

Lipoleiomyoma: An Uncommon Tumor with Diverse Presentations

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Abstract: Uterine lipoleiomyoma is an uncommon benign tumor composed of smooth muscle and mature fat cells, usually identified in women after menopause, though it may occasionally appear in younger patients. Two contrasting clinical presentations are described, one in an older woman with mild symptoms and another in a younger patient with a large abdominal mass and long standing discomfort. Imaging in both situations suggested a fat containing uterine lesion, yet the final clarity came only after histopathological examination, which showed a mixture of adipocytes and smooth muscle without atypia, necrosis, or increased mitotic activity. What stands out here is how easily such lesions can be mistaken for more aggressive conditions, especially when size and symptoms vary widely. The discussion moves through possible origins, including metabolic and hormonal influences, while also touching on the idea of metaplastic change within the myometrium. Clinical features often remain subtle, which makes incidental detection fairly common, but larger tumors can lead to pressure related symptoms. Management tends to follow conventional approaches used for leiomyomas, with surgery considered when symptoms demand it. Careful microscopic assessment remains central, as it helps separate this benign entity from malignancies such as liposarcoma. Awareness of this rare variant becomes important in routine practice, particularly when radiological findings raise suspicion of fat containing pelvic masses, ensuring that patients are not exposed to unnecessary concern or overtreatment.

Keywords: uterine lipoleiomyoma, benign uterine tumor, adipocytes and smooth muscle, histopathological diagnosis, fat containing pelvic lesion

1. Introduction

Uterine lipoleiomyoma is a rare benign neoplasm under the umbrella of uterine leiomyoma.¹ Its incidence ranging from 0.03% to 0.2%.² Lipoleiomyoma is a mesenchymal tumor composed of smooth muscles and mature adipocytes. The lesion most commonly occurs in postmenopausal women with nearly 80% of reported cases found in this group³. Literature has given varied names to this entity as uterine fatty tumor, mixed lipoma or as manifestation of metaplastic changes. Despite varying theories, lipoleiomyoma follow a benign course.⁴

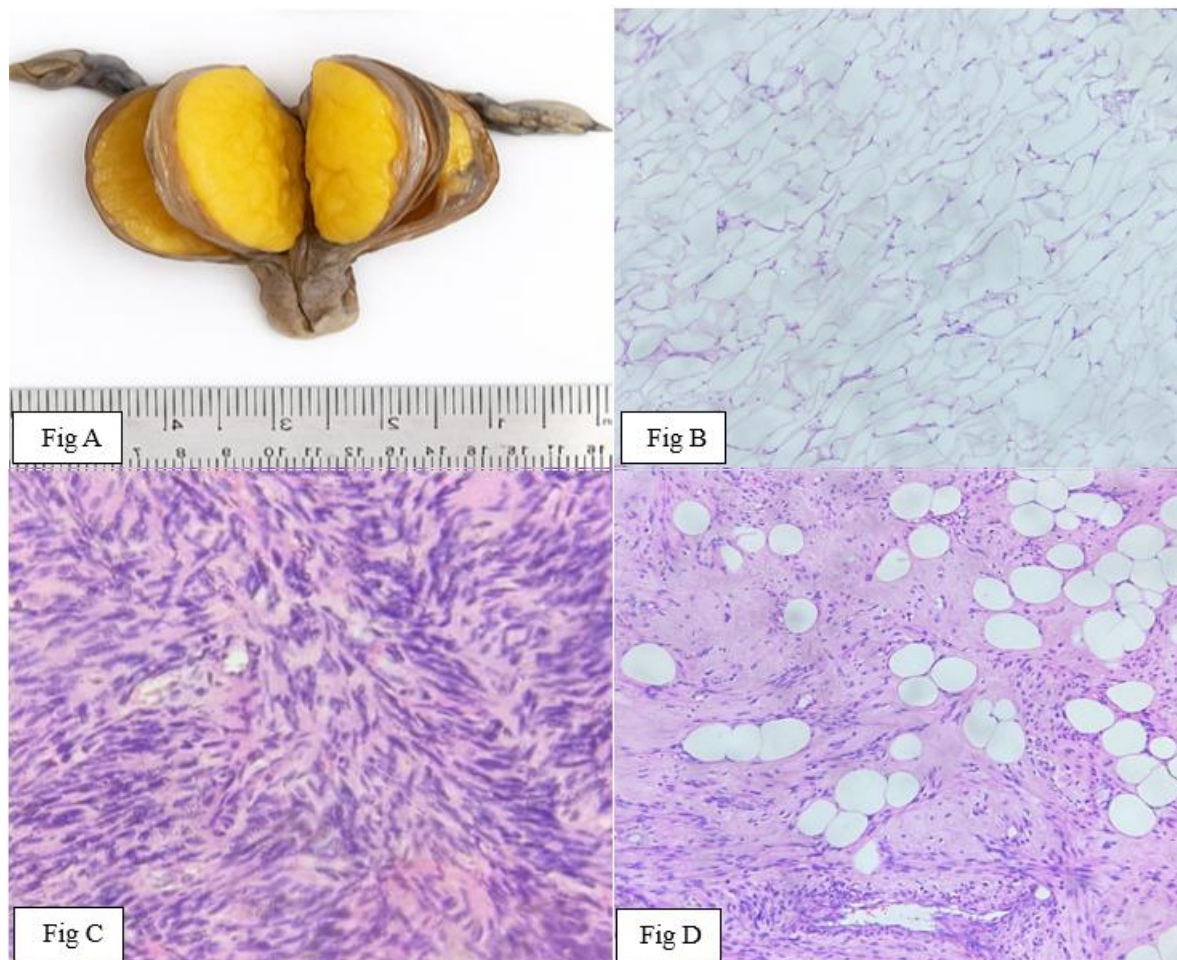
2. Case Details

Case 1: A 62 year old postmenopausal women presented to the obstetrics and gynaecology department with abdominal pain for 3 weeks, attained menopause 10 years back. On gynaecological examination, the cervix, vulva and vagina appeared clinically normal. Abdominal and pelvic contrast enhanced MRI revealed a hyperintense mass in the anterior wall of uterus. The patient subsequently underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy.

Post operatively, in gross examination, there was a fibroid measuring 8.5x5.5x3cm with soft yellowish cut surface. Histopathological examination revealed predominantly lobules of adipocytes with foci showing interlacing fascicles of smooth muscle cells and areas of hyalinization, without lipoblast, no atypia, no necrosis, no increased mitotic count and the above findings confirmed the diagnosis of lipoleiomyoma.

Case 2: A 33 year old female presented with dysmenorrhea and abdominal distension for 1 year. On examination, per abdomen showed a mass of 34 weeks size, firm in consistency and was non tender. Contrast enhanced MRI revealed well defined abdomino-pelvic hyperintense lesion with few hypointense areas extends from fundus to posterior wall of uterus. The patient underwent total abdominal hysterectomy.

Post operatively, there was a fibroid measuring 20x19x12cm with a firm, whorled cut surface with focal hemorrhagic and myxoid areas and HPE revealed a lesion composed of interlacing fascicles of spindle cells with areas of myxoid changes and areas of intermixed mature adipocytes seen. Areas show congested and dilated blood vessels with thrombi formation. There was no evidence of increased mitosis, lipoblast, atypia, or necrosis seen. The findings were consistent with the diagnosis of lipoleiomyoma with secondary degenerative changes.



Figure

- A: Gross specimen; Cut surface of uterus showing grey yellow homogenous lesion (case 1)
 B: HPE; H&E - lobules of mature adipocytes (10x)
 C: HPE; H&E - Foci showing spindle cell component (40x)
 D: HPE; H&E - Interlacing fascicles of spindle cells intermixed with mature adipocytes (case 2)

3. Discussion

Lipoleiomyoma is a rare type of mesenchymal neoplasm, a benign variant of uterine leiomyoma characterized by an admixture of mature adipocytes and smooth muscle cells.⁵ It is most frequently seen in perimenopausal and postmenopausal women, suggesting a possible role of lipid metabolism alteration and hormonal influences in its development.^{6,7}

Some studies have noted, that higher incidence in women with hyperestrogenic states or endocrine disorders, suggesting hormonal dysregulation contributes to lipoleiomyoma.⁸ Some authors states that adipocytes can also originate from embryonic mesenchymal cells trapped within the myometrium during development. Although the exact pathogenesis remains unclear, proposed mechanisms include lipomatous metaplasia of smooth muscle cells, misplaced embryonic fat cells, or fatty infiltration secondary to degenerative changes in a conventional leiomyoma.

Clinically, lipoleiomyomas are usually asymptomatic¹ and discovered incidentally, because the symptoms are similar to typical leiomyomas. When symptoms occur, they are generally related to mass effect resulting in pelvic pain, pelvic

discomfort, urinary frequency, constipation, menstrual abnormalities, or occasionally acute pain due to torsion or degeneration.⁹ In case of cervical lipoleiomyoma, presented with dysuria, urinary urgency and urethral obstruction. Uterine prolapse can be caused by continuous enlargement of tumor as a severe complication¹. Lipoleiomyoma can be common associated with metabolic disorders like hyperlipidemia, hypothyroidism and diabetes mellitus.² Radiologically, the presence of fatty components on ultrasound, CT or MRI helps to narrow the differential diagnosis.³ It usually present as a solitary mass ranging from 0.5 to 55cm in size.⁸ MRI, particularly helps to differentiate lipoleiomyoma from other fat containing pelvic lesions such as mature cystic teratoma, liposarcoma, angiomyolipoma, and well-differentiated lipoma.^{7,10}

Typically, lipoleiomyomas are asymptomatic and clinically similar to leiomyomas; they do not require any special/specific treatment. Hysterectomy is the first line surgical management for these tumors. Depending on the patient's symptoms and fertility goals, surgical procedures like uterine artery embolization and myomectomy, can be performed.⁴

Histopathology remains the gold standard for diagnosis.⁴ Lipoleiomyomas typically show interlacing fascicles and

bundles of benign smooth muscle cells admixed with mature adipocytes without atypia, necrosis and without mitotic activity. These tumors will not have infiltrative margins.⁵ Immunohistochemistry demonstrates SMA/Desmin positivity in smooth muscle areas and S100 positivity in adipocytes, confirming the biphasic nature.⁶ The key differential diagnosis on microscopy is well-differentiated liposarcoma, which shows lipoblasts, nuclear atypia, increased mitosis and MDM2/CDK4 positivity—features absent in lipoleiomyoma.

Lipoleiomyomas generally follow a benign clinical course with negligible risk of malignant transformation. However, they may coexist with other hormonally driven conditions such as adenomyosis, endometrial hyperplasia or carcinoma, particularly in postmenopausal women; hence proper evaluation is recommended.¹¹

4. Conclusion

Lipoleiomyoma is a rare benign variant of uterine leiomyoma that can mimic other fat containing pelvic lesions clinically and radiologically. Accurate diagnosis relies on careful histopathological examination. Although the lesion is benign with an excellent prognosis, awareness of this entity is important to avoid misdiagnosis as liposarcoma or other neoplasms. Our case highlights the importance of considering lipoleiomyoma in the differential diagnosis of uterine masses with varied presentations and reinforces the value of histopathology in confirming the diagnosis and guiding appropriate management.

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