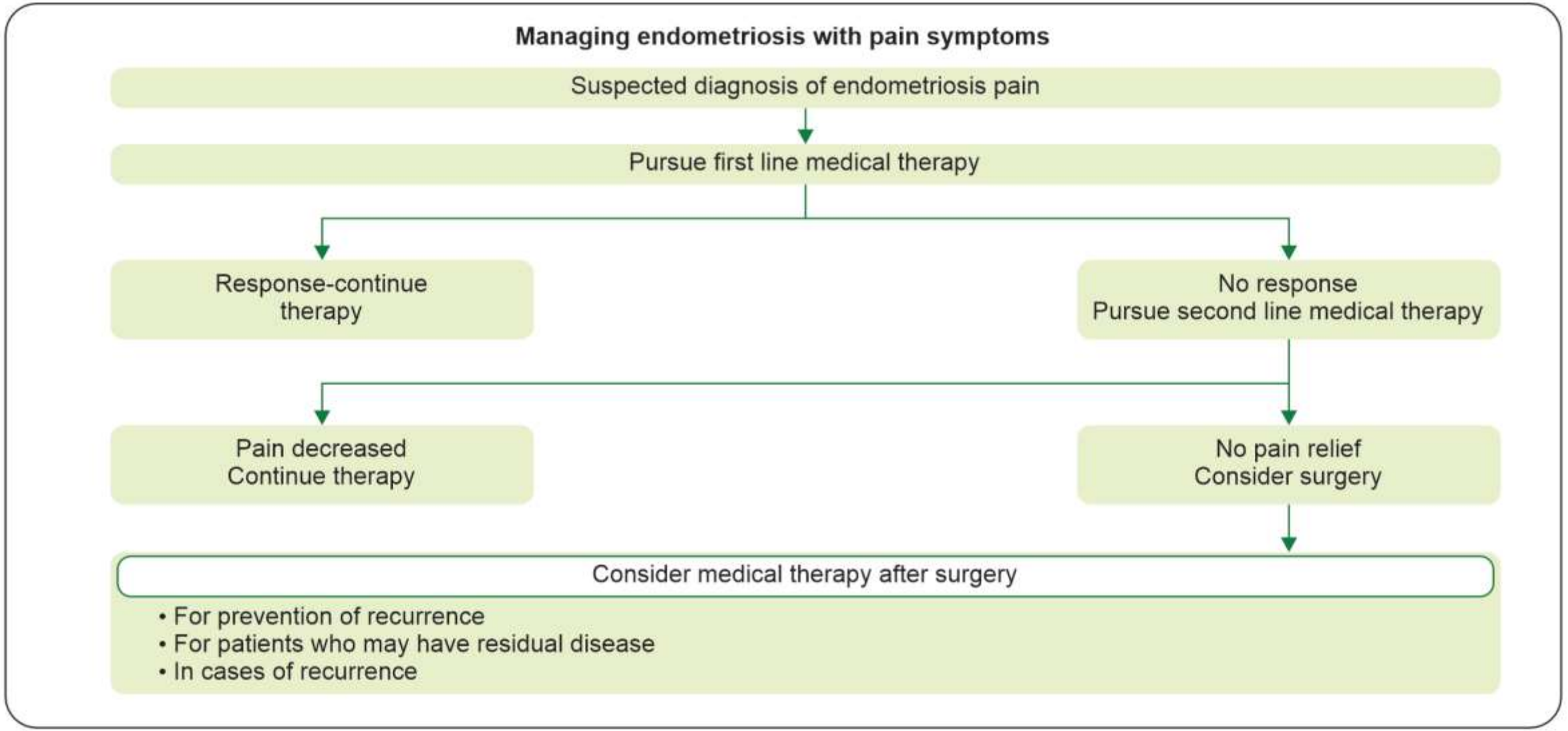
- How will you proceed?

ENDOMETRIOSIS - Dyspareunia & Infertility

Almost 1 in every 4 Indian women with endometriosis experiences Dyspareunia

A cross-sectional study reported **sexual dysfunction** in the form of **dyspareunia** in **28% of women with infertility**[3]

MEDICAL MANAGEMENT OF ENDOMETRIOSIS



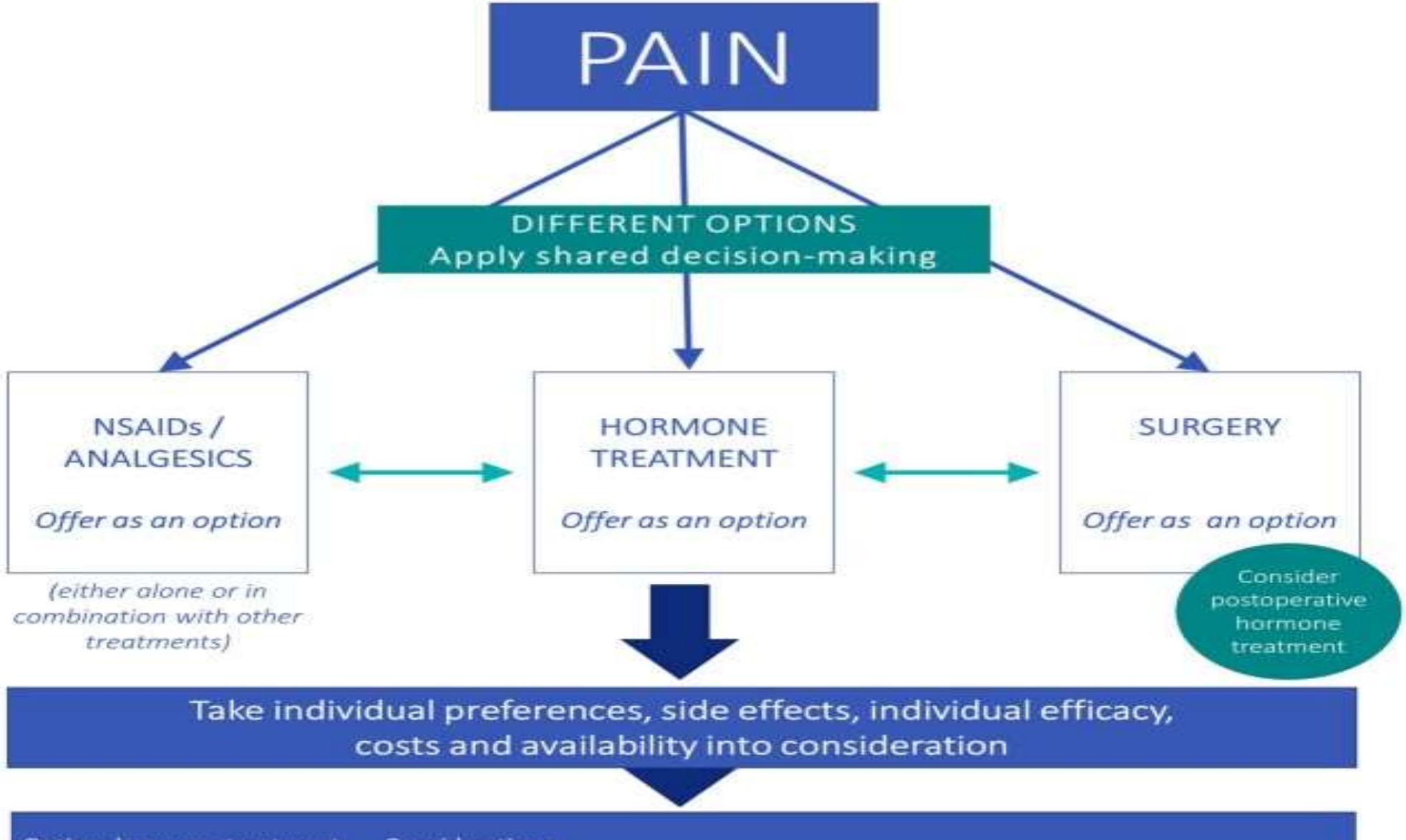
FOFSI-ICOG. GPCR Updates in Endometriosis Management. 2024

Ques. What are the factors which you consider during the management ?

Treatment depends on:

- Woman's age
- Obstetric status
- Previous ovarian surgery
- Effects of medical therapy
- Symptoms
- Stage of the disease
- Ovarian reserve
- Other infertility factors like tubal factor and male factor

TREATMENTS FOR ENDOMETRIOSIS



Ques. Would you give her medical management?

Options hormone treatment	Considerations
Combined hormonal contraceptives	• Oral, vaginal ring, or transdermal • Continuous use can be considered
Progestogens	• Oral medication (e.g., progesterone-only pill), levonorgestrel-releasing intrauterine system or etonogestrel-releasing subdermal implant • Side effect profiles need to be considered
GnRH agonists	• As second-line treatment, based on side-effect profile • Consider combined hormone add-back therapy to prevent bone loss and hypoestrogenic symptoms
GnRH antagonists	• As second-line treatment • Evidence is limited regarding dosage or duration of treatment, and the need for add-back therapy • Considerable side effects, including potential impact on bone density
Aromatase inhibitors	• As second/third line treatment • For pain, refractory to other medical or surgical treatment • Must be combined with any of the above in reproductive-age women

Ques: Would u suggest IUI for this patient?

- What do the Guidelines say about IUI?
- IUI with COS?
- Gonadotropins?

Recommendation ....for IUI

In women with grade 1 or 2 endometriosis,

Clinicians may perform IUI with controlled ovarian stimulation

- instead of expectant management or
- instead of IUI alone .

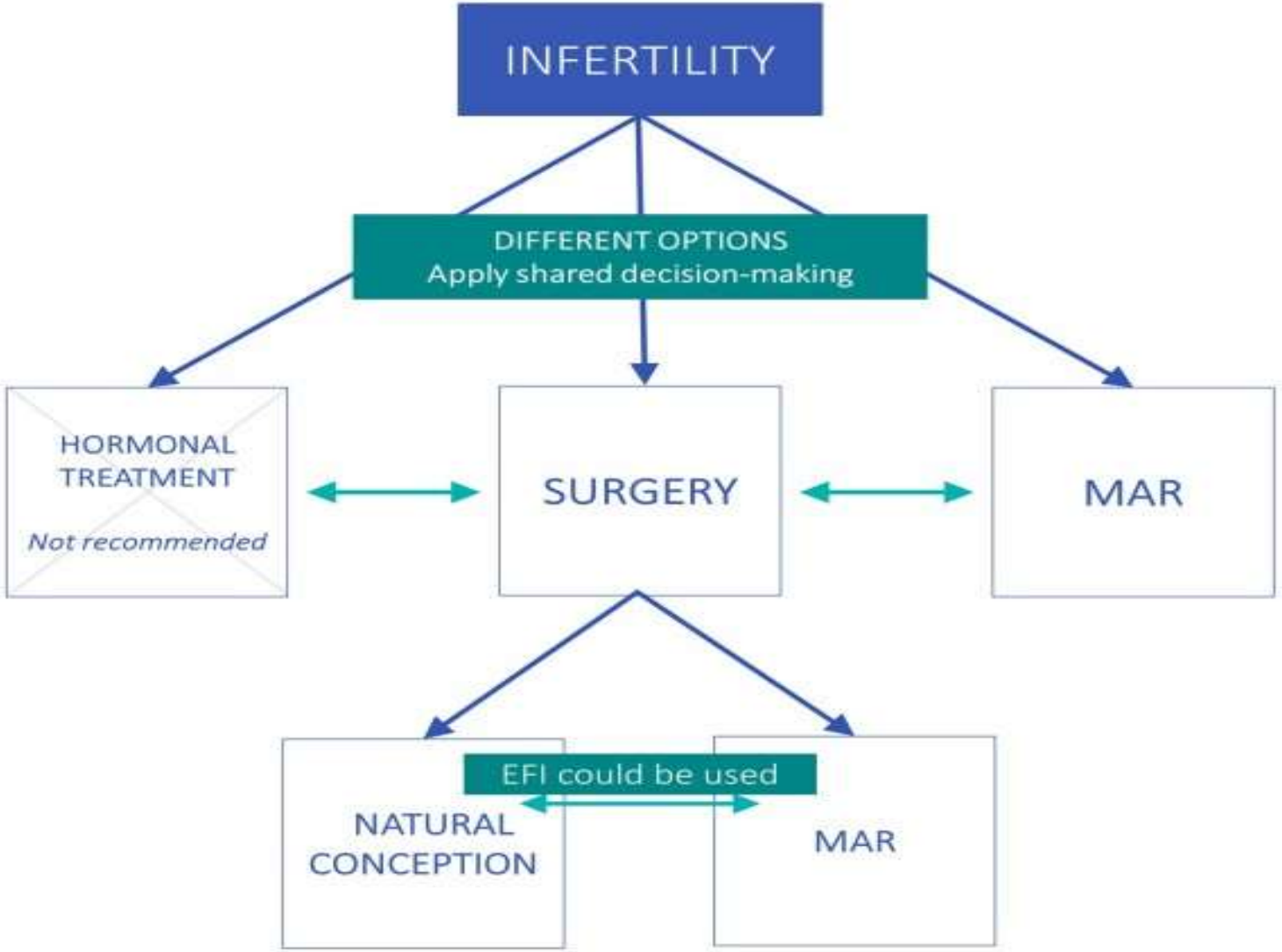
IUI IN ENDOMETRIOSIS

Super Ovulation & Intrauterine Insemination in Endometriosis		
ENDOMETRIOSIS STAGE	No. of PREGNANCIES / No. of CYCLES	CYCLE FECUNDITY (%)
MINIMAL	45/280	16
MILD	14/143	10
MODERATE	9/51	18
SEVERE	0/14	0
TOTAL	68/488	14

Live Birth Rate is 5.6 times higher in couples with minimal to mild endometriosis after COS with gonadotrophins and IUI, as compared to couples after expectant management .

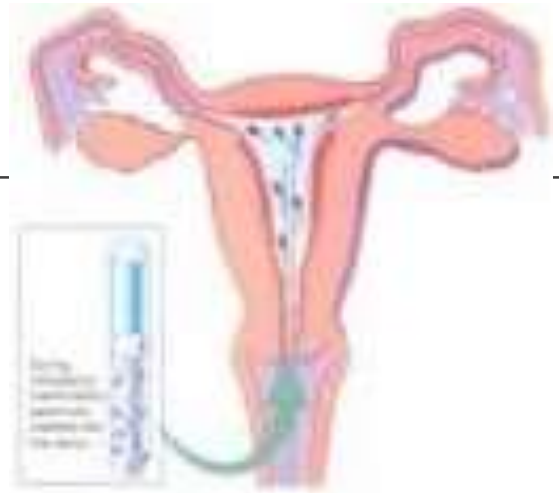
In infertile women with rASRM stage I/II endometriosis, clinicians may perform IUI with ovarian stimulation, instead of expectant management or IUI alone, as it increases pregnancy rates (Nulsen *et al.*, 1993; Tummon *et al.*, 1997; Omland *et al.*, 1998).	Weak recommendation ⨁◯◯◯
Although the value of IUI in infertile women with rASRM stage III/IV endometriosis with tubal patency is uncertain, the use of IUI with ovarian stimulation could be considered (van der Houwen *et al.*, 2014).	Weak recommendation ⨁◯◯◯

TREATMENTS FOR ENDOMETRIOSIS



Definitely refer for ART a little earlier

- IUI improves fertilitywith superovulation
- Role of unstimulated IUI is uncertain
- IVF is appropriate where IUI fails



Intrauterine Insemination

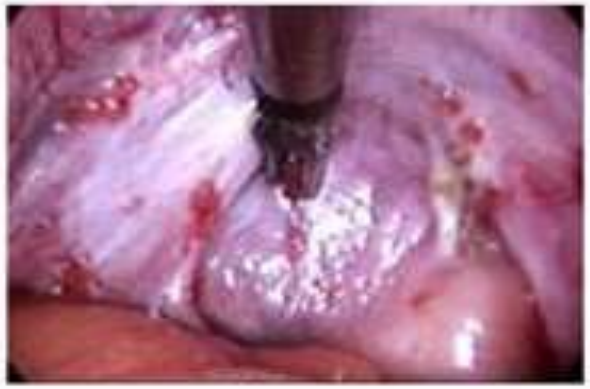
Fertility and Sterility®

No difference in cycle pregnancy rate and in cumulative live-birth rate between women with surgically treated minimal to mild endometriosis and women with unexplained infertility after controlled ovarian hyperstimulation and intrauterine insemination

- Shortly after ablation of minimal/mild endometriosis, clinical pregnancy rate per treatment cycle and cumulative birth rate were similar in endometriosis and unexplained infertility, indicating a detrimental effect of endometriosis on fertility within 6 months of surgery

There is a Big tussle between Laparoscopic surgeons and IVF specialists about management of infertility in patients of endometriosis

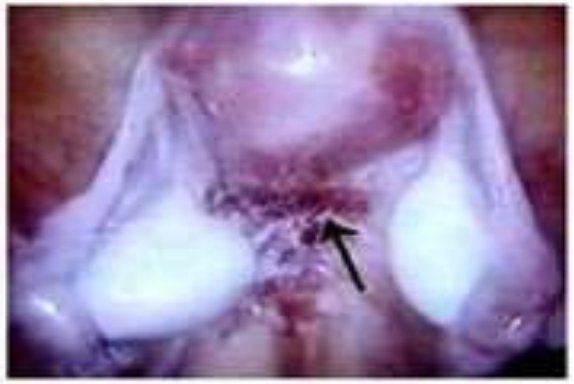
Endometriosis is a challenging disease and requires decision making at every stage by the clinician & the patient



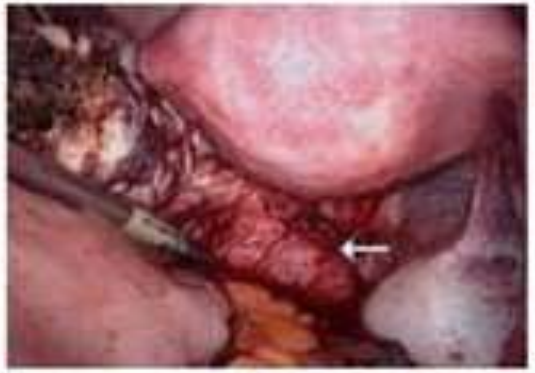
black, red, vesicular

Endometriotic cysts

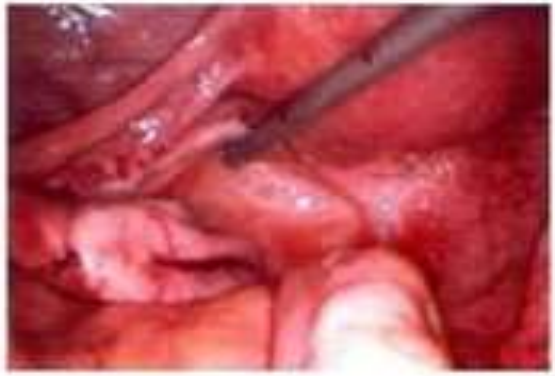
Adhesions



Pod obliteration



Bowel endometriosis



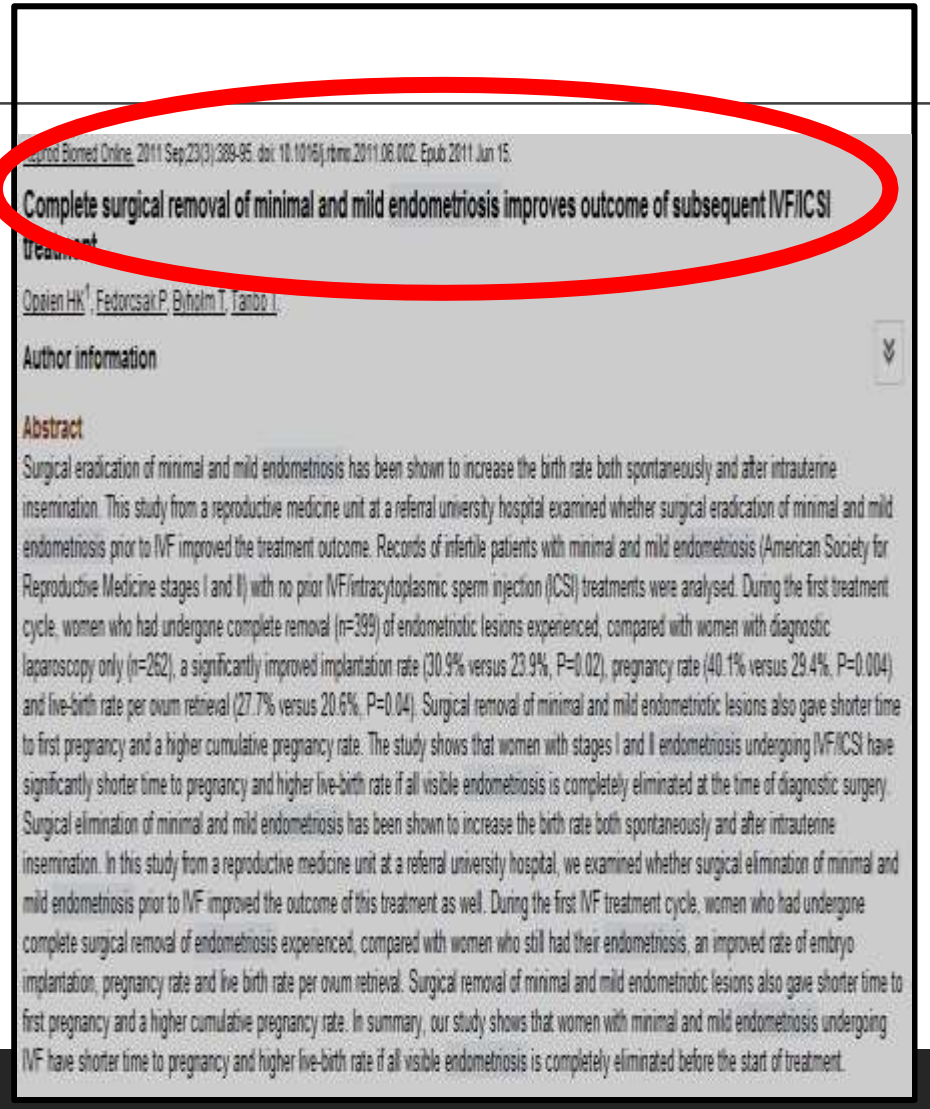
marked distorted anatomy

Ques: when would you consider her for surgery/laparoscopy?

Infertile women with grade 1 or 2 endometriosis

Evidence recommends that clinicians should perform operative laparoscopy (excision and adhesiolysis) rather than performing diagnostic laparoscopy only to increase pregnancy rates

(Nowroozi , 1987; Jacobson , 2010).



Reprod Biomed Online. 2011 Sep;23(3):389-95. doi: 10.1016/j.rbmo.2011.06.002. Epub 2011 Jun 15.

Complete surgical removal of minimal and mild endometriosis improves outcome of subsequent IVF/ICSI treatment

Opøien HK[1], Fedorcsak P, Byholm T, Tanbo T.

Author information

Abstract

Surgical eradication of minimal and mild endometriosis has been shown to increase the birth rate both spontaneously and after intrauterine insemination. This study from a reproductive medicine unit at a referral university hospital examined whether surgical eradication of minimal and mild endometriosis prior to IVF improved the treatment outcome. Records of infertile patients with minimal and mild endometriosis (American Society for Reproductive Medicine stages I and II) with no prior IVF/intracytoplasmic sperm injection (ICSI) treatments were analysed. During the first treatment cycle, women who had undergone complete removal (n=399) of endometriotic lesions experienced, compared with women with diagnostic laparoscopy only (n=262), a significantly improved implantation rate (30.9% versus 23.9%, P=0.02), pregnancy rate (40.1% versus 29.4%, P=0.004) and live-birth rate per ovum retrieval (27.7% versus 20.6%, P=0.04). Surgical removal of minimal and mild endometriotic lesions also gave shorter time to first pregnancy and a higher cumulative pregnancy rate. The study shows that women with stages I and II endometriosis undergoing IVF/ICSI have significantly shorter time to pregnancy and higher live-birth rate if all visible endometriosis is completely eliminated at the time of diagnostic surgery. Surgical elimination of minimal and mild endometriosis has been shown to increase the birth rate both spontaneously and after intrauterine insemination. In this study from a reproductive medicine unit at a referral university hospital, we examined whether surgical elimination of minimal and mild endometriosis prior to IVF improved the outcome of this treatment as well. During the first IVF treatment cycle, women who had undergone complete surgical removal of endometriosis experienced, compared with women who still had their endometriosis, an improved rate of embryo implantation, pregnancy rate and live birth rate per ovum retrieval. Surgical removal of minimal and mild endometriotic lesions also gave shorter time to first pregnancy and a higher cumulative pregnancy rate. In summary, our study shows that women with minimal and mild endometriosis undergoing IVF have shorter time to pregnancy and higher live-birth rate if all visible endometriosis is completely eliminated before the start of treatment.

Expectant management after laparoscopy is an option for younger Women.

Alternatively, COS with IUI may be offered.

Case 2

- 34-year-old, P1 L1A1
- Long-standing H/O dysmenorrhea, deep pelvic pain, and dyspareunia
- She underwent diagnostic laparoscopy and multiple endometriotic implants were observed in the left uterosacral ligament, posterior cul-de-sac, and deep peritoneal pocket, mild filmy adhesions
- B/L small endometriomas were seen, size 3x3cm

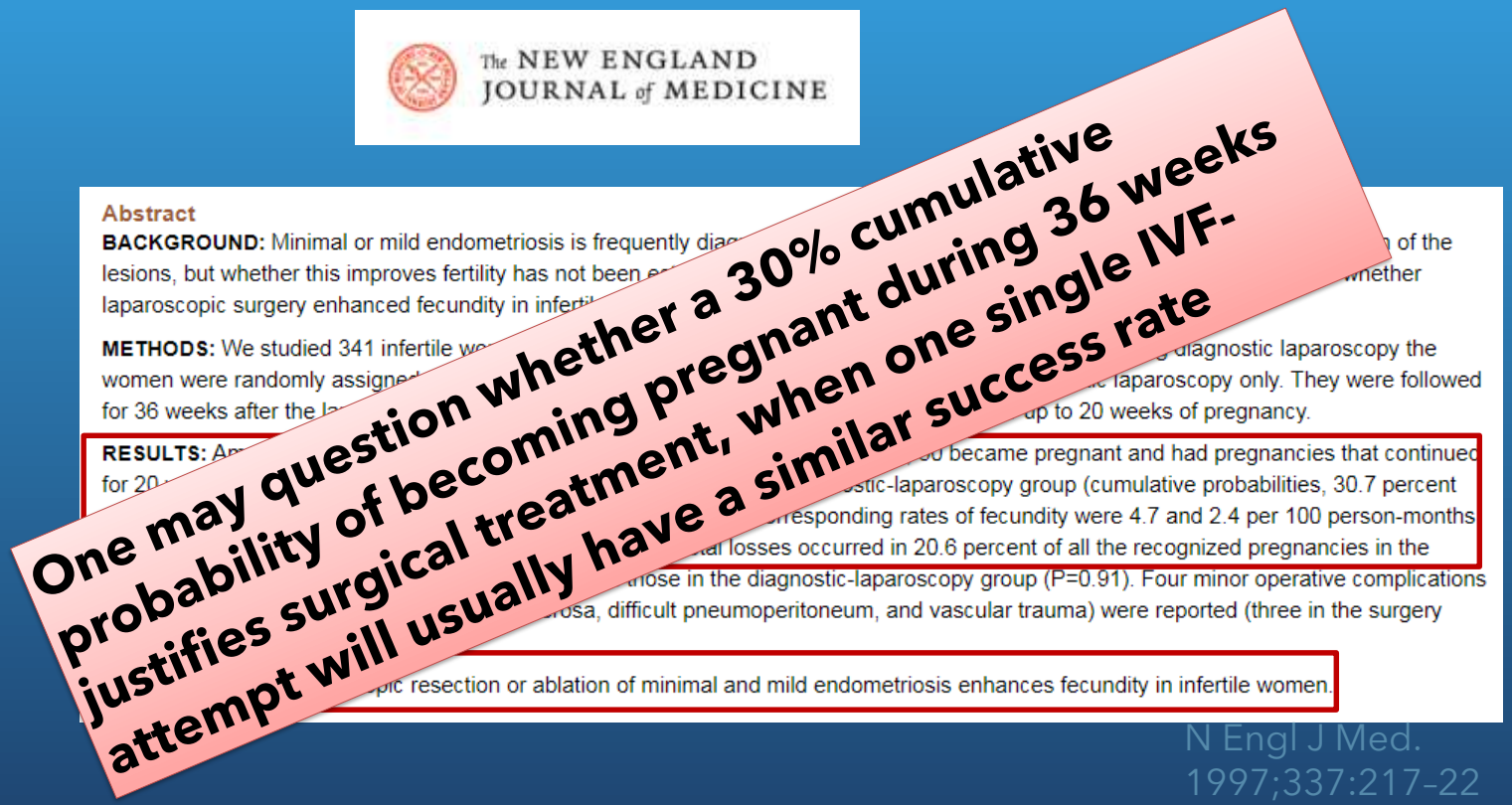
In infertile women with AFS/ASRM Stage III/IV endometriosis, clinicians can consider operative laparoscopy, instead of expectant management, to increase spontaneous pregnancy rates

(Nezhat et al., 1989; Vercellini et al., 2006).

Clinicians are not recommended to routinely perform surgery prior to ART to improve live birth rates in women with rASRM stage I/II endometriosis, as the potential benefits are unclear (Opoien *et al.*, 2011; Hamdan *et al.*, 2015b).	Strong recommendation ⊕⊕○○
Clinicians are not recommended to routinely perform surgery for ovarian endometrioma prior to ART to improve live birth rates, as the current evidence shows no benefit and surgery is likely to have a negative impact on ovarian reserve (Coccia *et al.*, 2014; Hamdan *et al.*, 2015a; Nickkho-Amiry *et al.*, 2018; Şükür *et al.*, 2021).	Strong recommendation ⊕⊕○○
Surgery for endometrioma prior to ART can be considered to improve endometriosis-associated pain or accessibility of follicles.	GPP
The decision to offer surgical excision of deep endometriosis lesions prior to ART should be guided mainly by pain symptoms and patient preference as its effectiveness on reproductive outcome is uncertain owing to lack of randomized studies (Bianchi *et al.*, 2009; Soriano *et al.*, 2016; Bendifallah *et al.*, 2017; Breteau *et al.*, 2020).	Strong recommendation ⊕○○○

Surgery

Minimal/mild endometriosis



One may question whether a 30% cumulative probability of becoming pregnant during 36 weeks justifies surgical treatment, when one single IVF-attempt will usually have a similar success rate

N Engl J Med. 1997;337:217-22

Effectiveness of Surgical techniques

Guidelines recommend that in infertile patients with chocolate cyst clinicians should perform excision of the endometrioma capsule, instead of drainage and electrocoagulation to increase spontaneous pregnancy rates .

When performing surgery in women with ovarian endometrioma, clinicians should perform cystectomy instead of drainage and coagulation, as cystectomy reduces recurrence of endometrioma and endometriosis-associated pain (Hart *et al.*, 2008; Candiani *et al.*, 2020).	Strong recommendation ⨁⨁◯◯
When performing surgery in women with ovarian endometrioma, clinicians can consider both cystectomy and CO_2 laser vaporization, as both techniques appear to have similar recurrence rates beyond the first year after surgery. Early post-surgical recurrence rates may be lower after cystectomy (Muzii *et al.*, 2005, 2016a; Mossa *et al.*, 2010; Porpora *et al.*, 2010; Carmona *et al.*, 2011; Shaltout *et al.*, 2019).	Weak recommendation ⨁◯◯◯
When performing surgery for ovarian endometrioma, specific caution should be used to minimize ovarian damage (Busacca *et al.*, 2006; Muzii *et al.*, 2015; Muzii *et al.*, 2016a; Shaltout *et al.*, 2019; Younis *et al.*, 2019).	Strong recommendation ⨁◯◯◯

Ques. why excision and not ablation ?

Cyst wall excision provids greater improvement

- Spontaneous pregnancy rates
- Dysmenorrhea and deep-dyspareunia

–Recurrence and repeat surgery

- Allows histo-pathological examination

Coagulation/ laser vaporization without excision is associated with increase risk of cyst recurrence.

Possibility of occult malignancy to be kept in mind

MOST IMPORTANT !!!!

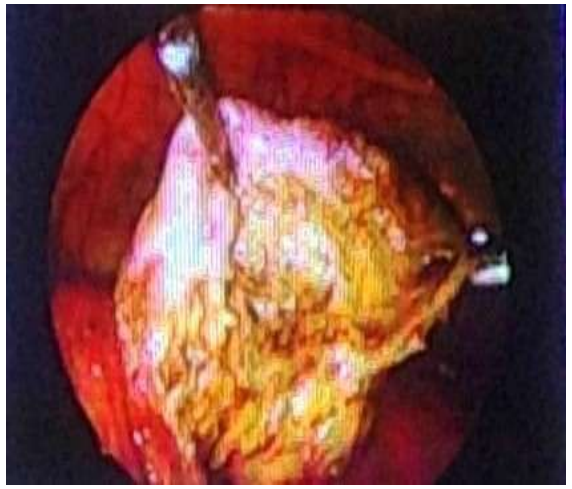
Surgery must be complete & performed by a qualified gynae surgeon with experience in dealing with endometriosis.

Counseling regarding risks of reduced ovarian function after surgery especially if she has had previous ovarian surgery.

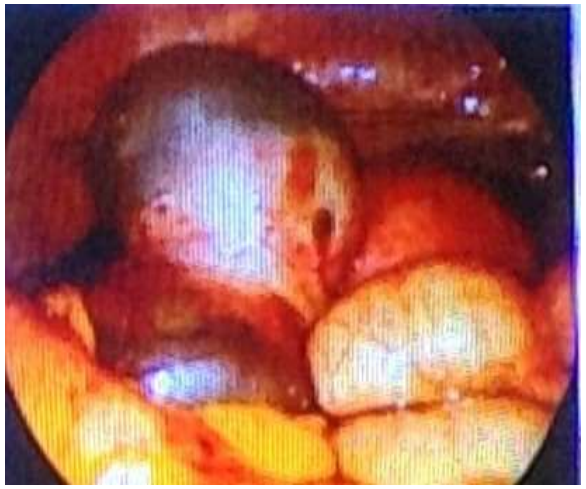
Counselling …..

Two concerns

Ovarian Reserve



Recurrence



- Decision to proceed with surgery should be considered very carefully ,especially if the women has had previous ovarian surgery

Ques. When to start attempt to conception post surgery?

In infertile women with endometriosis, clinicians should not prescribe ovarian suppression treatment to improve fertility (Hughes *et al.*, 2007).	Strong recommendation ⊕⊕○○
Women seeking pregnancy should not be prescribed postoperative hormone suppression with the sole purpose to enhance future pregnancy rates (Chen *et al.*, 2020).	Strong recommendation ⊕⊕○○
Those women who cannot attempt to or decide not to conceive immediately after surgery may be offered hormone therapy as it does not negatively impact their fertility and improves the immediate outcome of surgery for pain (Chen *et al.*, 2020).	Weak recommendation ⊕⊕○○
In infertile women with endometriosis, clinicians should not prescribe pentoxifylline, other anti-inflammatory drugs or letrozole outside ovulation-induction to improve natural pregnancy rates (Alborzi *et al.*, 2011; Lu *et al.*, 2012).	Strong recommendation ⊕○○○

Medical Therapy Post Surgery Delay further Fertility Therapy unless residual Endometriotic implants.

Royal College of Obstetricians and Gynaecologists

Setting standards to improve women's health

Green-top Guideline No. 24

October 2006

THE INVESTIGATION AND MANAGEMENT OF ENDOMETRIOSIS

This is the second edition of this guideline, which was originally published in July 2000 under the same title.

Ques. Are medical therapies effective as an adjunct to surgical therapy?

It is not recommended to prescribe preoperative hormone treatment to improve the immediate outcome of surgery for pain in women with endometriosis (Chen *et al.*, 2020).	Strong recommendation ⊕⊕○○
Women may be offered postoperative hormone treatment to improve the immediate outcome of surgery for pain in women with endometriosis if not desiring immediate pregnancy (Tanmahasamut *et al.*, 2012; Chen *et al.*, 2020).	Weak recommendation ⊕⊕○○

Case- 3

- 35-year-old, P1L1,
- Prev H/O Endometriosis, operated 3 yrs. bk
- Presents with severe dysmenorrhoea, scanty periods
- USG: B/L endometriomas, RO: 4.2x4.4cm, LO: 5x5.8cm
- AMH: 1.02
- How will you proceed?

Ques. Role for surgical treatment of endometriomas before IVF?

In infertile women with endometrioma >4 cm there is no evidence that cystectomy prior to treatment with ART improves pregnancy rates

(Donnez et al., 2001; Hart et al., 2008; Benschop et al., 2010).

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- **Pre procedure USG is important:**
  - **To Identify size of endometriotic cyst**
  - **Whether repeat surgery is required to make follicular recruitment better**
  - **Accessibility of follicles**

The old aphorism ‘when in doubt remove it” has been replaced by evidence based approach.

- ✓ Cystectomy brings quantitative damage to ovarian reserve. Not to remove endometriotic cyst prior to IVF unless it is large .

Gracia et al, human reprodcution,2009

- ✓ Though reduction in number of retrieved oocytes, similar fertilization between affected or unaffected ovaries.

Ragni et all.,2005

- ✓ With bilateral endometriomas, though clinical pregancy rate was lower,not statistically different.

Somigliana et al.,2008

Guidelines for surgery of endometriosis associated infertility

	ESHRE 2014	ASRM 2012
Stage I/II	Recommended A	Recommended
	Better than diagnostic laproscopy	Small effect
Stage III/IV	Recommended B	Recommended
	Better than expected management	May be beneficial
Post-op medical therapy	Not recommended A	Not recommended
	Not recommended prior to surgery GPP	
Prior to IVF	I/II may be considered C	No evidence of improved pregnancy rate by cystectomy
	No evidence of improvement (3 cm or larger endometrioma) A	
	Only for pain or oocyte PU GPP	
Cases with recurrence	Not described	Not recommended

A meta analysis or multiple RTs (of high quality), B meta analysis or multiple RTs (of moderate quality), C single randomized trial, large nonrandomized trial(s) or case control/cohort studies (of moderate quality), GPP (good practice point) based on experts opinion

Reprod Med Biol (2016) 15:217–225

Operative laparoscopy could be offered as a treatment option for endometriosis-associated infertility in revised American Society for Reproductive Medicine (rASRM) stage I/II endometriosis as it improves the rate of ongoing pregnancy (Jin and Ruiz Beguerie, 2014; Bafort *et al.*, 2020; Hodgson *et al.*, 2020).	Weak recommendation ⊕⊕○○
Clinicians may consider operative laparoscopy for the treatment of endometrioma-associated infertility as it may increase their chance of natural pregnancy, although no data from comparative studies exist (Dan and Limin, 2013; Alborzi *et al.*, 2019; Candiani *et al.*, 2020).	Weak recommendation ⊕○○○
Although no compelling evidence exists that operative laparoscopy for deep endometriosis improves fertility, operative laparoscopy may represent a treatment option in symptomatic patients wishing to conceive (Meuleman *et al.*, 2011; Vercellini *et al.*, 2012; Iversen *et al.*, 2017).	Weak recommendation ⊕○○○
The GDG recommends that the decision to perform surgery should be guided by the presence or absence of pain symptoms, patient age and preferences, history of previous surgery, presence of other infertility factors, ovarian reserve and the estimated endometriosis fertility index (EFI).	GPP

In vitro Fertilization

Two more recent meta-analyses on outcome of IVF in endometriosis, live birth rate was found to be similar in minimal/mild endometriosis and other indications for IVF, whereas in patients with moderate/severe endometriosis, the results were inferior, including fewer oocytes retrieved, lower implantation rate, and lower birth rate

Ques. When would you consider operating on an endometriotic cyst?

- **Laparoscopic ovarian cystectomy is considered for endometriomas ≥ 4 cm in diameter only to:**

- **Improve access to follicles**
- **Possibly improve ovarian response and prevent endometriosis progression**
- **to improve endometriosis-associated pain.**

Ques. What are the indications for IVF in a case of endometriosis?

INDICATIONS of IVF in ENDOMETRIOSIS:

IVF represents the most efficient and successful means of achieving conception.

- Tubal function is compromised
- Presence of male factor
- Age factor ≥ 38 years
- Other treatment failed
- Advanced disease (stage 3 & 4),esp. when associated with tubal occlusion

Ques. Which protocol is preferred?

Agonist or antagonist?

Why?

Agonist vs. Antagonist Protocol

- Prefer to do long agonist protocol.
- Agonist Protocols in GRADE 1 and 2 Disease Gives Same Results as in Tubal Factor.
- Antagonist May Be Used As A Reasonable Choice For Poor Responders.
- The results of IVF in advanced endometriosis is 36% reduced as compared to other indications(Impaired Fertilization And Implantation).

Ques. Which IVF protocol?

In vitro Fertilization

What stimulation protocol will you choose for IVF?

Ultra-Long Protocol: Down regulation for 3–6 months with GnRHa in women with endometriosis increases the odds of clinical pregnancy by more than 4-fold

GnRH agonist protocol

- **All stages of endometriosis undergoing GnRH agonist down-regulation followed by IVF/ICSI treatment had a similar pregnancy and live birth rate and lower miscarriage rate compared with women with tubal factor infertility.**
- **GnRH agonist also suppress a number of inflammatory cytokines (modulate NK cells of the uterus and also reduce uterine aromatase production).**

What stimulation protocol will you choose for IVF?

GnRH antagonist protocol

- They are good choice for poor responders, patients with poor ovarian reserve due to ovarian endometrioma or after its surgical excision in IVF cycles as they cause immediate suppression of LH surge.

Ques. GnRH analogs requirement? Prolonged down regulation with depot or daily injection long protocol ?

GnRHa Depot or Daily Injection ??

- Six studies, with a total of 552 women
- No statistically significant difference between the use of depot GnRH or daily GnRHa in clinical pregnancy rates per woman (or 0.94, 95% CI 0.65 to 1.37).

Cochrane Database 2007 , issue 4

- GnRHa for a period of 3–6 months prior to treatment with ART improves PR

(Sallam et al., 2006)

- Significant benefit was noted only among patients stages 3 and 4

(Rickes et al, 2002)

Ques. Would you consider Cyst aspiration pre IVF ?

- Presence of an Endometrioma does not appear to adversely affect IVF outcomes.

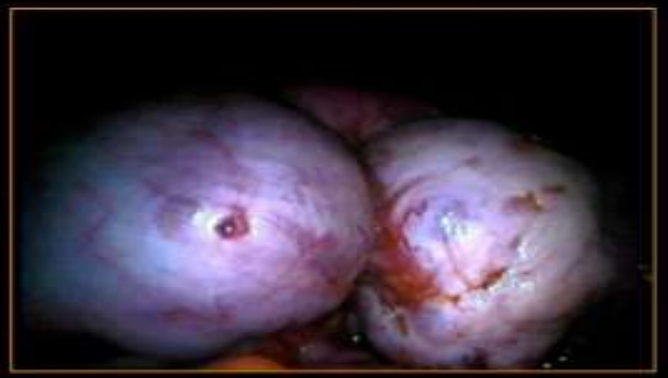
- Surgical excision of Endometriomas does not improve IVF outcomes.

(Kaponis et al, 2015; Keyhan et al, 2015)

- Although Endometriomas can be detrimental to the ovarian reserve, surgical therapy may further lower a woman's ovarian reserve.

(Keyhan et al, 2015)

Large Randomized Trials are needed to solve the issue of Surgical Removal of Endometriomas , Prior to or After IVF Cycle



Considerations – Pregnancy Success

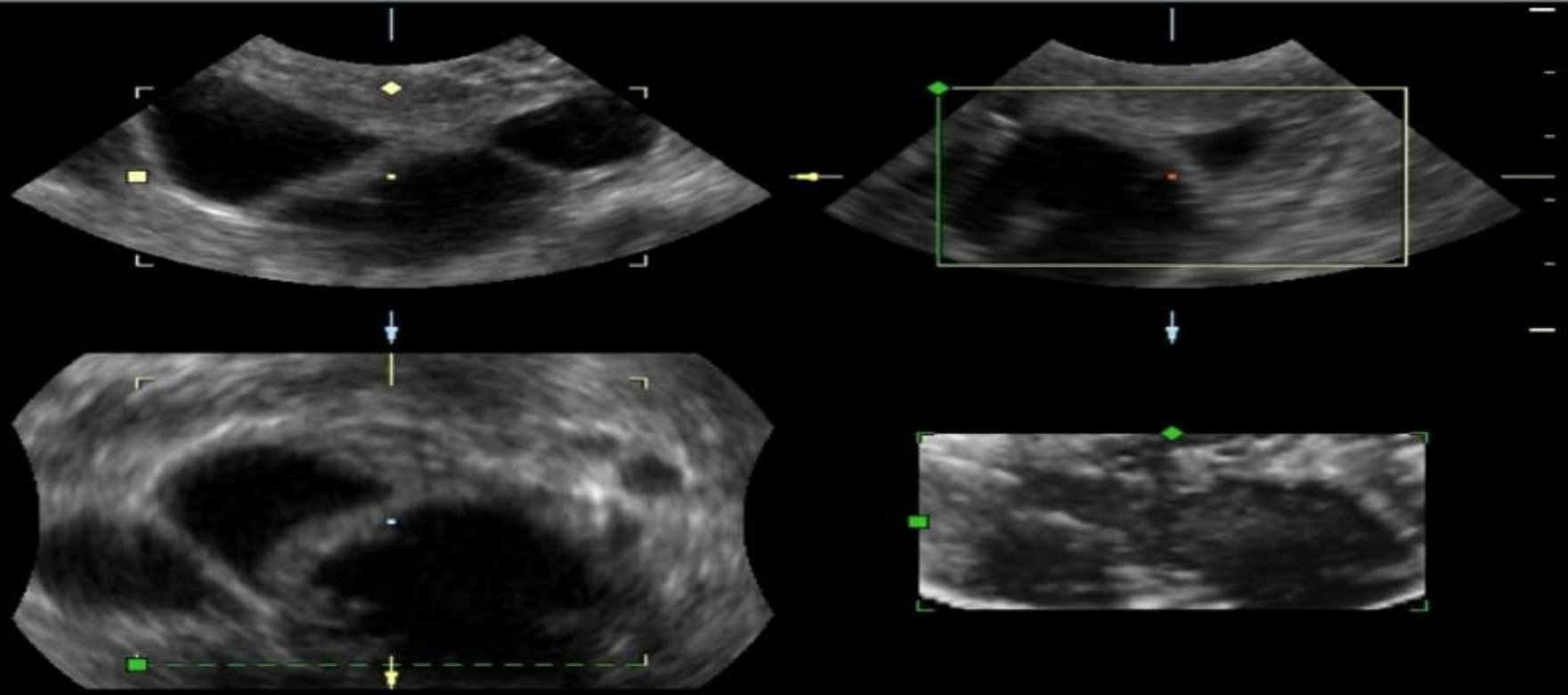
Endometriomas > 4 Cms

- **Difficulties in Oocyte Retrieval**
- **Added Risk of Cyst Puncture during Ovum Pickup**

- Risk of Rupture
- Infection
- Follicular Fluid Contamination

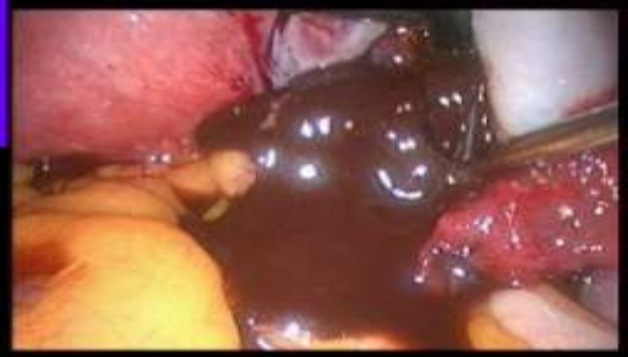
Somigliana E, Vercellini P, Vigano P, Ragni G, Corsignani P Should Endometriomas be Treated before IVF – ICSI Cycles ? Hum Reprod 2006;12:57-64

CYST ASPIRATION BEFORE STIMULATION



- NO STATISTICALLY DIFFERENT RESPONSE SEEN,WITH OR WITHOUT CYST ASPIRATION,SO WE DO NOT ASPIRATE SMALL CYSTS BEFORE STIMULATION
- IF MORE THAN 4 CM THEN ASPIRATION IS MAY BE BETTER THAN SURGERY (SPECIALLY RECURRENT CASES)

Endometrioma & IVF - ICSI

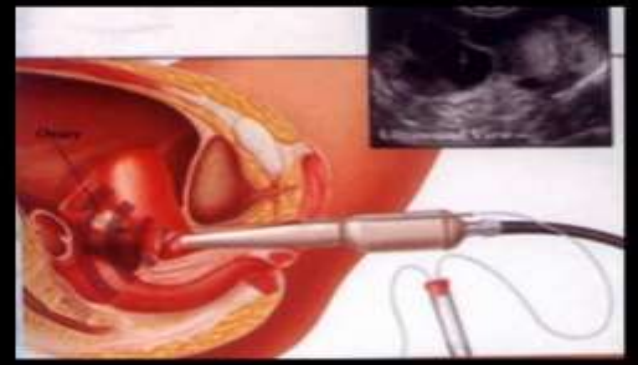


Controlled Ovarian Stimulation

Post - Surgical Patients Need More Gonadotropins
Reduced E 2 Levels

Oocyte Retrieval

- Decreased Oocyte yield due to Poor Folliculogenesis
- Decreased Ovarian Reserve in Post - Surgical Cases
- Technical Difficulty



Ques. How does endometriosis impact the oocyte quality?

ENDOMETRIOSIS ON OOCYTE QUALITY?

CAN ANYTHING BE DONE TO MINIMIZE THE DETRIMENTAL EFFECT ?

Prolonged GnRH agonist was touted to help improve clinical pregnancy rate? Ovarian/endometrial effect; unexplained

FERTILITY AND STERILITY®
VOL. 78, NO. 4, OCTOBER 2002

Effect of prolonged gonadotropin-releasing hormone agonist therapy on the outcome of in vitro fertilization–embryo transfer in patients with endometriosis

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Colorado Center for Reproductive Medicine, Englewood, Colorado; Texas Fertility Center, Austin, Texas; and Reproductive Medicine and Surgery Associates, Beverly Hills, California

Format: Abstract ▾ Send to ▾

Cochrane Database Syst Rev. 2006 Jan 25;(1):CD004635.

Long-term pituitary down-regulation before in vitro fertilization (IVF) for women with endometriosis.

Sallam HN[1], Garcia-Velasco JA, Dias S, Arici A.

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Ques. Do you always consider IVF +ICSI in Endometriotic cases?
Why?

ENDOMETRIOMA & IVF - ICSI

a) Increased gonadotropins doses needed and duration of stimulation
b) Reduced oocytes number and quality
c) Cycle cancellation higher
d) ICSI may give better results
e) Reduced fertilization rates
f) Reduced implantation rates
g) Pregnancy outcome poorer in advanced disease particularly with significant ovarian involvement (endometrioma) or prior ovarian surgery

Ques. Is endometriosis an indication for fertility preservation (ovarian tissue/oocytes)?

In case of extensive ovarian endometriosis, clinicians should discuss the pros and cons of fertility preservation with women with endometriosis. The true benefit of fertility preservation in women with endometriosis remains unknown (Cobo *et al.*, 2020; Kim *et al.*, 2020).	Strong recommendation ⨁○○○

SUMMARY

When IVF is indicated

1.Counselling:

a) May need to do multiple cycles for egg/embryo pooling + FET as number of oocytes retrieved might be reduced especially if advanced disease or multiple previous surgeries

b) Risk of cycle cancellation

c) Increased dosage of gonadotropins

d) Agonist or antagonist can be used

e) Endometriomas do not need to be removed unless indicated

2. Avoid endometriomas at OPU to reduce risk of pelvic infection/abscess

3. Consider prolonged down regulation before FET especially in advanced disease or previous failed cycle due to implantation failure

THANK YOU