ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 05 | May - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

OVARIAN LEIOMYOMA - A RARE TUMOR

Obstetrics & Gynaecology

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ABSTRACT

Background: Ovarian leiomyoma is an extremely rare benign ovarian tumor, accounting for less than 1% of all ovarian neoplasms. Preoperative diagnosis is challenging, and histopathological examination post-surgery remains the gold standard for diagnosis. We present a case of a 61-year-old woman diagnosed with ovarian leiomyoma after undergoing surgery for post-menopausal bleeding. **Methods:** Imaging studies such as USG and MRI raised suspicion of a left ovarian tumor, and the final diagnosis was confirmed through histopathology. The patient underwent Total Abdominal Hysterectomy with Bilateral Salpingo-Oophorectomy (TAH+BSO), with histopathological examination confirming ovarian leiomyoma. **Results:** The patient's final diagnosis was confirmed by histopathology and immunohistochemistry, showing features characteristic of ovarian leiomyoma. The patient recovered well post-surgery. **Conclusion:** This case highlights the difficulty in diagnosing ovarian leiomyoma preoperatively and emphasizes the importance of histopathological and immunohistochemistry evaluation for confirmation.

KEYWORDS

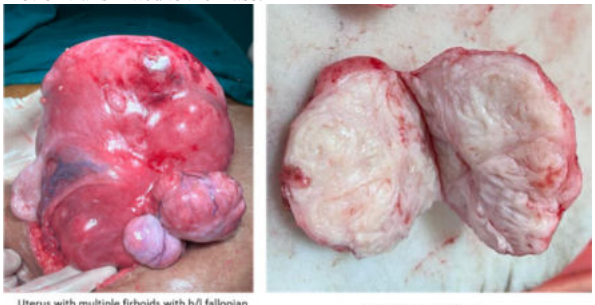
Ovarian leiomyoma, post-menopausal bleeding, total abdominal hysterectomy, histopathology, immunohistochemistry.

INTRODUCTION

Ovarian leiomyoma is one of the rarest benign tumors of the ovary, comprising less than 1% of all ovarian neoplasms. First described in 1862, fewer than 200 cases have been reported in the literature. Ovarian leiomyomas probably arise from smooth muscle cells in the ovarian hilar blood vessels, but other possible origins are cells in the ovarian ligament, smooth muscle cells or multipotential cells in the ovarian stroma, undifferentiated germ cells, and cortical smooth muscle metaplasia. Due to its rarity, preoperative diagnosis is challenging, and histopathological examination (HPE) post-surgery is often required for confirmation. This case aims to review the diagnostic and therapeutic approach to ovarian leiomyoma, with emphasis on imaging, histopathology and immunohistochemistry.

Case Details

A 61-year-old woman, P4L4, presented with a one-year history of post-menopausal bleeding. She had a known history of Type 2 diabetes mellitus for 1 year. On clinical examination, a firm, irregular mass corresponding to the size of a 20-week gravid uterus was palpated. The mass was non-tender, with all borders clearly defined. On per speculum examination, the cervix and vagina appeared healthy. Bimanual examination revealed a firm mass, approximately the size of a 20-week uterus, that was continuous with the uterus, with a groove sign present, and mobile. Right fornix fullness was noted, and cervical motion transmitted to the mass.



Uterus with multiple firboids with b/l fallopian tubes, bulky left ovary and normal right ovary

Cut section of Left ovary

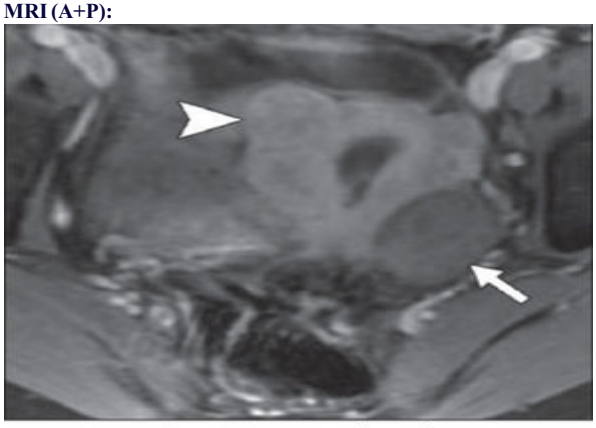
Fig 1

Investigations:

Ultrasound (USG A+P):

- Bulky uterus (100x56x68mm) with endometrial thickness (ET) of ~21mm.
- Multiple fibroids in the anterior wall (30x26mm).
- A well-defined hypoechoic lesion with multiple calcifications in the left adnexa, raising suspicion of either a large subserosal degenerated fibroid or a left ovarian solid tumor.
- Left ovary not separately visualized; right ovary appeared normal.

MRI (A+P):



Ovarian Leiomyoma (arrow)
Uterine Leiomyoma (arrow head)

Fig 2

- Bulky uterus (130x146x157mm), multiple fibroids (largest 127x113x132mm).
- Right ovary (33x22x30mm) normal.
- Left ovary enlarged (51x39x47mm), with a focal lesion exhibiting signal enhancement similar to uterine fibroids, suggestive of ovarian leiomyoma.
- Endometrial biopsy:
- Features suggestive of endometrial hyperplasia without atypia.

Tumor Markers:

- CA125: 14.23 U/ml
- Serum LDH: 398.5 U/ml
- CA19.9: 10.31 U/ml
- AFP: 2.65 ng/ml
- CEA: 2.81 ng/ml
- Inhibin B: 209 pg/ml

Procedure Planned:

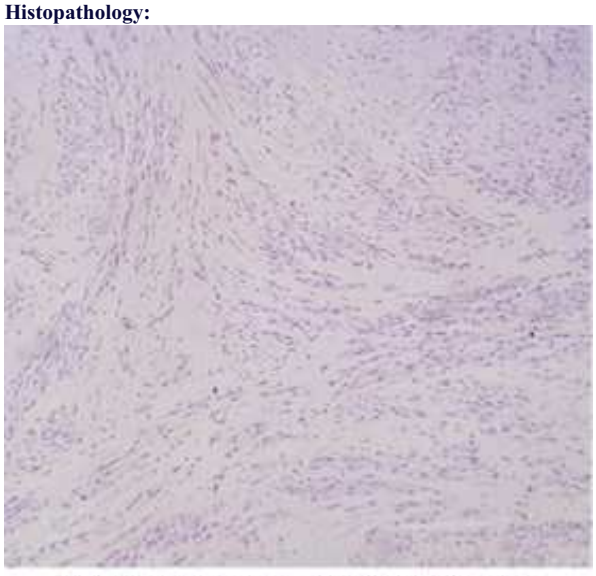
Exploratory laparotomy with frozen section analysis

Intraoperative Findings

- The uterus was enlarged, measuring approximately 20x15 cm, with multiple fibroids weighing 1.74 kg.
- The left ovary was hard in consistency, approximately 5x4 cm, and

was sent for frozen section, which was reported as benign.
- Both fallopian tubes and the right ovary appeared normal.
- A total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH+BSO) was performed.

Histopathology:

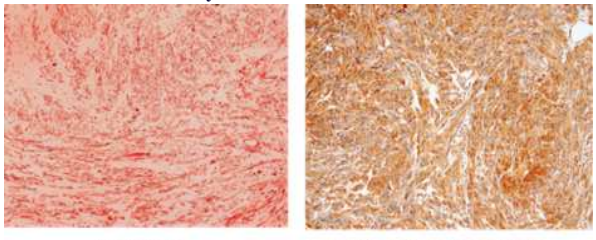


HPE: Interlacing fascicles of spindled muscle cells

Fig 3

- Left Ovary: Sections showed multiple globular tissue masses with intersecting fascicles of spindled smooth muscle cells interwoven with loose connective stroma. The tissue showed fibromuscular characteristics with few blood vessels. No evidence of malignancy was seen.
- Diagnosis: Ovarian Leiomyoma with extensive hyalinization.
- Endometrium: Hyperplasia without atypia.
- Myometrium: Unremarkable.
- Cervix: Chronic cervicitis with nabothian cyst.
- Fallopian Tubes: Unremarkable, with patent luminae.
- Right Ovary: Normal.

Immunohistochemistry:



Desmin Positive SMA (Smooth Muscle Actin) Positive

Fig 4

Smooth muscle actin (SMA) and Desmin are both mesenchymal tissues derived markers. SMA is used in the diagnosis of smooth muscle tumours. It is used to identify leiomyoma and exclude follicular membrane cell tumor. Desmin can maintain the migration direction of actin and myosin filaments, expressing in almost all smooth muscle cells. A positive desmin can exclude fibroma.

DISCUSSION

Ovarian leiomyoma is an uncommon benign tumor that rarely presents with specific clinical symptoms. Preoperative diagnosis is difficult, and many cases are discovered only during surgery. Most ovarian leiomyomas are unilateral, small, and well-circumscribed. However, in some cases, large tumours can cause symptoms such as pelvic pain or signs of Meigs syndrome, which includes hydrothorax and ascites.

Although ovarian leiomyomas are more commonly reported in postmenopausal women, they can also occur in younger women, including nulligravida. In younger women, ovarian leiomyomas may present with nonspecific symptoms such as pelvic pain, bloating, or irregular menstrual cycles. The possibility of ovarian leiomyoma should be considered in the differential diagnosis of any pelvic mass, especially in patients with a history of infertility or those presenting with unusual gynaecological symptoms.

In nulligravida patients, the presence of an ovarian leiomyoma may complicate fertility assessments and treatment, as these tumours can be mistaken for other more common ovarian masses, such as fibromas or cystadenomas. Moreover, the approach to surgical treatment may vary in this group, as fertility-preserving surgery could be considered depending on the size of the tumor, its location, and the patient's reproductive desires. The rarity of ovarian leiomyoma in younger women means that clinical suspicion should be high, and diagnostic imaging and histopathological evaluation are essential for accurate diagnosis.

Differentiating ovarian leiomyoma from other ovarian tumours such as fibromas, sex cord-stromal tumours, and leiomyosarcomas is essential. Immunohistochemistry plays a crucial role in this distinction. Markers like smooth muscle actin (SMA) and desmin are used to identify smooth muscle-derived tumours. A positive SMA and desmin staining suggest a diagnosis of ovarian leiomyoma.

Ovarian leiomyomas are typically treated surgically, with the approach depending on the patient's age, fertility desires, and tumor characteristics. In younger patients, ovary-preserving surgery may be considered, while older patients may undergo total hysterectomy and bilateral salpingo-oophorectomy. Recurrence is rare, even in atypical cases.

CONCLUSION

Ovarian leiomyomas are a rare and often challenging diagnosis, typically requiring histopathological confirmation. Surgical treatment remains the mainstay, with the potential for fertility-preserving options in select cases. Awareness of this rare condition is essential for clinicians, particularly when managing patients with ovarian masses.

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