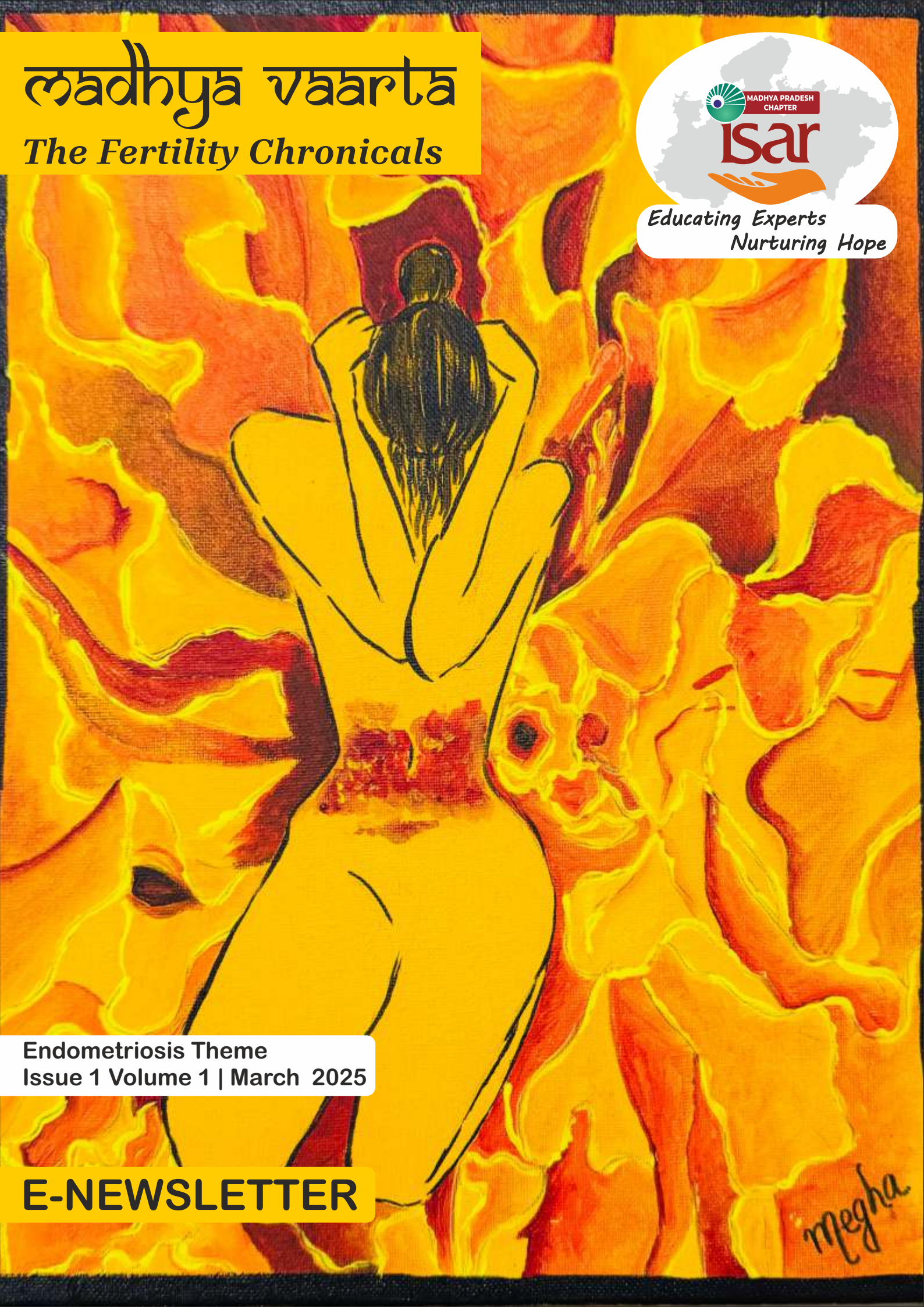
madhya vaarta

The Fertility Chronicals

MADHYA PRADESH CHAPTER
ISAR

Educating Experts
Nurturing Hope



Endometriosis Theme
Issue 1 Volume 1 | March 2025

E-NEWSLETTER

President's Message

Dr Ameet Patki
President ISAR

I am happy to note that the Mp chapter of ISAR is planning a newsletter. The month of March is dedicated to Endometriosis a disease which is perhaps as debilitating as cancer.
We are seeing a large number of women affected partly due to life style disorders and partly to our minds being aware of the problem. A decade ago the average time to diagnosis was a decade and that added to the challenges.
Better diagnostic modules, newer imaging modalities and newer and better medications makes the treatment a reality. Endometriosis and infertility, one of its presentation is a challenge and I am sure this newsletter will address all the fine nuances.
I wish the Chairperson Dr Archana Baser and editor Dr Shweta Kaul Jha and the team a great issue.

Dr Ameet Patki
President ISAR

Secretary General Message

Dr Asha Baxi
Secretary General ISAR

Dear Team MP Chapter ISAR,
At the outset I would like to congratulate team MP ISAR under leadership of Chairperson Dr Archana Baser and team for coming up with this monthly theme based E newsletter Madhyavaarta, The Fertility Chronicals.
As we highlight March as Endometriosis Awareness Month, we are reminded of the importance of raising awareness and advancing research into this often misunderstood and underdiagnosed condition. Endometriosis is a chronic debilitating disease and is closely associated with infertility. Timely recognition and diagnosis and targeted treatment has its impact on prevention as well as treatment. In the Era of assisted reproduction role of medication, surgery and IVF needs yo be clarified.
I am sure this news letter will clarify lots of dilemmas in our day to day practice.
My best wishes to team and editor Dr Shweta Kaul Jha for this and future Issues !
Together, we can make a difference.

Dr Asha Baxi
Secretary General ISAR

President Elect Message

Dr Sunita Tandulwadkar
President-Elect ISAR

Endometriosis remains one of the most enigmatic and challenging conditions in reproductive medicine, often casting its shadow from adolescence itself. Despite its prevalence, it continues to be underdiagnosed and undertreated, particularly in young girls who suffer in silence, often dismissing their pain as a 'normal' part of growing up.

This special edition of the MP - ISAR News Bulletin Madhyavaarta,The Fertility Chronicals ,launching in March-the month dedicated to Endometriosis Awareness-shines a much-needed spotlight on endometriosis in adolescents. By delving into early diagnosis, cutting-edge imaging modalities, and a spectrum of medical and surgical management strategies, this issue covered in two volumes aims to empower clinicians with the knowledge to intervene at the right time, preserving not just fertility but also quality of life.

I commend the editorial team for bringing forth this initiative and urge all readers to actively engage with the insights shared. Raising awareness today ensures a healthier tomorrow.

Dr Sunita Tandulwadkar
President-Elect, ISAR

From The Chairperson
MP ISAR Desk

Dr Archana Baser
Chairperson MP ISAR

"Education is the most powerful weapon we can use to change the World." We are going to work with this philosophy in our tenure at MP ISAR . "This is being reflected in our new logo educating experts Nurturing Hopes "

It is a matter of pride to pen down my thoughts as a Chairperson MP Chapter ISAR for the 1st volume of MP ISAR News letter focused on endometriosis .

March is Endometriosis Awareness Month, which has a mission to raise awareness of a disease that impacts millions of women worldwide. One of the biggest challenges relates to diagnosis. For many with pelvic pain, it is likely that deep infiltrating endometriosis (DIE) will be missed on an ultrasound scan. This is no longer acceptable. There are opportunities for members to attend live workshops, webinars and individualised personal trainings to learn from the experts to diagnose DIE. Nobody should have surgery for possible endometriosis if they have not undergone an expert "endometriosis" scan. To mark Endometriosis Awareness Month, MP ISAR news letter series will be devoted to endometriosis.

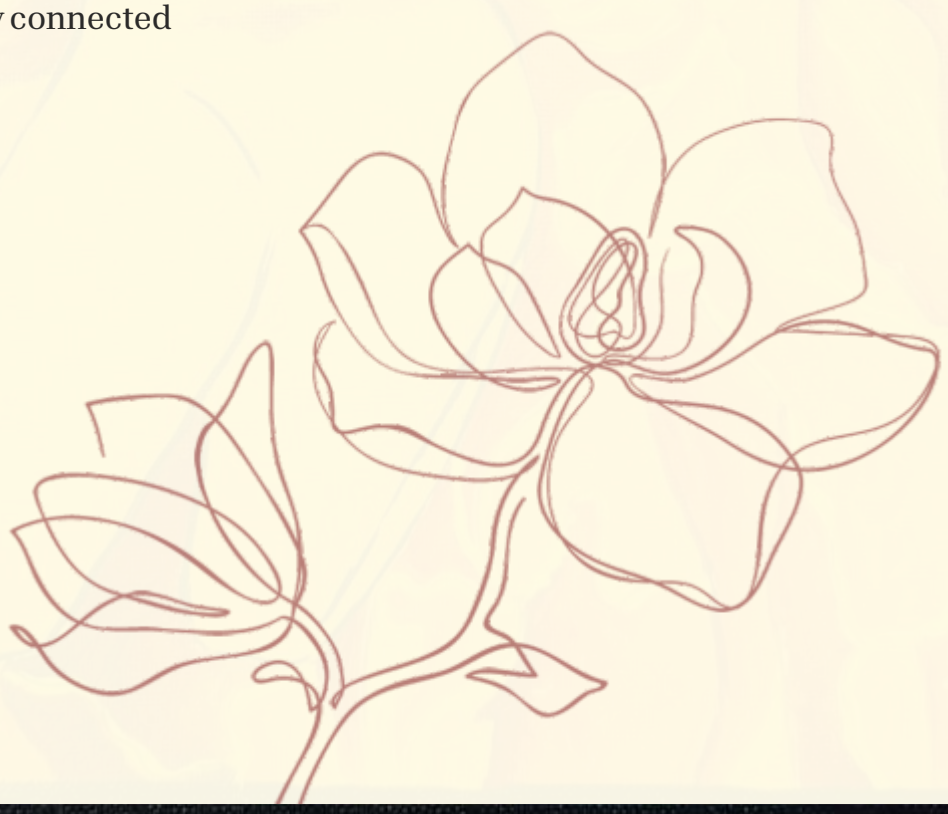
In our endeavour for our members and fraternity to stay updated and think endometriosis whenever a women comes with pelvic pain we have taken up this task to come up with reading material for ready reference in form of news letter.

My sincere thanks to Dr Shweta kaul Jha Editor for this issue to compile and connect with the office bearers of ISAR and endometriosis experts for getting their messages and articles for our News letter.

During my tenure as a chairperson we will share with you quarterly updates on our work and activities ,so that you can engage with us

Happy reading and stay connected

Dr Archana Baser
Chairperson MP ISAR



Message from Secretary's Desk

Dr Brajbala Tiwari
Secretary MP ISAR

Dear Colleagues,
Warm Greetings

It gives me immense pleasure to write for first edition of MP ISAR News letter by team 2025 .
My sincere thanks for opportunity to get new responsibility as Secretary of the Madhya Pradesh State Chapter of ISAR.
I feel privileged to carry forward the legacy of our esteemed seniors and past leaders. Their dedication and vision have laid a strong foundation, and I extend my deepest gratitude to them. It will be my endeavor to uphold these values while steering our chapter toward new advancements in assisted reproduction. "Great achievements are nurtured with the cooperation of many minds."

March marks Endometriosis Awareness Month, shedding light on a condition that affects millions of women and remains a leading cause of infertility. As ART specialists, we have a crucial role in promoting early diagnosis, evidence-based treatment, and patient education to improve outcomes. Strengthening awareness and fostering research in this area will be among our key priorities. "Raising awareness today paves the way for better health tomorrow."

Additionally, the growing impact of environmental and occupational factors on fertility demands our attention. As reproductive health specialists, we must advocate for sustainable practices that align with both patient well-being and environmental responsibility. "The future of fertility is intertwined with the future of our planet."

I look forward to working with guidance from all of you in making our chapter more stronger Together, let us advance innovation, ethical practice, and enhanced patient care. "Alone we can do so little; together we can do so much."

Warm regards,
Dr Brajbala Tiwari
Secretary MP ISAR

Editor Message

Dr Shweta Kaul Jha
Joint Librarian MP ISAR

Dear Colleagues,
Welcome to this special edition of our newsletter, where we focus on one of the most impactful and often overlooked conditions in women's health-endometriosis. With this issue, we aim to provide a comprehensive overview of the latest insights into endometriosis, from its pathological origins to cutting-edge management strategies and recent advances in the field.We have covered this vast topic in two issues which will be be released sequentially !
Endometriosis affects millions of women worldwide, often leading to chronic pain, infertility, and significant emotional and psychological distress. Despite its prevalence, the disease remains underdiagnosed, with patients often enduring years of suffering before receiving an accurate diagnosis. As gynecologists and healthcare providers, we must be vigilant in recognizing its symptoms and applying the most up-to-date diagnostic techniques.

This issue presents a range of articles designed to enrich your understanding of endometriosis. Endometriosis requires not only a comprehensive medical approach but also a compassionate and patient-centered mindset. As we continue to learn more about this condition, let's strive to improve early diagnosis, treatment options, and patient support, ensuring that those affected can lead healthier, more fulfilling lives.
I want to thank Chairperson Dr Archana Baser for giving this opportunity and platform to put my thoughts on paper .
We hope this edition provides valuable knowledge and sparks further conversations in your practice.

Warm regards,
Dr Shweta Kaul Jha
Joint Librarian MP ISAR

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Table of Contents

Adolescent Endometriosis

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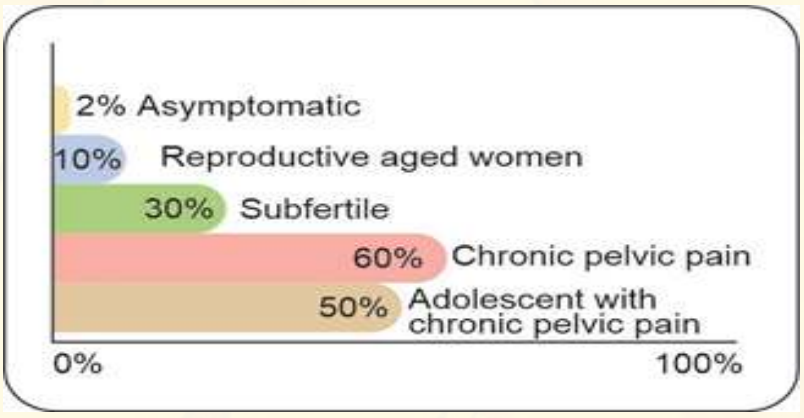
INTRODUCTION

Endometriosis is the presence of endometrial glands and stroma outside the endometrial cavity. Stroma is more than the glands in adolescent girls. Adolescent endometriosis should be considered as a variant of the adult form, which has its own pathophysiology, symptomatology, and risk factors. Neonatal uterine bleeding (NUB) has been found to be a predisposing factor. The disease is often unrecognized, ignored, and mislabeled in the adolescent population. In the future, the girl may suffer from chronic pelvic pain and infertility. Atypical presentation is more common. Adolescent endometriosis is frequently described as an enigmatic and challenging condition with so many unanswered questions and controversies related to prevalence, natural course, symptomatology, diagnosis, and treatment. If not diagnosed earlier, it can lead to progressive disease affecting the quality of life (QoL) and future fertility.

PREVALENCE AMONG TEENAGERS

Overall prevalence varies between 5% and 10% of all endometriosis patients,whereas 25–70% of girls with dysmenorrhea and atypical abdominal pain of chronic nature have endometriosis.

Fig. 1: Prevalence of endometriosis
Source: ACOG practice bulletin 2000.



TYPES OF ENDOMETRIOSIS IN ADOLESCENTS

It has the same phenotypes as adult endometriosis, and the incidence of severe endometriosis is almost found to be the same as in adults.

- Peritoneal endometriosis
- Ovarian endometrioma
- Deep endometriosis

Severe endometriosis is seen in 32% of adolescent girls.

RISK FACTORS FOR ADOLESCENT ENDOMETRIOSIS

Risk factors are:

- History of neonatal uterine bleeding (NUB)
- Early age of menarche <12 years (Nnoaham et al.)
- Poly-menorrhea, menorrhagia
- Girls with low BMI
- Family history of endometriosis (6.9 times higher).
- Severe dysmenorrhea where OCP is used as analgesic and not for contra- ception,
- School absenteeism more than 18 days in a year due to dysmenorrhea, pain interfering with daily activities, dyschezia, and deep dyspareunia in sexually active girls.

PATHOPHYSIOLOGY

Repeated tissue injury and repair (TIAR) may be a causative factor for endometriotic lesions to undergo progressive epithelial-mesenchymal transition, fibroblast-to-myofibroblast trans differentiation, and smooth muscle metaplasia leading to fibrogenesis.

CLINICAL SYMPTOMS

History shows progressive dysmenorrhea not responding to analgesics or COCs8. Atypical pain, both cyclical and acyclical, is more common.

Most common complaints observed among adolescent women were dysmenorrhea (64%), menorrhagia (44%), abnormal or irregular uterine bleeding (60%), gastrointestinal symptoms (56%), and genitourinary symptoms (52%).

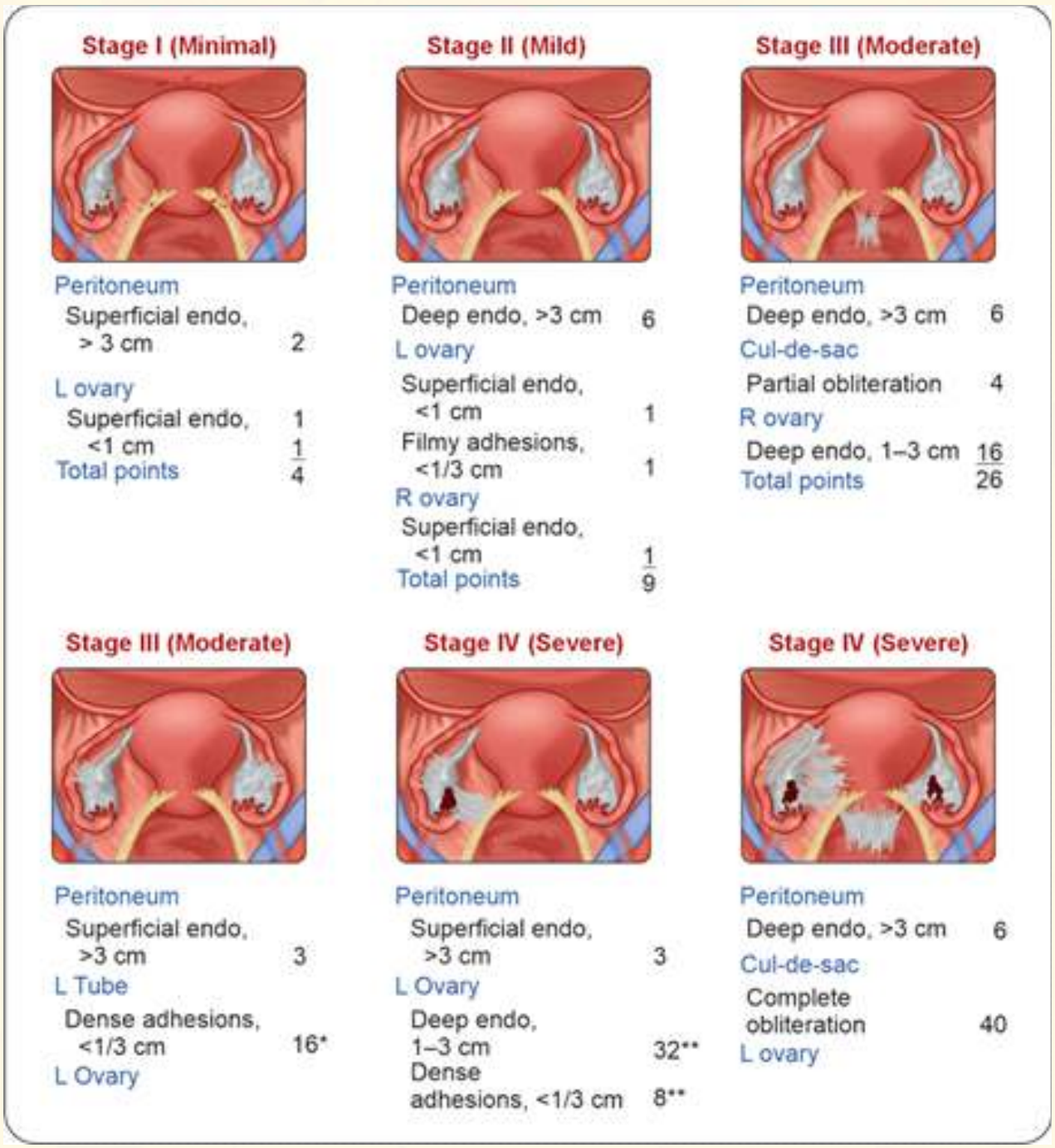
DIFFERENTIAL DIAGNOSIS

- Gastrointestinal pathologies (IBS, inflammatory bowel diseases, celiac diseases)
- Müllerian anomalies
- Recurrent infections
- Adenomyosis
- Urinary pathology

It is crucial to differentiate between gynecological and nongynecological conditions in this group of patients. In such situations, questionnaires, such as British society of gynecological endoscopy (BSGE) PELVIC PAIN QUESTION, may be helpful in the diagnosis of adolescent endometriosis.

Staging in Adolescent Endometriosis (Figure 2)Earlier, it was thought that adolescents had only early endometriosis, according to ASRM classification. Rees et al. reported 8.1% had Stages III and IV endometriosis.Study by Laufer et al. among 39 patients showed only Stages I and II disease. A study by Janssen et al. showed nearly 77% had Stages I and II endometriosis, and 23% had moderate to severe endometriosis. Similar reports were quoted by Sieberg, Vicino, and Yang et al., So, the current studies show adolescent girls are not spared from deep endometriosis (DE), especially in girls who took OCPs for pain management rather than for contraception. A study by Chapron et al. showed that young girls are likely to have DIE if they have a history of school absenteeism. It can thus be inferred that DIE has its roots in adolescence. The natural course of the disease in adolescence has been a subject of debate. According to Hans Evers, 42% had regression, 29% had progression, and the rest remained static.

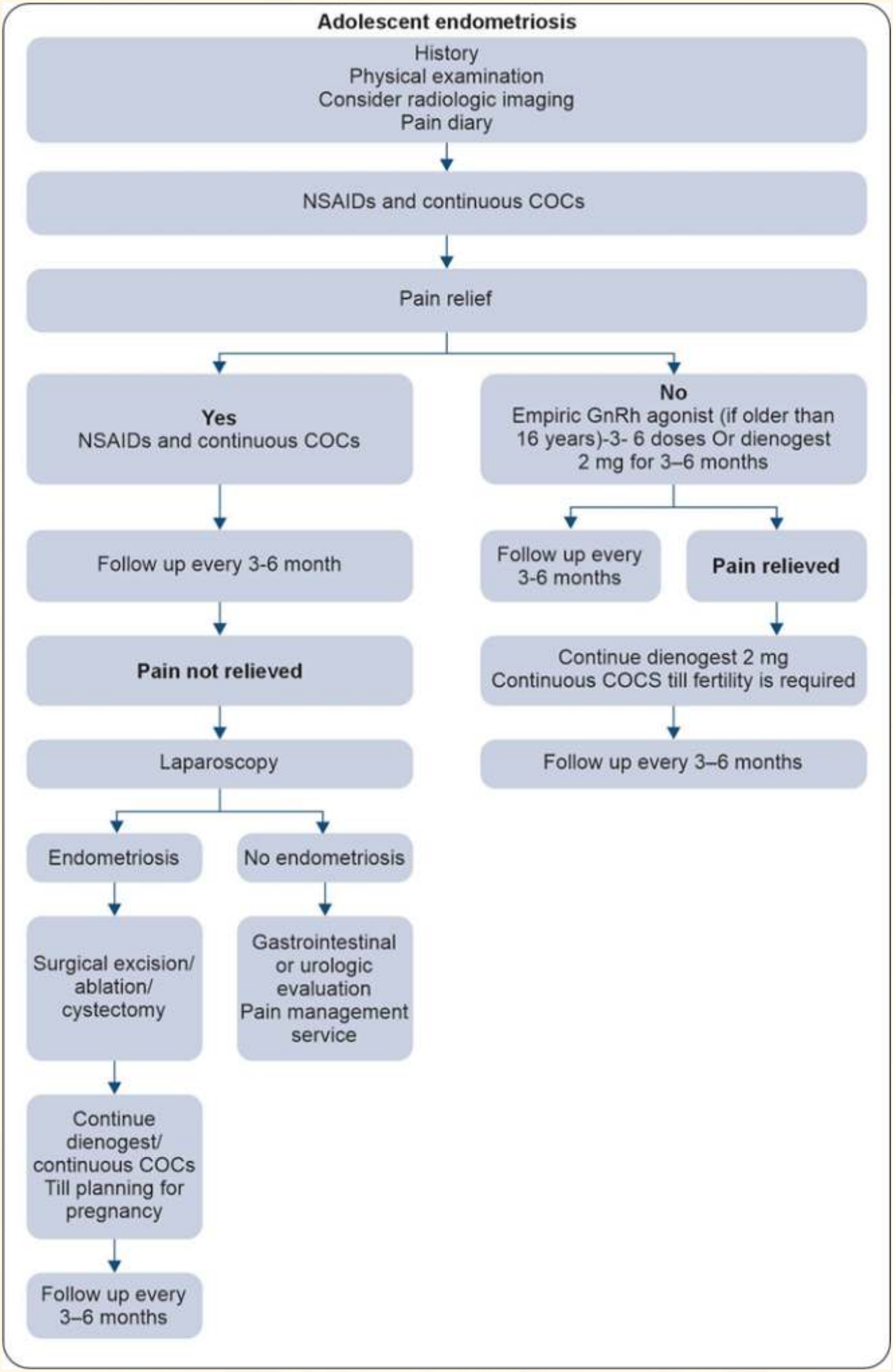
Fig. 2: Score values for Score values for mild, moderate, and severe disease. Revised ASRM classification



Key Points

- Adolescent endometriosis is very often missed or misdiagnosed.
- There is a diagnostic delay even beyond 6 years.
- Very often the, adolescent girls present with variable symptoms of dysmenorrhea, both cyclical and acyclical pain.
- Even adolescents can have advanced endometriosis.
- NUB and family history are considered to be important risk factors.
- Patients with history of repeated school absenteeism due to dysmenorrhea should be suspected of endometriosis.
- Imaging is not of much use in the early diagnosis of adolescent endometriosis, and hence, empirical treatment is to be instituted to reduce pain, prevent upstaging of disease, and preserve fertility.
- Medical management should be the first line of treatment.
- Surgery is indicated if medical management fails, and a few other indications.
- Patients should be followed up on periodically and put on medical management with relevant lifestyle modifications.

Flowchart 1: Management algorithm for adolescent



Follow-up

Long-term follow-up is needed, as the rate of recurrence of endometriosis is high. Medical adjuvant treatment is needed. Continuous OCP can be initiated at an early stage to reduce the morbidity, disease progression, infertility, and improve QoL.60 Recent evidence suggests that dienogest will be ideal for postoperative use in the long term. Adolescents must be reviewed every 6 months. Evaluation should be done if there is a recurrence of symptoms or disease recurrence. Counseling is a must for all teenagers.[71]

Conclusion

Adolescent endometriosis is important as it can be a silent, unseen, debilitating, and progressive disease that deserves the clinician's attention to reduce pain and aid in the preservation of fertility in adolescents. Adolescent endometriosis appears to be more common than thought. All stages of endometriosis are seen in adolescents. The diagnosis is very often delayed; it may be up to 6 years or even beyond. One should think about endometriosis in adolescents when they suffer from dysmenorrhea and chronic pelvic pain and do not responding to analgesics. Definitive diagnosis and treatment are done by laparoscopy. Early diagnosis and prompt surgical management are necessary to prevent recurrent surgeries, need for ART, and loss of QoL. Follow-up medical management is a must. Psychological support has to be given tender loving care (TLC). Lifestyle modification should be emphasized. Asymptomatic patients with endometriosis should have an evaluation and treatment in an attempt to avert the silent development of severe endometriosis and future infertility. There are a number of unanswered questions that need research to identify the novel treatment approaches that will be effective in long-term management of adolescent endometriosis.

Reference

1. Vercellini P, Viganò P, Somigliana E, et al. Endometriosis: pathogenesis and treatment. Nature Reviews Endocrinology. 2014;10(5):261-75.
2. Ragab A, Shams M, Badawy A, et al. Prevalence of endometriosis among adolescent school girls with severe dysmenorrhea: A cross sectional prospective study. International journal of health sciences. 2015;9(3):273.
3. Giudice LC. Advances in approaches to diagnose endometriosis. Global Reproductive Health. 2024;9(1):e0074.
4. Nanthakumar MP, Arumugam SC. Adolescent endometriosis. Int J Reprod Contracept Obstet Gynecol. 2017;6(8):3213-9.
5. Nanthakumar MP, Arumugam SC. Adolescent endometriosis. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017;6(8):3213-9.
6. Laufer MR, Sanfilippo J, Rose G. Adolescent endometriosis: diagnosis and treatment approaches. Journal of pediatric and adolescent gynecology. 2003;16(3):S3-11.
7. Audebert A, Lecointre L, Afors K, et al. Adolescent endometriosis: report of a series of 55 cases with a focus on clinical presentation and long-term issues. Journal of minimally invasive gynecology. 2015;22(5):834-40.

Pathophysiology of Endometriosis in Optimising Surgical Outcomes

Dr Maneesha Shrivastav
Minimal Access Surgeon
Gynecology

Endometriosis can be regarded as a modern age disease affecting women in the most productive years of life. 1 in 10 women may suffer endometriosis of varying degrees.
The disease has its onset as early as in adolescence and hence early recognition and optimal conservative treatment medical or surgical is essential in its management.
Alleviation of symptoms, prevention of recurrence and improving the quality of life form the base of management pyramid.

Endometriosis lesions are clones of specific cells with variable characteristics of aromatase activity and progesterone resistance. This makes endometriotic lesions specifically behave differently from implanted endometrium.
The further growth of these lesions in the peritoneal cavity occurs with neuro-angiogenesis, inflammation and immunologic changes. As bleeding occurs in these lesions eventually fibrosis happens and lesions look dry and cicatrized.

Understanding of this theory helps us in curating the surgical treatment. As the disease affects majorly young women, the surgical treatment should be optimum, neither less nor more.
We divide Endometriosis in to three sub categories:
a. Ovarian endometriosis
b. Superficial endometriosis
c. Deep Infiltrating endometriosis

Ovarian Endometriosis: Ovarian endometriomas occur in 17–44% patients with endometriosis and account for 35% of all benign ovarian cysts. There are various theories for pathogenesis. The most widely accepted is that endometrioma are cortical cyst formed by the invagination of ectopic endometrium. These are pseudocysts. Applying the clonal theory eventually all the clonal endometriotic cells even in the ovarian tissue will eventually lead into fibrosis. Endometrioma primarily also leads to decline in follicles due to inflammation and fibrosis. However once fibrosis is reached any attempts to do a cystectomy causes significant decline in AMH and follicle count as excision of such cyst walls damages the ovarian tissue due to loss of planes & dense adherence (Figure 1). Whereas an active endometrioma or recent onset endometriotic cyst wall is excised with minimum damage to healthy ovarian tissue. This knowledge can be used to leave the cyst wall and only perform drainage of chocolate fluid. This leads to lesser loss of follicles, prevents follicle entrapment due to the simultaneous anatomic correction performed and decreases infections also in process of ART. However all cysts over 5 cm should undergo a careful cyst wall excision in right planes (Figure 2) to avoid ongoing inflammation causing follicle destruction and preservation of ovarian reserve. A simultaneous correction of tubo-ovarian relationship should always be performed wherever feasible.

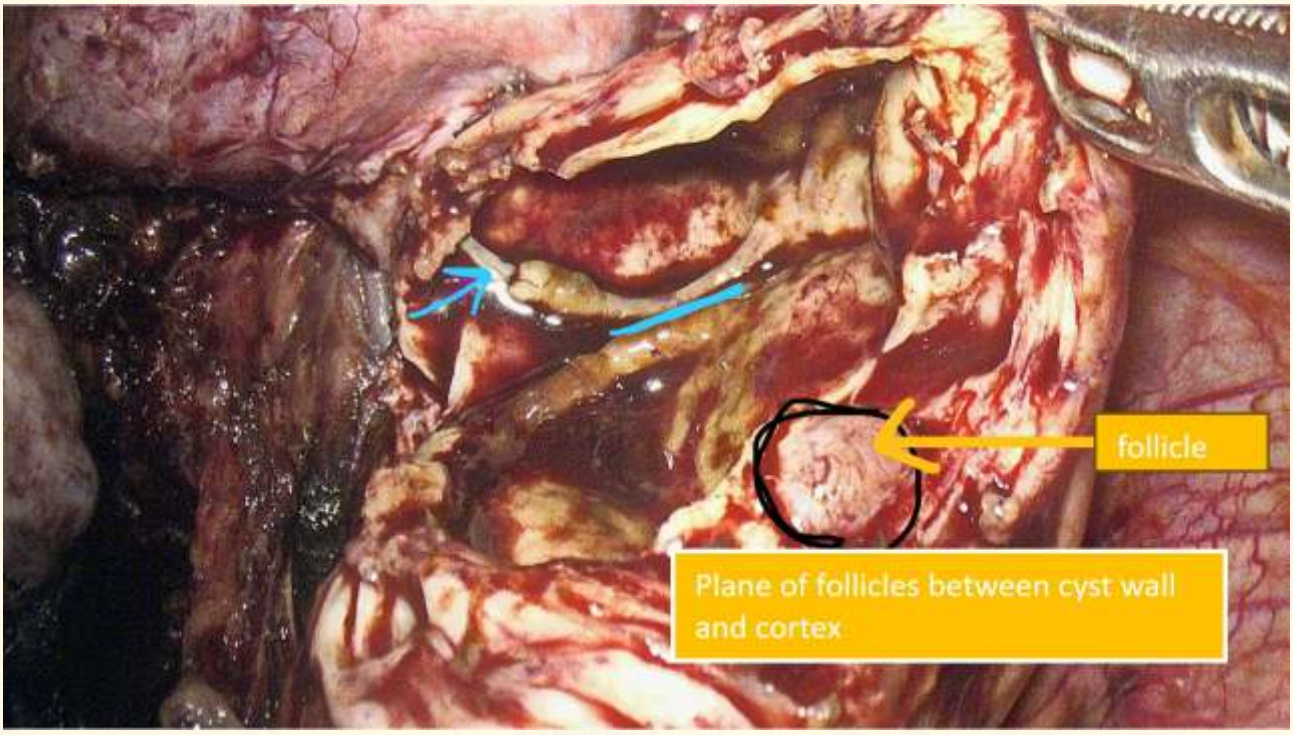


Figure 1:multiloculated ovarian endometrioma, line demonstrating the right plane of excision. Each cyst wall to be separately excised

Superficial Endometriosis: Isolated superficial peritoneal endometriosis is independently associated with infertility and moderate to severe painful symptoms. The origin an pathogenesis of superficial lesions is different from deep infiltrating lesions. The superficial lesions do not go deeper than 3-5mm and follow the classic progression from red blue and fibrotic white puckering of peritoneal lesions. All red blue, brown superficial peritoneal lesions need wide excision with margin of 2 mm-2.8 mm as this is the extent of neuroinflammation. However once old puckered peritoneum or fibrotic only the fibrosis may be excised as the inflammation is settled by this pathological stage.

Deep Infiltrating Endometriosis: All deep infiltrating lesions require surgical excision. Deep infiltrating endometriosis presents late and is embryological in origin where there is aberration in cell migration in retroperitoneum. Deep endometriosis involves most commonly rectovaginal septum & parametrium compromising on the anatomy of lower third of rectum and ureter along with pelvic splanchnic nerves (Figure 2,3). It has always been a debate between conservative excision and radical excision to prevent recurrences. The modern understanding of pathophysiology says that fibrosis is the part of body and is no longer active hence unless entrapping a nerve or occluding in organ can be left without having any residual or risk of recurrent disease. Also this approach reduces the morbidity of radical excision. For example it is always possible to excise rectal lesions without resections, only if occlusions is > 50% of lumen a resection is needed. As morbidity of low anterior resections is up to 30 percent or more incidence of faecal urgency and sexual dysfunctions. Hence understanding of pathophysiology enables a good surgical outcome with optimum symptomatic relief.

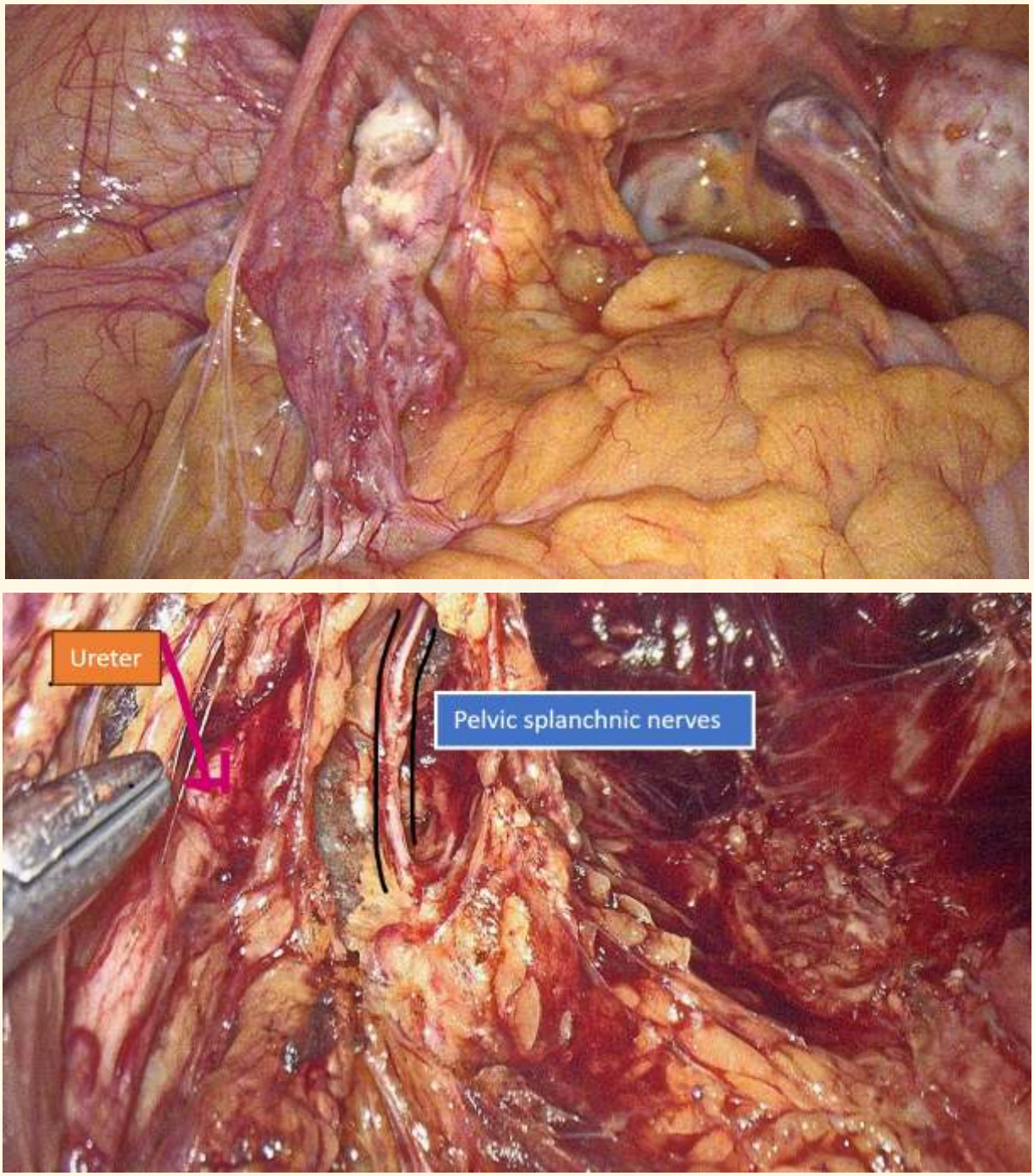


Figure 2 ,3: Deep endometriosis involving pelvic nerves with clearance of endometriosis

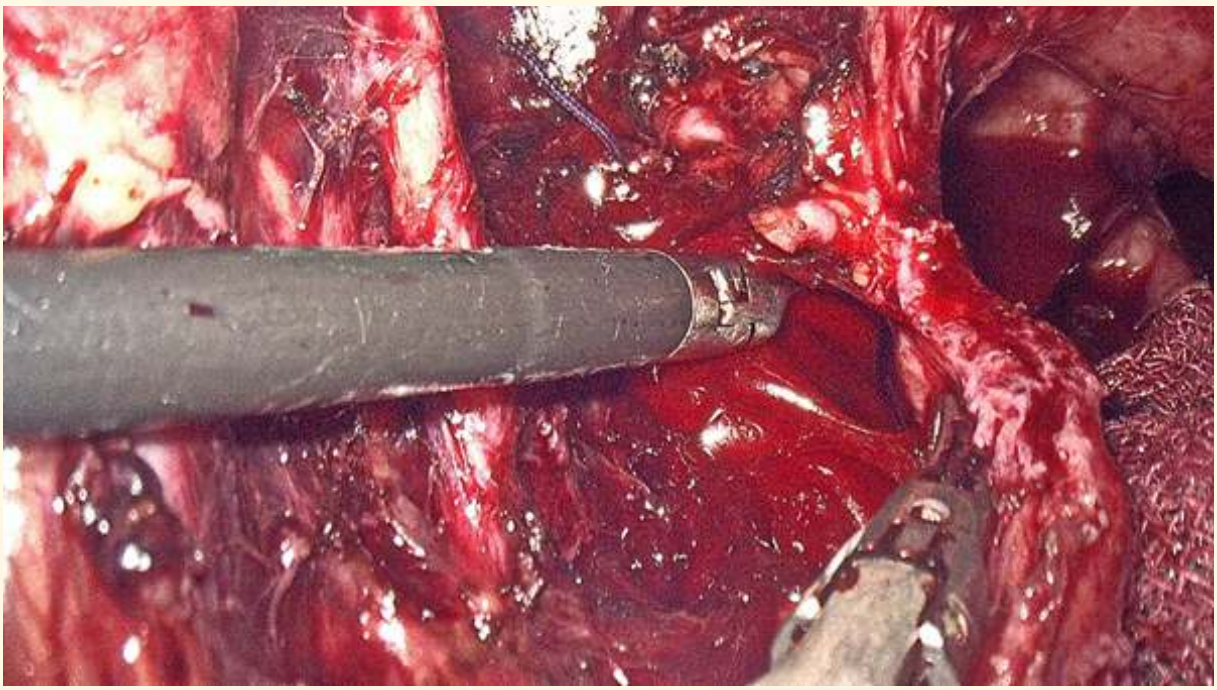


Figure 2: Extensive fibrosis in left parametrium causing complete encasement of ureter leading to excision of the segment and ureteric reimplantation.

However in parametrial endometriosis which involves ureter and nerves complete excision of all the fibrotic lesions is desirable because of lumen occlusion. Also important here is to assess the vascularity to peri-fibrotic area. If vascularity is compromised then a reimplantation of ureter, neo-cystotomy is required. (Figure 2).

KEY POINTS:

1. Endometriotic lesions are a group of clonal cells with variable aromatase activity & progesterone resistance
2. The lesions have a natural history and self-limiting eventually culminating into fibrosis
3. Fibrosis does not need excision unless occluding lumen or infiltrating nerves.
4. Almost all rectal lesions can be managed without resection unless occlusive
5. Assessment of the tissue vascularity is pivotal in any anastomosis/ re implantation or repair in endometriosis for successful healing.
6. Endometriosis radical excision surgery is a delicate balance between eradicating disease , preventing recurrence & not adding any long term residual morbidity of procedure.
7. Modern understanding of pathophysiology helps optimising this.

References:

1. Ovarian endometrioma – a possible finding in adolescent girls and young women: a mini-review . Krzysztof Gałczyński Maciej Jóźwik,Dorota Lewkowicz Anna Semczuk-Sikoraand Andrzej Semczuk Gałczyński et al. Journal of Ovarian Research (2019)
2. Pathogenesis based diagnosis and treatment of endometriosis. Arnaud Watteiz et al. Frontiers in Endocrinology. Review Nov 2021

Grey Areas In Endometriosis Scan

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Introduction - NEARLY 10% OF WOMEN OF REPRODUCTIVE AGE GROUP SUFFER FROM ENDOMETRIOSIS. Endometriosis is a Costly chronic disease .
One in 10 women have endometriosis
It takes an average of seven years for most women to get diagnosed
Endometriosis can often be confused with or misdiagnosed as IBS
Endometriosis is the second most common gynaecological condition (after fibroids)

Points covered IN THIS ARTICLE -
Definition of endometriosis and adenomyosis
• Ultrasound appearances of endometriosis within the pelvis
• How to assess for pelvic mobility
• What to look for during an 'endometriosis' scan

Definition - The presence of endometrial – like tissue (glands and stroma) outside the uterus which induces a chronic inflammatory reaction
Endometriosis typically manifests itself in three ways
Endometriomas, adhesions and endometriotic nodules (deep or superficial
Diagnostic modalities for endometriosis are Clinical suspicion
Ultrasound ,contrast Ultrasound ,MRI / CT
Endoscopy , laparoscopy , sigmoidoscopy
Biochemical screening
Histopathology definitive diagnosis

Ultrasound is Widely available, cost effective and can be learnt by dedication
Ultrasound scan can pick up Ovarian - Lesions – Endometrioma and DIE -deep invasive endometriosis
Scanning Technique -
Scanning should ideally begin with survey of whole abdomen with 3.5 MHz probe
Follow it with TVS ask partially full bladder so bladder wall can be evaluated
Grey scale imaging can be improved by using HI ,CRI with this even subtle textural changes associated with endometriosis can be appreciated
3D volume ultrasound may be used to assess the multi organ involvement and adhesions .
In this write up we will be describing how to identify structures involved by endometriosis and showing corresponding laparoscopic images to improve correlation.These can then be staged by any classification system you are comfortable with.So let us go step by step.
Structures involved in endometriosis are Ovaries Uterosacral ligaments and POD, Bowel, Rectum, bladder, uterus

Ovarian endometrioma -

Endometriomas are probably the most commonly diagnosed form of endometriosis because of relative ease and accuracy of ultrasound diagnosis

Although their exact prevalence and incidence are not known they have been reported in 17-44% of women with endometriosis

The presence of ovarian endometriosis has been reported as a marker for Deep Endometriosis and Multifocal deep vaginal intestinal and ureteric lesion

Endometriomas are common, can mimic other adnexal masses

- Endometriomas result from cyclic haemorrhage
- The walls are thick and fibrotic
- The contents consist of thick, dark degenerate blood product also known as a 'chocolate cyst'
- If unilateral more likely to occur within the left ovary
- Are bilateral in approximately 50% of cases
- Usually regress substantially after menopause

Typical features of endometrioma -

Fluid level, the hyperechoic layer will be the dependent portion of the cyst

- Can have calcified foci within the cyst (acoustic shadowing)
- Typically, avascular or low flow
- 'Acoustic streaming' can help discriminate from mucinous/ serous cystadenomas

Picture 1 – ENDOMETRIOMA

Picture 2 corrosponding laparoscopic picture

Differential diagnosis of endometrioma – picture 3,4,5, 6

Dermoid Cyst

Haemorrhagic Cyst of Ovary

Serous cyst adenoma

Pseudocystademoma

Single best discriminator between endometrioma and other cysts is ground glass echogenicity of cyst fluid – sensitivity 73%, specificity 94%

- Premenopausal status
- One to four locules
- Absence of papillations with detectable blood flow

Ovarian endometriomas are the easiest to diagnose however by this stage the endometriosis has already reached stage 4

Women with ovarian endometriomas have more pelvic and intestinal areas invaded by endometriosis, compared to women without ovarian endometriomas

So it is important to identify other structures involved

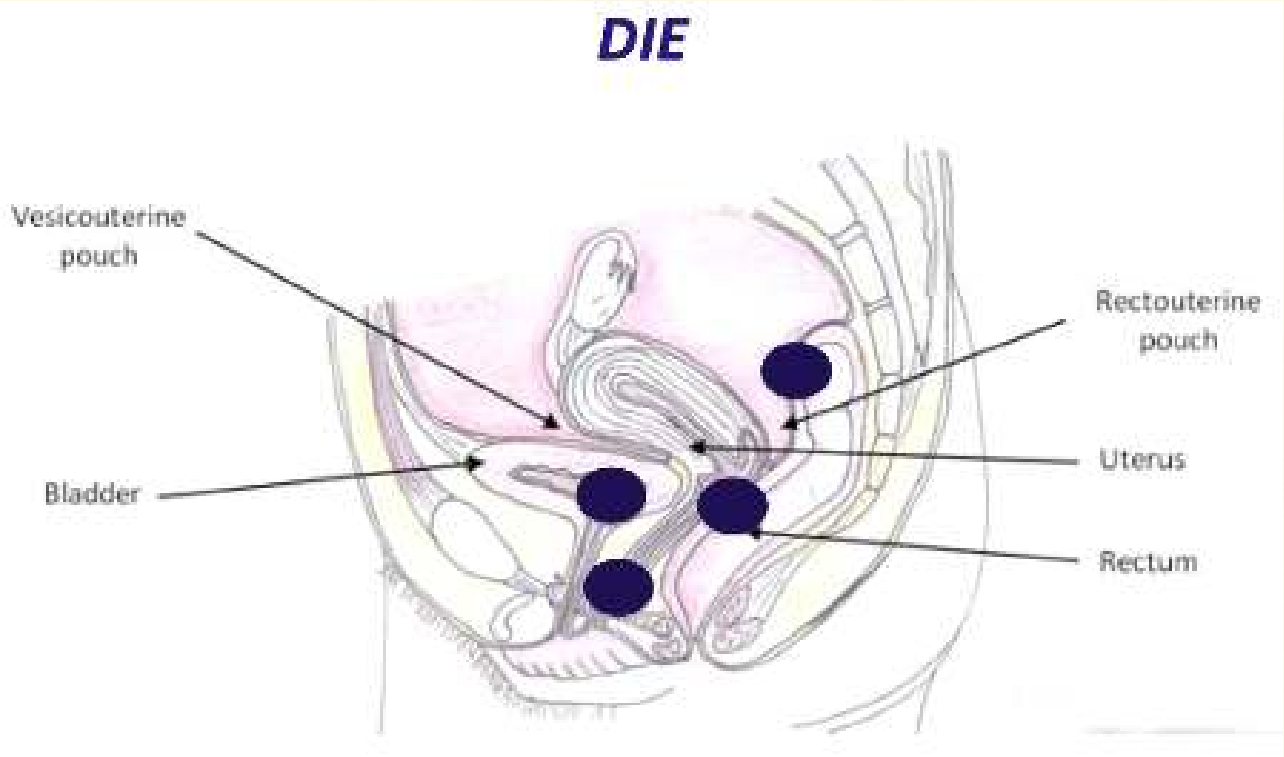
Kissing Ovaries -

Both ovaries are joined behind the uterus in the pouch of Douglas

Negative sliding sign (no movement) on applying gentle pressure with the trans-vaginal ultrasound probe it is Strongly associated with the presence of endometriosis and indicates a severe form of the disease (i.e. significant pelvic adhesions)

Uterus in endometriosis

• Due to involvement of the uterosacral leading to adhesions endometriosis tends to cause retroflexion and retroversion of the uterus This should alert us to the possibility of involvement of POD and need for further assessment pictures
• Deep invasive endometriosis
• Definition is the infiltration of endometriotic nodules >/= 5mm
• Locations includes - rectosigmoid -
• utero-sacral ligaments -
• recto-vaginal septum -
• vagina -
• Bladder, BOWEL



Bowel Nodules -Histologically definition is the presence of endometrial glands and stroma in the bowel reaching at least the muscularis propria
• Involves anterior rectum, rectosigmoid junction and/ or sigmoid colon
• Typically hypoechoic or isoechoic solid masses with irregular outer margins
• Tender on palpation
Bladder Nodules -
Hypo-or iso echogenic nodule within the bladder base (close to the ureteral ostia) or in the bladder dome
• 'Nodular' or a 'comma' shape
• Small internal anechoic cystic areas are seen in approximately 30% of the nodules
Bladder endometriosis mimics recurrent cystitis with dysuria, urgency, frequency, suprapubic pain and incontinence
• Macroscopic haematuria relatively rare
• Occurs in 1 – 4% of women with laparoscopic diagnosis of endometriosis
• Diagnosis is often delayed or not considered at all
Assessment of POD
Use a slight pressure with the probe
• Uterus should slide anterior on rectum Then use free hand over abdominal wall to assess movement of the uterine fundus If no movement in either location POD is recorded as obliterated
● Sliding sign -A positive sliding sign indicates a POD free of adhesions as seen Follow the black line to assess the rectum A negative sliding sign indicates adherent bowels. the rectum and the uterus move together as opposed to separately

Check list of endometriosis –

- Uterus Mobility and Adenomyosis
- Ovaries -Endometrioma and Mobility
- Mobility of anterior compartment
- Mobility of Posterior compartment
- Bladder , Bowel endometriosis
- Hydronephrosis

MRI IN ENDOMETRIOSIS -

Non invasive adjunctive test for diagnosis of endometriosis with ultrasound.
MRI help in assessing area inaccessible to laparoscopy
Lesions hidden by dense adhesions .
Diagnostic performance of TVS and MRI is similar for detecting DIE involving rectosigmoid, uterosacral ligament and rectovaginal septum
Operator dependent

SUMMARY -

TV U/S accurate at assessing endometriomas

- Severity of symptoms does not correlate with extent of disease
- Identifying an endometrioma – likely that there is further sites of pelvic endometriosis
- 'Kissing ovaries' associated with extensive pelvic adhesions
- Adenomyosis is usually under reported
- Assessment of pelvic mobility can indicate adhesions

REFERENCES –

> Facts Views Vis Obgyn. 2021 Dec;13(4):295-304. doi: 10.52054/FVVO.13.4.036.

An International Terminology for Endometriosis, 2021

International Working Group of AAGL, ESGE, ESHRE and WES; C Tomassetti, N P Johnson, J Petrozza, M S Abrao, J I Einarsson, A W Horne, T T M Lee, S Missmer, N Vermeulen, K T Zondervan, G Grimbizis, R L De Wilde

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Free PMC article

Environmental Toxins and Endometriosis

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Introduction

Endometriosis is a chronic inflammatory disorder characterized by the presence of endometrial-like tissue outside the uterus, leading to pain, infertility, and reduced quality of life.

Endometriosis affecting up to 60–80% of women, with pelvic pain or/and infertility. Many theories linked to aetiology of Endometriosis Despite years of studies, its pathogenesis still remains enigmatic. Genetic, hormonal, environmental, and lifestyle-related factors may be involved in its pathogenesis.

The increasing prevalence of endometriosis in recent decades has raised concerns about the role of environmental toxins as contributing factors. Exposure to endocrine-disrupting chemicals (EDCs) and other environmental pollutants may play a crucial role in the pathogenesis of endometriosis by altering hormonal balance, immune response, and inflammatory pathways.

Mechanisms of Environmental Toxin-Induced Endometriosis

Environmental toxins may contribute to endometriosis through multiple mechanisms:

• Hormonal Disruption: EDCs mimic or interfere with estrogen, increasing the risk of endometrial tissue implantation.

• Immune Dysregulation: Pollutants can impair immune surveillance, allowing ectopic endometrial cells to evade clearance.

• Oxidative Stress and Inflammation: Many toxins induce oxidative stress and chronic inflammation, creating a favorable environment for endometriotic lesion growth.

Endocrine-Disrupting Chemicals and Endometriosis

The environmental endocrine-disrupting chemicals (EDCs) are exogenous agents that mimic and interfere with the synthesis, secretion, transport, signaling, or metabolism of hormones responsible for homeostasis, reproduction, and developmental processes. Endometriosis has been potentially linked to exposure to EDCs. In this review, based on the robust literature search, we have selected four endocrine disruptors (i) polychlorinated biphenyls (PCB)s (ii) dioxins (TCDD) (iii) bisphenol A (BPA) and its analogs and (iv) phthalates to elucidate their critical role in the etiopathogenesis of endometriosis.

1. Dioxins and Polychlorinated Biphenyls (PCBs)

Dioxins and PCBs are persistent organic pollutants (POPs) that accumulate in fat tissues and are linked to immune dysfunction and inflammation. Studies have shown that exposure to dioxins, particularly TCDD (tetrachlorodibenzo-p-dioxin), is associated with an increased risk of endometriosis due to its ability to alter estrogen metabolism and immune function.[1]

2. Bisphenol A (BPA)

BPA is widely used in plastics and food packaging and has estrogenic properties. Animal studies suggest that BPA exposure may promote the proliferation of ectopic endometrial cells, leading to the development and progression of endometriosis.[2]

3. Phthalates

Found in plastics, cosmetics, and personal care products, phthalates have been linked to reproductive health disorders. Higher urinary phthalate concentrations have been reported in women with endometriosis, suggesting a possible role in disease pathogenesis.[3]

Heavy Metals and Endometriosis

Exposure to heavy metals such as cadmium, lead, and mercury has been implicated in endometriosis due to their ability to disrupt hormonal signaling and immune function. Cadmium, for instance, mimics estrogen and can contribute to endometrial tissue proliferation outside the uterus.

Pesticides and Endometriosis

Organochlorine pesticides, including DDT and its metabolites, have estrogenic activity and can persist in the environment for years. Studies have found higher levels of pesticide residues in women with endometriosis, supporting the hypothesis that pesticide exposure may contribute to disease development.

Preventive Strategies

As now Enough Epidemiological and Experimental Evidences with multiple studies we know the potential role of environmental toxins in endometriosis we can adopt preventive measures .

Some practical tips include:

- Reducing exposure to plastics, especially BPA-containing products.
- Choosing organic foods to minimize pesticide intake.
- Avoiding processed foods with high chemical additives.
- Advocating for stricter environmental regulations to limit EDC exposure.

Conclusion

The link between environmental toxins and endometriosis highlights the need for further research and public health interventions. Awareness among gynecologists and patients can help reduce exposure to harmful chemicals and improve disease management. Addressing environmental risk factors may serve as a preventive strategy for endometriosis and other reproductive disorders.[4]

References:

1. academic.oup.com/toxsci
2. frontiersin.org2021
3. springer.com/ar
4. mdpi.com

Robotic Surgery in Endometriosis: Advancing Precision and Outcomes

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Robotic and Laparoscopic Endometriosis Excision Surgeon
Founder Endometriosis Foundation of India

Introduction

Endometriosis is a chronic, inflammatory, estrogen-dependent gynecological disorder characterized by the presence of ectopic endometrial-like tissue outside the uterine cavity, leading to chronic pelvic pain, infertility, and organ dysfunction (Zondervan et al., 2020). It affects approximately 10% of women of reproductive age and has a profound impact on quality of life.

Surgical excision in a multi-disciplinary setting is often necessary for deep infiltrating endometriosis (DIE), which involves structures such as the rectovaginal septum, bowel, bladder, ureters, and pelvic nerves. While laparoscopy remains the gold standard, robotic-assisted surgery (RAS) has gained traction due to its enhanced visualization, precision, and improved surgical ergonomics.

This article provides a scientific analysis of robotic-assisted surgery in endometriosis, including surgical outcomes, advantages, limitations, and future directions.

Challenges in Endometriosis Surgery

The surgical management of deep infiltrating endometriosis (DIE) presents multiple challenges due to:

1. Adhesions and Altered Pelvic Anatomy – Chronic inflammation leads to fibrosis, adhesions, and anatomical distortion, making surgical dissection technically demanding.
2. Multi-Organ Involvement – DIE frequently infiltrates the rectosigmoid, ureters, bladder, and pelvic nerves, diaphragm requiring specialized surgical techniques.
3. Risk of Incomplete Excision – Inadequate removal of endometriotic implants is associated with high recurrence rates (20–40%) (Nezhat et al., 2020). Scientifically its not recurrence , incomplete surgeries are a reason for residual disease.
4. Fertility Considerations – Endometriosis-associated infertility necessitates surgical techniques that minimize ovarian damage while preserving reproductive potential.

Given these complexities, robotic-assisted laparoscopy has emerged as a promising approach in the surgical management of endometriosis.

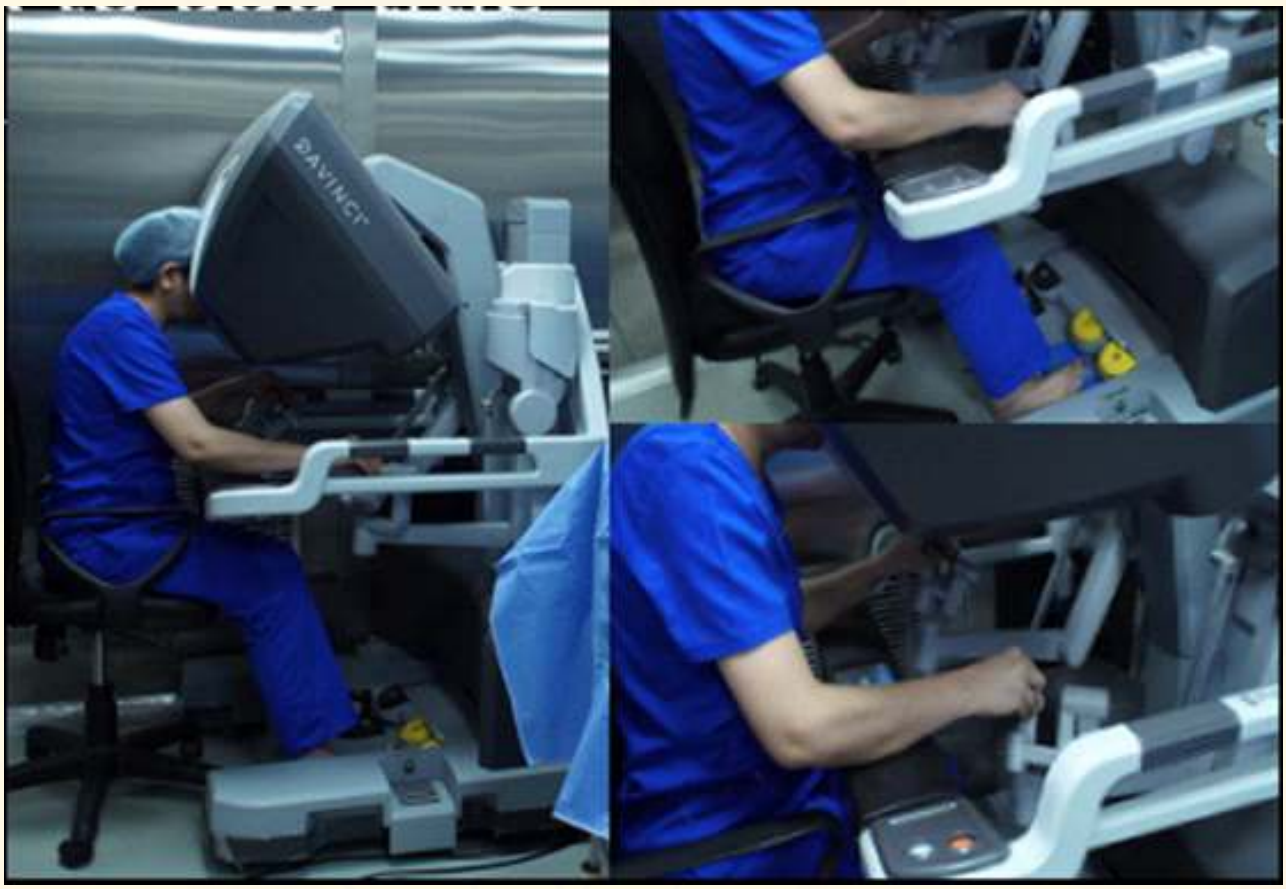
Robotic-Assisted Surgery: Mechanism & Applications

Robotic surgery utilizes an advanced computer-assisted platform that translates the surgeon's hand movements into precise micro-movements which transform into surgical steps. The da Vinci Surgical System (Intuitive Surgical, Inc.) is the most widely used robotic platform for gynecological surgery. It consists of:

- A surgeon console with 3D-HD visualization and motion scaling.
- Patient-side robotic arms equipped with articulating instruments capable of 7 degrees of freedom.
- Tremor elimination technology, which enhances microsurgical precision.

ROBOTIC SYSTMEN COMPRISES OF PATIENT CART, VISION CART AND SURGEON COSOLE

THEATRE SET UP FOR ROBOTICS WITH DOCKING DONE



SURGEON'S CONSOLE

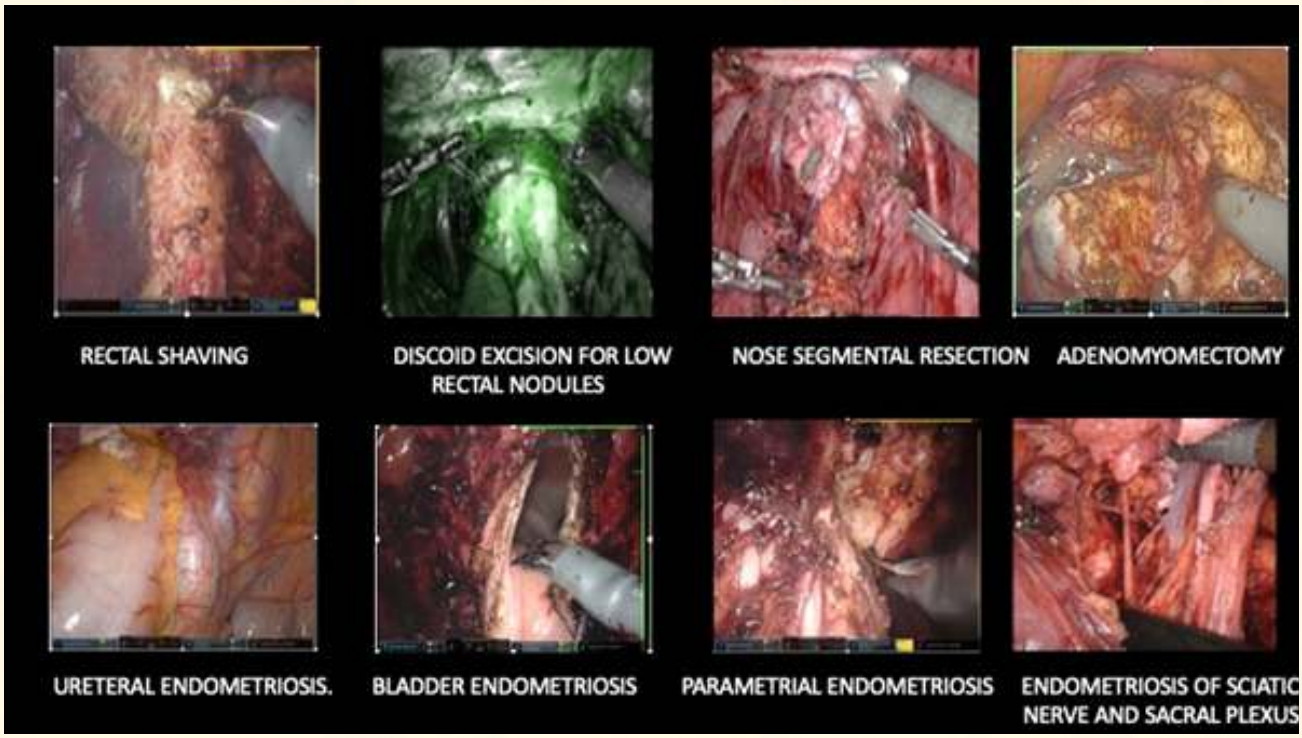
Applications in Endometriosis Surgery

✔ Deep Infiltrating Endometriosis (DIE): Enables precise resection of fibrotic nodules from the rectovaginal septum, bladder, rectum, and sacral plexus.

✔ Ovarian Endometriomas: Minimizes thermal damage to preserve ovarian function.

✔ Ureterolysis and Bladder Resection: Allows delicate dissection around the ureters and bladder, reducing morbidity and late ureteric complications.

✔ Nerve-Sparing Excision: Reduces risks of pelvic neuropathy, urinary dysfunction, and sexual dysfunction.



Comparative Analysis: Robotic vs. Laparoscopic Surgery

Multiple studies have compared robotic-assisted and conventional laparoscopic approaches in the surgical management of endometriosis:

Precision & Surgical Outcomes

• Robotic instruments provide superior dexterity, facilitating fine dissection in complex pelvic adhesions (Liu et al., 2021).

• 3D-HD visualization improves lesion detection, particularly for small peritoneal implants (Nezhat et al., 2020).

Intraoperative & Postoperative Outcomes

Parameter	Robotic Surgery	Laparoscopic Surgery
Blood Loss	Lower (Akladios et al., 2019)	Slightly higher
Operative Time	Longer	Shorter
Hospital Stay	Similar	Similar
Postoperative Pain	Lower (Liu et al., 2021)	Higher
Complication Rates	Comparable	Comparable

• While operative times are longer with RAS, studies indicate lower intraoperative blood loss and reduced postoperative pain (Akladios et al., 2019). With experience and once the learning curve is crossed time taken for robotic and laparoscopic surgeries is almost same.

Fertility Preservation & Ovarian Function

• In ovarian endometriosis, robotic surgery minimizes collateral ovarian damage, preserving anti-Müllerian hormone (AMH) levels better than conventional laparoscopy (Minig et al., 2018).

• Enhanced precision reduces risks of diminished ovarian reserve and ovarian failure.

Advantages of Robotic-Assisted Surgery

Superior Ergonomics & Surgeon Comfort

• Eliminates tremors, reducing surgical fatigue.

• Seated positioning reduces musculoskeletal strain, improving surgical precision.

Enhanced Nerve-Sparing Techniques

• DIE often involves pelvic nerves (hypogastric plexus, sciatic nerve, and sacral roots).

• Robotic-assisted dissection enables precise nerve preservation, reducing risks of neurogenic bladder dysfunction and sexual dysfunction.Robotic assisted nerve-sparing surgery is a game changer in the management of deep infiltrating endometriosis. With advanced visualisation, precise dissection, and careful nerve preservation, it significantly improves long term outcomes for patients. Choosing an experienced robotic surgeon trained in nerve-sparing technique is the key to optimise both surgical success and functional recovery. This approach helps minimise postoperative complications such as chronic pelvic pain, bladder dysfunction and sexual dysfunction which are commonly seen after aggressive dissections.

(Pictures from robotic cadaveric dissection to understand the anatomy)

Improved Outcomes in Bowel Endometriosis

• Robotic techniques facilitate segmental bowel resection with intracorporeal anastomosis, reducing conversion to laparotomy.

• Lower rates of anastomotic leaks and strictures reported in robotic cases (Roman et al., 2021)

Limitations & Challenges

High Costs & Limited Access

• Robotic surgery is significantly more expensive than laparoscopy due to high equipment and maintenance costs.

• Limited availability in resource-constrained settings restricts widespread adoption.

Longer Learning Curve & Operative Time

• Surgeons require additional training and credentialing for robotic procedures.

• Prolonged docking times increase overall operative duration, although this improves with experience and there is no difference in timing in robotic and laparoscopic surgeries.

Lack of Haptic Feedback

• Unlike conventional laparoscopy, robotic surgery lacks direct tactile sensation, requiring reliance on visual cues for tissue handling. But with experience these cues are similar to the direct tactile sensation and surgeon can easily differentiate between normal and abnormal or endometriotic tissue and understands how much to excise.

Table 2: Advantages and Disadvantages of Robotic Surgery for Endometriosis

Aspect	Advantages	Disadvantages
Visualization	3D-HD, magnified view	No direct tactile feedback
Precision	Microsurgical dexterity	Longer learning curve
Nerve Preservation	Better control, minimal damage	Costly instruments
Postoperative Recovery	Less pain, faster return to work	Limited access in low-resource settings

Future Directions in Robotic Surgery for Endometriosis

Artificial Intelligence (AI)-Assisted Surgery

• AI-based robotic platforms may enable real-time lesion mapping and predictive analytics to guide excision.

Augmented Reality (AR) Integration

• AR overlays could enhance visualization of deep infiltrating lesions, particularly for retroperitoneal and sciatic endometriosis.

Biomarker-Integrated Robotics

• Future robotic platforms may incorporate biomarker-guided fluorescence imaging to improve real-time identification of endometriotic implants.

Conclusion

Robotic-assisted surgery represents a significant advancement in the surgical management of endometriosis. It offers superior precision, better nerve-sparing capabilities, and improved outcomes in complex cases of deep infiltrating endometriosis. Although cost and accessibility remain barriers, ongoing technological innovations are likely to expand the role of robotics in endometriosis surgery. Further prospective randomized trials are needed to establish long-term outcomes and cost-effectiveness.

References

1. Akladios, C. Y., et al. (2019). "Robotic surgery for deep infiltrating endometriosis: a systematic review and meta-analysis." J Minim Invasive Gynecol, 26(5), 792-801.

2. Liu, Y., et al. (2021). "Robotic vs. laparoscopic surgery for endometriosis: surgical outcomes comparison." Eur J Obstet Gynecol Reprod Biol, 261, 21-27.

3. Minig, L., et al. (2018). "Robotic-assisted laparoscopy and fertility outcomes in endometriosis surgery." Fertil Steril, 110(4), 759-765.

4. Nezhat, C., et al. (2020). "Robotic-assisted laparoscopy for endometriosis: a paradigm shift." Obstet Gynecol, 135(6), 1250-1258.

5. Roman, H., et al. (2021). "Robotic-assisted colorectal surgery in deep infiltrating endometriosis." Ann Surg, 273(4), 734-741.

Trending now in Fashion

Ms. Anupama Bothra
(Label Anupama)

Fashion is not just clothing—it is an ever-evolving language, a dialogue between history, innovation, and a way to express yourself. “

As someone who has lived and breathed fashion, I have witnessed its cycles, its rebirths, and its revolutions.
Today, we find ourselves in a remarkable era where the past and present merge effortlessly. Nowhere is this more evident than in Indian fashion, where the richness of heritage blends in with the new trends and aesthetics.
The nostalgia from the early 2000’s, the golden era of experimentation and audacity seems to be making a remarkable return, in the form of bell bottoms and bold metallic fabrics,bell sleeves,funky jackets tank tops ...i sometimes wonder about this never ending cycle of fashion and ponder upon the possibilities of the next new trend.
Deep cultural roots leading to indian fashion not only never run out of fashion, but are also shone with new lights of innovation and creativity, by being combined with bold statement pieces.Benarasi in sarees-suits and even in evening gowns have become the dominant part in fashion attire .organzas and crush fabric in all variants are beautifully flowing through the trend .may it be animal motifs or geometric patterns, pastel tones like elegant shades of lavender and powder blue are adding to sophistication.
However, the fashion world concludes, sustainability is not just a trend anymore, I have noticed that it is starting to turn into a revolution! Eco friendly fabrics, recycling denims, multiple styled tops ensure that fashion does not have to cost us our environment. Breaking stereotypes isn't a no-no either, as gender fluid clothing makes it on the runway season, no longer a whisper in society, we can see that fashion has indeed come a long way!

Quiz on Endometriosis

Dr Deepti Gupta

L	A	P	A	R	O	S	C	O	P	Y	D	I	C	K	P
O	E	T	N	O	M	A	Y	P	Q	J	S	I	C	K	E
Z	J	E	O	Y	O	B	C	O	U	O	N	E	M	U	R
X	B	O	P	P	M	E	L	S	T	H	E	S	I	S	I
K	A	R	L	R	O	K	I	T	A	N	S	K	Y	U	T
C	Z	E	M	U	V	I	N	E	O	S	T	E	E	P	O
C	P	D	U	A	A	I	D	N	P	A	R	A	I	N	N
U	O	P	I	T	R	O	E	E	I	M	I	R	N	A	E
N	I	O	K	G	Y	C	E	Q	A	P	A	I	N	S	A
R	T	L	J	H	N	P	H	D	B	S	I	C	K	E	L
A	G	Y	T	E	N	Z	I	A	N	O	N	A	M	O	P
S	F	P	U	K	I	O	J	B	E	N	S	A	I	D	O
G	R	O	U	N	D	G	L	A	S	S	V	I	T	S	C
E	S	I	U	E	C	Y	S	T	E	C	T	O	M	Y	K
Y	D	D	J	R	O	I	T	E	N	E	G	O	D	N	E
U	A	T	E	L	A	G	O	L	I	X	M	A	S	O	T

Clues:

1. He described endometriosis-
2. Postulated reflux/ direct implantation theory of endometriosis-
3. Maximum total score in EFI-
4. Over expression of this gene implicated in endometriosis-
5. This group gave the systematic approach to sonographic evaluation of pelvis-
6. Most common organ involved in endometriosis-
7. Endometriosis awareness month-
8. lesion shares closest histologic characteristics with native endometrium and is thought to have greatest metabolic activity-
9. typical USG description of chocolate cyst-
10. ESHRE recommends removal of endometrioma if > ____ cm-
11. Risk of malignancy in endometrioma is ____%-

12. 1st line treatment for endometriosis associated dysmenorrhea is
13. Ideal surgical procedure for endometrioma-
14. Treatment of choice for non menstrual pain, not desirous of fertility-
15. Allen master syndrome is another name for –
16. Gold standard for diagnosis of endometriosis is-
17. Promising test under research for diagnosis of endometriosis is –
18. Oral GnRH antagonist-
19. Classification used for DIE is-
20. Community state tyoe associated with dysbiosis and endometriosis is-
21. Newer modality for evaluation-
22. One of the studies based on genetic association

KARL ROKITANSKY, ENDOGENE, MRE, CST IV, ENZIAN, ELAGOLIX, MIRNA, LAPAROSCOPY, PERITONEAL POCKET, CYSTECTOMY, OCP, NSAID, GROUND GLASS, ONE, FOUR, RED POLYPOID, MARCH, OVARY, IDEA, TEN, JOHN SAMPSON, CYCLIND,

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