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GYNAE SPECTRUM

Dear Doctor,
Greetings from Micro Labs. We are happy to bring you "Gynae Spectrum", which contains latest and interesting news in the field of Obstetrics and Gynecology.

This issue contains:

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1. LigaSure: For Minimally Invasive Hysterectomy for the Large Uterus

Introduction:

With over 500,000 performed each year for benign disease, hysterectomy is the most common major gynecologic surgery performed in women. Symptomatic uterine fibroids are one of the most common reasons for hysterectomy, and uterine enlargement is a common side effect of uterine fibroids. A randomised study found that patients who had laparoscopic hysterectomy (LH) had a better quality of life than those who had hysterectomy (AH) after a 4-year follow-up. [1] The patient's preference, the surgeon's experience and preference, the availability of equipment, the indication for the hysterectomy, the size of the uterus, the proportion of the size of the uterus to the vaginal capacity, the presence of adnexal pathology, adhesions, and other factors affecting the pelvic anatomy, the need for additional surgery, and whether the surgery is performed as an emergency or scheduled. [2] Removal of a large uterus in Minimally Invasive Hysterectomy **(**MIH) is possible via mini laparotomy, uterine morcellation via laparoscopic incisions, or vaginal morcellation. The Food and Drug Administration (FDA) issued a warning against the use of laparoscopic power morcellators due to the risk of spreading an unexpected uterine malignancy. Because uterine enlargement is frequently associated with uterine and ovarian blood supply displacement and engorgement, securing the vascular pedicles in MIH is critical. Reports have investigated and attested to the efficacy of the LigaSure vessel sealing instrument in MIH. The study's aim was to compare the outcomes of patients with uteri > 250 gm who underwent minimally invasive hysterectomy (MIH) to those who underwent abdominal hysterectomy (AH) using the LigaSure, stratify complications based on uterine weight, and report follow-up of patients who underwent vaginal morcellation.

Methods:

A retrospective cohort study comparing vaginal hysterectomy (VH), laparoscopically assisted vaginal hysterectomy (LAVH), and robotic total laparoscopic hysterectomy (RTLH) to AH. LigaSure was used in both groups. Patients who underwent vaginal morcellation were monitored.

Result:

A total of 166 patients were included in the study: 10 had VH, 81 had LAVH, 22 had RTLH, and 53 had AH. Six (5%) MIH were converted to AH. Sixty-four percent of patients who required hysterectomy underwent successful MIH. Both groups were comparable in terms of age, American Society of Anesthesiologists score, previous laparotomy, previous C sections, body mass index, estimated blood loss, operative and postoperative complications, and final pathology report. The conversion and complication rates increased as uterine weight increased above 1000 gm. Patients with AH had larger uteri and stayed in the hospital longer than those with MIH. Thirty patients had vaginal morcellation with no complications.

Discussion:

The study's finding about MIH in large uteri agrees with other authors' findings. Despite the small number, this study VH patients had the best surgical outcomes. This supports the ACOG

recommendation for VH whenever possible. Though some authors considered large uterine size to be a contraindication for VH, other authors attested to the feasibility and safety of VH in women with large uteri.

Two of the study's patients developed delayed ureteral injury, necessitating additional surgery. The LigaSure was used in one of these two patients, and bipolar and monopolar diathermy were used in the other. It is possible that these injuries were caused by the use of the LigaSure or diathermy. Thermal injury is a potential complication of all MIH pedicle securing techniques. The degree of lateral thermal spread is determined by the type of instrument, power settings, and application duration. Thermal injury spread is less likely with LigaSure than with monopolar diathermy. [3]

Figure 1. Laparoscopic appearance of one of the uteri included in the study.

Figure 2. Appearance of the same uterus shown in Figure 1 following vaginal morcellation.

Researchers used controlled vaginal morcellation to remove the uterus in 30 of the patients. A similar method was recently described. Vaginal morcellation inside a bag, morcellation through mini laparotomy or a laparoscopic trocar inside a bag, scalpel morcellation through mini laparotomy, use of diathermy to bivalve the uterus following its devascularization and detachment from ligaments, and intracorporeal myomectomy are other options for uterine reduction. [4]

This study's strengths include defined reproducible criteria for uterine enlargement, patients with various forms of MIH, a control group of patients with AH, standardised pre-operative and postoperative management, standardised surgical techniques, and a long follow-up. Its retrospective nature, reliance on our practise medical records for data extraction, and small number of patients with VH and RTLH are areas of weakness.

According to this study, most patients with a benign enlarged uterus can have successful MIH with acceptable complications and a short hospital stay. It also demonstrates that laparotomy remains an important approach for women with large uteri and that the complications of AH are manageable, despite the longer hospital stay than with MIH. Despite the lack of a control group of patients who had surgery using techniques other than LigaSure, the low estimated blood loss among our patients and the absence of postoperative bleeding complications point to LigaSure's efficacy in securing the pedicles. This study found that controlled vaginal morcellation among women who had preoperative screening to reduce the risk of uterine malignancy is probably safe.

Conclusion:

Most patients with a large uterus could have avoided MIH by staying in the hospital for a shorter period of time. Conversion and complications are more common in uteri weighing more than 1000 gm. Vaginal morcellation had no effect, and LigaSure provided adequate hemostasis.

With a shorter hospital stay, most patients with a large uterus could have avoided MIH. Conversion and complications become more severe in uteri weighing more than 1000 gm. Vaginal morcellation resulted in no complications, and LigaSure was used to provide adequate hemostasis.

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2. Ectopic pregnancy after embryo transfer in patients with salpingectomy or proximal tubal occlusion is associated with the number of embryos transferred.

Introduction:

Ectopic pregnancy (EP) is a serious health complication associated with assisted reproductive technology (ART). The incidence of EP following ART ranged from 2.0% to 1.6%. EP has also been reported to occur between 2.1 and 8.6% of the time following in vitro fertilization-embryo transfer (IVF-ET). [1] Tubal factor infertility, the number of embryos transferred, embryo transfer in a fresh cycle, and day 3 embryo transfer are all widely accepted risk factors for EP. [2] Furthermore, the prevalence of some uncommon EPs, such as interstitial pregnancies (IPs) and heterotopic pregnancies (HPs) (both an ectopic and intrauterine pregnancy at the same time), is rising. [3] The clinical data of 21 patients with IP after ART were analysed in the original study. According to the findings, 90.48% of IP patients had a history of tubal-related surgery, with 78.95% having unilateral or bilateral tubal resection or proximal tubal occlusion. Eighty-five percent of the IP patients had undergone double embryo transfer. As a result, we hypothesised that patients with a history of tubal surgery, particularly salpingectomy or proximal tubal occlusion, had a higher incidence of EP and IP after ART. The number of embryos transferred could be a risk factor. The objective of this study was to look into the effect of different numbers of transferred embryos on the EP outcome after ET in patients who had had salpingectomy or proximal tubal occlusion, particularly in terms of IP.

Methods:

The study included 11,609 women who were undergoing ART and had undergone salpingectomy or proximal tubal occlusion, as well as 5388 women who achieved a clinical pregnancy. Statistical analysis was used to see if the number of embryos transferred was related to EP.

Results:

The number of embryos transferred and the day of embryo transfer were significantly different between those with and without EP, while the number of embryos transferred was attributed with interstitial pregnancy (IP) in those undergoing frozen-thawed embryo transfer (ET) cycles. According to multivariate modelling, the likelihood of having an EP increased with the number of embryos transferred in women undergoing frozen-thawed ET cycles.

Discussion:

Fallopian tube factors continue to be a major risk factor for EP during ART treatment, particularly in women with a history of fallopian tube surgery. Patients who have a conservative operation or tubal microsurgery have a higher risk of EP after assisted reproduction. [4] IP is a rare condition that affects 2-4% of all tubal pregnancies following ART. However, in our study, IPs accounted for 19.85% of the EPs. The reason for this could be that the electrocoagulation-damaged fallopian tube stump produces chemokines that promote embryonic migration to and

implantation in the uterine horn. [5] The study discovered that the incidence of EP and IP was significantly lower in patients with single embryo transfer than in patients with double embryo transfer during all ET cycles, particularly frozen-thaw ET cycles. To reduce the risk of EP, especially IP, the researchers may choose single embryo transfer for IVF-ET treatment in frozen-thawed ET cycles in patients who have had salpingectomy or proximal tubal occlusion. Elective single embryo transfer (eSET) has gained popularity in recent years. Some researchers believe that eSET is linked to a better perinatal outcome. [6]

Comparison between participants with and without ectopic pregnancy in women undergoing fresh ET cycles.

	Nonectopic pregnancy	Ectopic pregnancy	Z/χ^2 score	*p*
Maternal age (yrs.)	30.0 (28.0, 33.0)	31.0 (28.3, 33.0)	0.990	0.322
Infertility duration (yrs.)	3.0 (2.0, 5.0)	3.0 (1.0, 5.0)	0.491	0.623
BMI, kg/m^2	21.9 (20.2, 23.8)	21.8 (19.6, 23.4)	0.801	0.423
Antral follicle count, n (%)	12.0 (9.0, 16.0)	12.0 (8.0, 15.3)	0.872	0.383
FSH level, IU/L	7.3 (6.1, 8.7)	6.9 (5.6, 8.7)	1.301	0.193
Type of infertility, n (%)				
Primary infertility	684 (30.1)	19 (29.7)	0.005	0.944
Secondary infertility	1859 (69.9)	45 (70.3)		
Day of embryo transfer, n (%)				
2–4	2112 (98.4)	63 (98.4)	0.000	1.000
5–6	34 (1.6)	1 (1.6)		
Number of embryos transferred, n (%)				
1	583 (25.6)	15 (23.4)	0.16	0.689
2	1690 (74.4)	49 (76.6)		

yrs., Years.

Comparison between participants with and without ectopic pregnancy in women undergoing frozen-thawed ET cycles.

	Nonectopic pregnancy	Ectopic pregnancy	Z/χ^2 score	*p*
Maternal age (yrs.)	31.0 (28.0, 34.0)	31.0 (28.0, 33.0)	0.563	0.573
Infertility duration (yrs.)	3.0 (2.0, 6.0)	3.0 (2.0, 5.0)	0.477	0.633
BMI, kg/m^2	21.9 (20.3, 23.9)	21.6 (20.0, 22.9)	1.471	0.141
Antral follicle count, n (%)	13.0 (9.0, 18.0)	15.0 (10.0, 19.3)	1.938	0.053
FSH level, IU/L	7.2 (6.0, 8.7)	7.1 (5.9, 9.4)	0.001	0.999
Type of infertility, n (%)				
Primary infertility	958 (32.1)	21 (31.3)	0.017	0.895
Secondary infertility	2026 (67.9)	46 (68.7)		
Day of embryo transfer, n (%)				
2–4	2307 (78.6)	60 (89.6)	4.727	0.030
5–6	629 (21.4)	7 (10.4)		
Number of embryos transferred, n (%)				
1	1304 (43.7)	17 (25.4)	8.965	0.003
2	1680 (56.3)	50 (74.6)		

yrs., Years.

The day of embryo transfer was also linked to the occurrence of EP in women undergoing frozen-thaw ET cycles, according to this study. Transplanting blastocysts (day 5-6 embryos) into patients undergoing frozen-thaw ET cycles reduces the risk of EP significantly. However, multivariate analysis revealed that the number of embryos transferred had no effect on the incidence of EP. This could be due to the small number of EP patients.

Higher levels of progesterone and 17-estradiol may allow transferred day 3 embryos to easily enter the fallopian tube, resulting in a negative effect on intrauterine embryo implantation. Single blastocyst transplantation is recommended to increase implantation while decreasing EP and IP rates.

Conclusion:

In summary, the study's findings revealed that the number of embryos transferred is a risk factor for EP, particularly IP, in patients undergoing frozen-thaw ET cycles who have had salpingectomy or proximal tubal occlusion. To reduce the risk of EP, especially IP, it is recommended to choose single embryo transfer for IVF-ET treatment in patients undergoing frozen-thawed ET who have undergone salpingectomy or proximal tubal occlusion.

In patients undergoing frozen-thawed ET who had undergone salpingectomy or proximal tubal occlusion, the number of embryo transfers was considered a risk factor for EP.

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3. Embolization of Uterine Arteries as a Treatment for Acute Vaginal Bleeding in the Late Stages of Gynecologic Malignancies

Introduction:

In general, genital hemorrhages can be a life-threatening complication, with an incidence ranging from 0.7% to 100% in advanced gynecological malignancies. [1] In these cases, vaginal bleeding is associated with local tumour invasion, tumour angiogenesis, systemic cancer effects, or oncological treatments. [2] These episodes may vary from low-grade discharges to episodic heavy bleeding. This has a serious impact on the lives of many patients and can increase morbidity due to secondary anaemia and its complications, as well as hemorrhagic shock. Uterine artery embolization (UAE) has been described as an effective and safe treatment for patients with benign and malignant uterine tumours who have massive vaginal hemorrhage. Cervical cancer is the most common gynecological malignancy that is complicated by hemorrhages and benefits from UAE intervention. [3] Most patients are diagnosed in later stages of the disease, when surgery is no longer an option, and these patients are treated as an emergency due to the massive bleeding they present at the hospital. The primary goal of this study is to emphasize the importance of using UAE as an emergency measure to stabilize patients with advanced gynecologic cancer who present with massive vaginal bleeding, whether they have received specific oncological treatment or not.

Methods:

During a five-year period, 33 (5.45%) of patients who underwent trans-catheter embolization of the uterine arteries were diagnosed with cervical cancer (n = 31) and endometrial cancer (n = 2) in the advanced stage and treated for heavy acute vaginal bleeding and secondary anaemia.

Results:

UAE was used as a palliative treatment for those patients. The patients in the evaluated group had an average age of 48.7 8.3 years, and the average number of days in the hospital was 4.72 2.97. (range 1–11). The advantages of UAE include the cessation of bleeding in up to 100% of cases and the expansion of the window for secondary anaemia correction. Mild analgesics and easily accessible anti-emetics could be used to treat the most common side effects (pain and nausea).

Discussion:

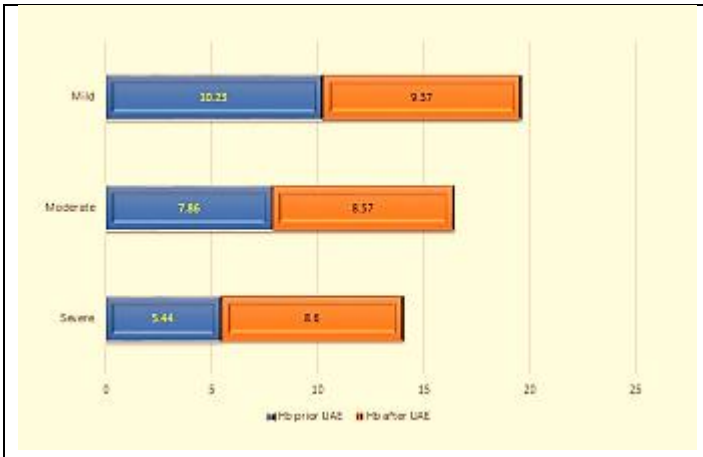
Given the associated pathology and existing oncological complications, the appearance of acute bleeding can result in rapid decompensation. As a critical patient, vaginal bleeding must be stopped as soon as possible, with as little hospitalization and adverse reactions as possible. Uterine embolization is the safest treatment option for all of these conditions, and it also serves as a modern form of palliative care for cancer-related hemorrhages. Only one patient (3%), in this study group of gynecological cancers, had kidney insufficiency, contrary to the literature, which states that 21% of late-stage cervical cancer patients have urinary tract obstruction.

Interventional radiologists use a cocktail of medications to alleviate pain and anxiety. As a result, an anxiolytic of the benzodiazepine class may be prescribed prior to the procedure. By

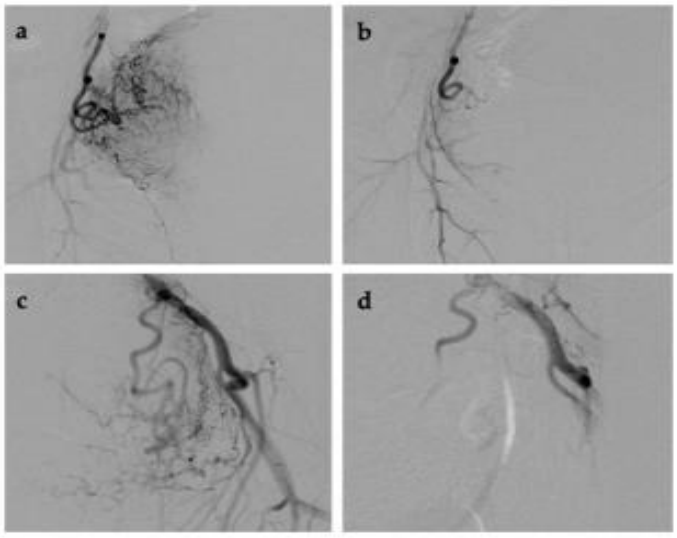
injecting lidocaine at the site of the intervention, local anesthesia is obtained. To avoid vomiting, anti-emetics (ondansetron) are prescribed. Nonsteroidal or steroidal anti-inflammatory drugs, in combination with a proton pump inhibitor to reduce gastric acidity (omeprazole), are commonly used to control post-procedural symptoms. [4]

Some studies were highlighted in medical journals to highlight the beneficial role of UAE in patients with complicated gynecological malignancies who underwent trans-arterial embolization as a palliative means of care for hemorrhage control; this was the main inclusion criteria. [5]

The reported success rates of UAE in managing acute bleeding range from 58.82-100% as the only procedure for bleeding control. Another important point to note is that its efficacy extends beyond cervical cancer to malignant pathology of the genital tract. In this case, the UAE had a 100% success rate in stopping the bleeding, allowing the patients to overcome the critical moment and correct the secondary anaemia.



The corrected anemia before and after the UAE procedure.



Imaging of UAE procedure in cervical cancer, before and after. (a,b) Left side. (c,d) Right side.

The article emphasizes the importance of having interventional radiology departments in all regional emergency centers. Another noteworthy point is that ligation of the hypogastric artery as a surgical treatment option for vaginal bleeding in gynecological malignancies is an option. It can be done through a laparotomy or a laparoscopy.

Many of the patients in the study were rushed to this department, a tertiary center specializing in interventional radiology in gynecological practice. The UAE post-procedure follow-up was not possible because patients continued the therapeutic plan in the territorial oncology service after the critical moment had passed. In this regard, the authors' patients are all managed by UAE, which has advantages over the surgical ligation advocated by the literature. This article does not compare surgical and non-surgical methods for patients with inoperable gynecological malignancies, but rather aims to improve the success of UAE in these cases.

Conclusion:

Uterine artery embolization is a modern technique used to treat patients with advanced cancer who have uncontrollable genital bleeding and anaemia and for whom surgical treatment is often no longer an option. For selected cases, this procedure reduces morbidity and mortality in the gynecological conditions presented, as it is a less invasive method of palliative care that

provides doctors with the therapeutic window required to treat anaemia while also allowing cancer treatment to continue.

UAE is an excellent rescue tool for the emergency medical treatment of hemorrhages caused by advanced gynecological malignancies.

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4. An Unusual Case of an Adolescent with a Large Extraovarian Endometrioma

Introduction:

Endometriosis is a common gynaecological disorder that is characterised by the presence of ectopic endometrial tissue outside of the uterus. These tissues are most commonly found on dependent surfaces within the pelvis, specifically the ovaries, where they frequently result in the formation of endometriotic cysts (also known as endometriomas). Endometriosis involvement in distal extrapelvic sites has also previously been documented. [1] Endometriosis and endometriomas in adolescents, on the other hand, are less well defined than in adults and are frequently misdiagnosed. [2] The study describes a rare case of a large extraovarian endometrioma in an adolescent, as well as its treatment. The patient provided written informed consent for the preparation and publication of this report.

Case Report:

A 19-year-old nulliparous female was referred to the emergency department after a computed tomography scan revealed a large right adnexal lesion 9:56:56 cm with moderate free fluid, adjacent fat stranding, and a normal appendix. This was against the backdrop of a one-day history of severe right iliac fossa colicky pain that was unrelated to any other gastrointestinal, genitourinary, or infectious symptoms and was unrelieved by regular paracetamol and ibuprofen. She was a nonsmoker and nondrinker with no significant past medical history or family history of the disease. She has a regular 28-day menstrual cycle, with her last menstrual period one week ago.

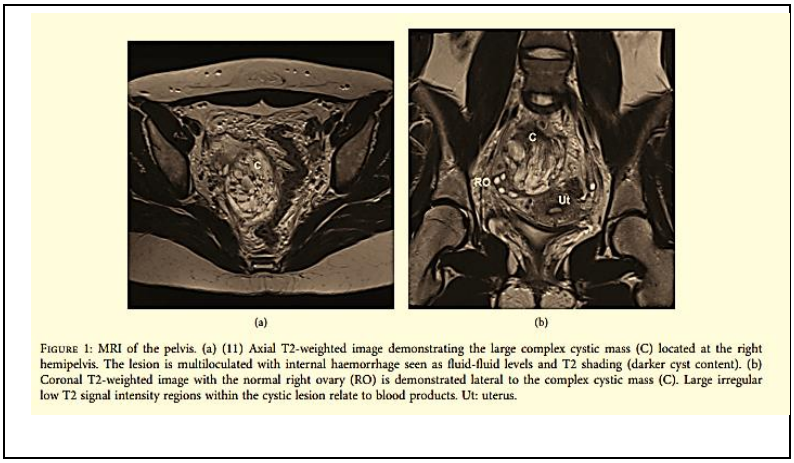

FIGURE 1: MRI of the pelvis. (a) (11) Axial T2-weighted image demonstrating the large complex cystic mass (C) located at the right hemipelvis. The lesion is multiloculated with internal haemorrhage seen as fluid-fluid levels and T2 shading (darker cyst content). (b) Coronal T2-weighted image with the normal right ovary (RO) is demonstrated lateral to the complex cystic mass (C). Large irregular low T2 signal intensity regions within the cystic lesion relate to blood products. Ut: uterus.

There was suprapubic tenderness without peritonism and right adnexal tenderness without cervical excitation on examination. Her WCC was 13 109/L and CRP was 5 mg/L, with normal renal and liver function, and her tumour markers (CA-125, 19.9, CEA, AFP) were all normal. Her STI test came back negative. A transvaginal pelvic ultrasound revealed a nonspecific heterogenous hyperechoic lesion with small cystic spaces in the right adnexa that appeared inseparable from the right ovary. Her pain subsided after she was admitted, and she was discharged with follow-up plans in the gynaecology clinic for additional imaging and surgical planning.

She was readmitted four days later due to right iliac fossa pain, vomiting, and a CRP of 93 mg/L. CA-125 levels were slightly elevated at 57 kU/L. A pelvic MRI revealed an indeterminate large right adnexal lesion with large areas of low T1/T2 signal intensity, numerous small cysts, and no enhancement (Figure 1). Several of the cysts contained fluid, and there was a marginal T1 high signal at the inferior aspect, which was thought to be related to

blood products. The adjacent right ovary appeared normal. There were no signs of a high-grade neoplasm. T1 hyperintensity in the peritoneal fluid was consistent with hemoperitoneum. She was counselled and consented to a diagnostic laparoscopy +/- detorsion of the paraovarian lesion, with the goal of preserving her fertility.

The pouch of Douglas, right pelvic sidewall, terminal ileum, and sigmoid colon were all firmly adherent to a large cyst that was separate from the normal-looking right ovary (Figure 2). The pelvic organs were otherwise unremarkable, and no signs of pelvic endometriosis or ovarian torsion were found. The chocolate fluid from the cyst's inadvertent surgical rupture suggested that the lesion was most likely an endometrioma. The pelvic cyst was separated from its surrounding attachments using a combination of blunt and sharp dissection. A colorectal consult was required because a residual portion of the thin 22 cm cyst wall was found densely adhering to the terminal ileum. The decision was made to leave the cyst wall in place because the risk of significant bowel injury and complications outweighed the benefit of removing the entire cyst.

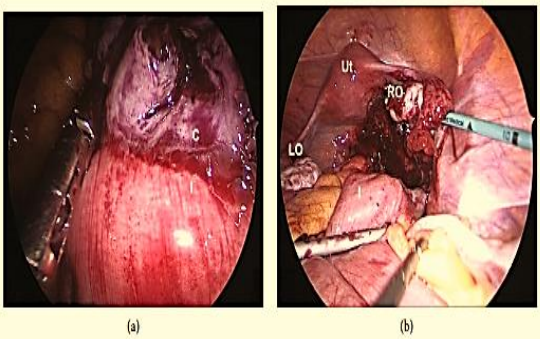

FIGURE 2: Intraoperative images obtained during laparoscopic cystectomy. (a) Cyst wall (C) firmly adherent to terminal ileum (I). (b) Normal uterus (Ut) and left and right ovaries (LO, RO) demonstrated postcystectomy.

Her postoperative recovery was uneventful, and she was sent home the next day with outpatient gynaecology clinic follow-up. Histopathology determined that the lesion was a fibrotic endometrial cyst with mesothelial hyperplasia, with no indication of malignancy (Figure 3).

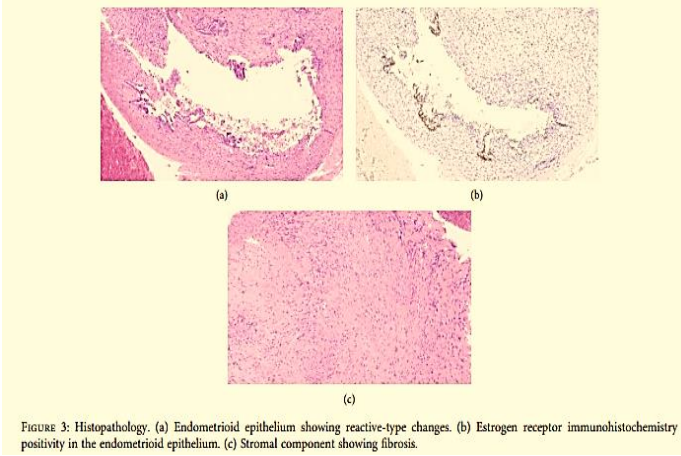

FIGURE 3: Histopathology. (a) Endometrioid epithelium showing reactive-type changes. (b) Estrogen receptor immunohistochemistry positivity in the endometrioid epithelium. (c) Stromal component showing fibrosis.

Malignant cells were not found in pelvic washings. She was then started on hormonal therapy for endometriosis and has ongoing colorectal and gynaecological follow-up due to the risk of malignant transformation of the remaining cyst wall on the terminal ileum.

Discussion:

Endometriosis is a common condition that affects up to 15% of women of reproductive age. With isolated case reports of foetal endometriosis, the age range is highly variable. Endometriosis in adolescent women is frequently misdiagnosed. Endometriosis was discovered to be present in 62% of adolescents who underwent laparoscopy for pelvic pain. [3]

The cause of endometriosis has yet to be determined. One of the most widely accepted theories about the disease's pathogenesis involves the implantation of endometrial tissue on the dependent surfaces of the pelvic cavity via retrograde menstruation through patent fallopian

tubes. [2]

Endometriosis diagnosis in adolescents remains difficult for a variety of reasons, including I a patient and physician knowledge gap and normalisation of symptoms, particularly when adolescents typically present atypically with noncyclical pain; (ii) a lack of research specific to adolescents; and (iii) a higher threshold for laparoscopic surgery for definitive diagnosis. [4]

A large retrospective cohort study previously reported that the recurrence rate of ovarian endometrioma in adolescents after primary surgery rises over time, with a relatively low recurrence rate of 6.4% after 24 months but 30.9% after 96 months. Notably, incomplete removal of endometrioma tissue due to surgical techniques such as piecemeal removal or cyst capsule ablation is associated with higher rates of recurrence.

As a result, given that we were unable to completely excise the remainder of the cyst wall from the terminal ileum without significant risk of bowel complications, the risk of recurrence in our case is considered high. Ongoing monitoring of the patient's symptoms and disease recurrence, risk of bowel complication with residual disease on the terminal ileum, and the small risk of malignant transformation over time has been arranged. The evidence for postoperative hormonal suppression to prevent recurrence is still lacking.

Postoperatively, the patient remained on the combined oral contraceptive.

Conclusion:

To summarise, this is a rare case of an adolescent with a large extraovarian endometrioma. It emphasises the importance of a broad differential diagnosis and considers endometriosis in any adolescent with pelvic pain and mass, particularly in an unusual setting. Increased endometriosis awareness, education, and research in this young population are critical for overcoming existing barriers to early diagnosis and treatment and avoiding morbidity associated with advanced disease.

Increased endometriosis awareness, education, and research in this young population are critical to overcoming existing challenges in the early diagnosis and optimal management of this chronic gynaecological condition and avoiding morbidity associated with advanced disease.

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