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Case Report

Uterine Lipoleiomyoma: Case report and review of literature

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Abstract

Lipoleiomyomas of the uterus are rare benign variant of leiomyoma and the literature suggests an incidence rate between 0.03% and 0.2%. These tumours are usually seen in postmenopausal age group and are mainly asymptomatic. Histo-morphologically, they present with intermingling fascicles of smooth muscle cells, lobules of mature adipose tissue and intervening fibrous areas. Here, we report two cases of a 46-year-old perimenopausal who presented with heavy menstrual bleeding and a 74-year-old postmenopausal woman who presented with uterovaginal prolapse. A primary diagnosis of leiomyoma was made based on clinical and radiological features however, histopathological diagnosis revealed it to be lipoleiomyoma.

Keywords: Lipoleiomyoma, Perimenopausal, Postmenopausal, Rare, Benign

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1. Introduction

Uterine lipoleiomyoma are considered to be rare benign variant of leiomyomas and are generally unusual. Microscopic examination shows that they are predominantly composed of admixture of benign adipocytes and uterine smooth muscles with intervening fibrous spaces.[1-2] Various studies have showed that the incidence rate of uterine lipoleiomyoma have a range from 0.03-0.2%,[1,3] The patients are mainly asymptomatic but may present as abdominal pain, palpable pelvic mass, abnormal uterine bleeding, constipation and increased urinary frequency.[2.4] A detailed clinical, radiological and histological investigations play an important role in the diagnosis and its management. In asymptomatic cases, follow up is recommended but in symptomatic and larger masses, surgical intervention is required4. Here, we report two cases of perimenopausal and postmenopausal females who presented with heavy menstrual bleeding and uterovaginal prolapse, which were later diagnosed to be lipoleiomyoma.

2. Case Series

2.1. Case 1

A 46-year-old perimenopausal patient, P3L3 woman presented with heavy menstrual bleeding since 6 months and history of discharge per vaginum since 1 month. Patient also complained of dysmenorrhea, passage of blood clots and increase in frequency of micturition. There was no other history of dysuria, abdominal distension, itching or fever. On physical examination, the vitals were found to be stable. Routine haematological investigations revealed that the patient was anaemic. The biochemical parameters were found to be within normal limit. In our case, the BMI of the patient was within normal range. On radiological examination, ultrasonography (USG) revealed a well-defined heterogeneously echogenic mass measuring 13x6cm seen abutting the endometrium. No calcification was noted. A possibility of leiomyoma was suggested. On cervical examination, no vulval or cervical growths and abnormalities were noted. The patient was planned for total abdominal hysterectomy subsequently.

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On gross examination, already cut open hysterectomy specimen was received which showed a diffuse greyish white growth obliterating the endometrial cavity. The growth measures 10 cm × 8 cm × 3 cm with areas of focal yellow fatty areas (**Figure 1, and**

Figure 2). Cervix was grossly unremarkable. Histopathological examination revealed a benign smooth muscle tumour with intermingling and interlacing fascicles of smooth muscle cells with sheets of mature adipocytes and fibrous tissue at places. No increased cellularity/ atypia/ mitosis/ necrosis was identified. (**Figure 3).** Based on histo-morphological features, the tumour was diagnosed as a benign lipoleiomyoma. The postoperative period was uneventful and on follow up, no complications or recurrence was seen.

2.2. Case 2

A 74-year-old female patient, P4L4 woman presented with uterovaginal prolapse since 4 months. Patient also complained of increase in frequency of micturition. There was no other history of dysuria, abdominal distension, itching or fever. On physical examination, the vitals were found to be stable. Routine haematological investigations and biochemical parameters were found to be within normal limit. On radiological examination, ultrasonography (USG) revealed a well-defined heterogeneously echogenic mass measuring 4x4cm, a possibility of leiomyoma was suggested.

Figure 1: Hysterectomy specimen with a diffuse greyish white mass with fatty areas measuring 10x8x3cm, obliterating the endometrial cavity.

Figure 2: Greyish white mass obliterating the endometrial cavity with areas of yellowish fatty foci.

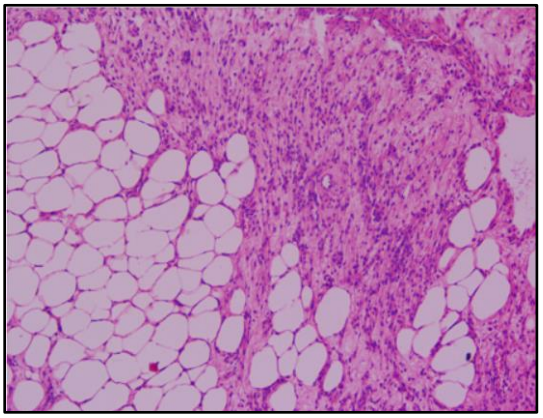

Figure 3: Admixture of intermingled fascicles of smooth muscle cells and mature adipocytes on histological examination (H&E stain, magnification 20x)

Figure 4: Hysterectomy specimen measuring 7.7x2.8x1.5cm, which showed a globular yellowish white growth measuring 4.5x4.5cm obliterating the endometrial cavity.

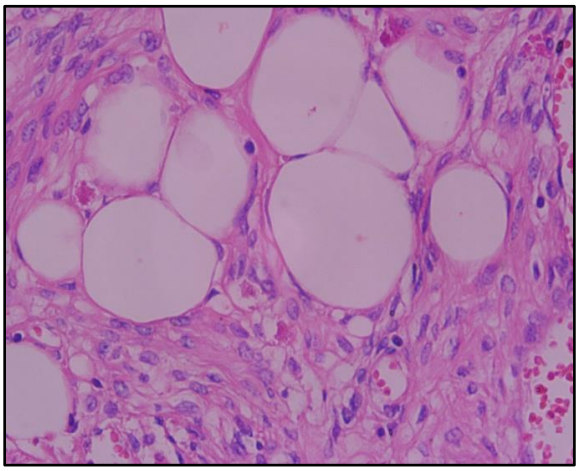

Figure 5: Admixture of smooth muscle cells and mature adipocytes on microscopic examination. No atypia/necrosis/ mitosis identified. (H&E stain, magnification 100x)

Gynaecological examination revealed tertiary uterovaginal prolapse. The patient was planned for total abdominal hysterectomy subsequently. On gross examination, a hysterectomy specimen was received measuring 7.7x2.8x1.5cm which showed a globular yellowish white growth measuring 4.5x4.5cm obliterating the endometrial cavity (**Figure 4).** Cervix shows denuded mucosa with areas of hemorrhagic foci. Histopathological examination revealed a benign smooth muscle tumour with interlacing fascicles of smooth muscle cells without nuclear atypia admixed with sheets of mature adipocytes and intervening fibrous tissue. Final diagnosis of lipoleiomyoma was made. (**Figure 5).** Immunohistochemistry was performed, which revealed immunoreactivity for S-100 and vimentin.

Based on clinical and histo-morphological features, the tumour was diagnosed as a benign lipoleiomyoma. The postoperative follow up was uneventful.

3. Discussion

A significantly uncommon entity, lipoleiomyoma has an incidence rate of 0.03-0.2%.[1,3] Yuan Y et al.[4] have suggested that the incidence rate has raised in the recent years and is 2.9%. Lipomas are further categorized into three groups – pure benign lipomas, lipomas with mesodermal components and the malignant counterpart liposarcoma.[5-7]. The lipomas with mesodermal components include lip leiomyomas, angiomyolipomas and fibromyolipomas.

Uterine lipoleiomyomas are usually seen in obese perimenopausal and postmenopausal women and is typically asymptomatic.[2,8] Ghosh B et al[9] have suggested that 90% of the patients are diagnosed above the age of 40 years. The literature also suggests that these tumours keep on increasing in size even after depletion of circulating oestrogen in postmenopausal age group.[9] Though mainly asymptomatic but the patients can also present with abnormal uterine bleeding, pelvic discomfort, palpable mass and urinary frequency.[3,6]

On gross examination, these tumours are well circumscribed with a thin connective tissue capsule. The most common location is posterior wall of uterine corpus.[1] Other sites that can be involved include ampulla of fallopian tube,[10] cervix [11], broad ligament and retroperitoneum. [12-13] In our case, the growth was greyish white, diffuse and infiltrated the entire uterus thereby obliterating the endometrial cavity in one case and other presented as a well circumscribed and encapsulated greyish yellow growth.

Radiological investigations like USG, CT and magnetic resonance imaging (MRI) can beused to diagnose the fatty component of the tumour. USG shows a hyperechoic mass partially encased by a hypoechoic rim, representing a peripheral strip of myometrium surrounding the lipid component of the tumor. High signal intensity on both T1- and T2-weighted images characterizes the fatty areas which is confirmed by fat suppression sequence[8]. Although MRI and CT can differentiate between lipoma and lipoleiomyoma, MRI is considered to be superior to CT as it enables better tissue characterization.[12-14]

The gold standard for diagnosis remains histopathology which shows intermingled fascicles of smooth muscle cells and mature adipocytes. Akbulut et al. in his study found that the fat component of tumor was positive for Ki-67, desmin, vimentin and ER and PR receptors.[5] The estrogen and progesterone receptor positivity shows the fatty tissue being related to the female genital organs. Terada et al. demonstrated the adipocytes of the tumors showed reactivity for vimentin, S100 protein, estrogen and progesterone receptors, while the smooth muscle part of the tumor showed immunoreactivity for vimentin, desmin, alpha-smooth muscle actin, estrogen and progesterone receptors.[11]. Sharma et al.[12] proposed the adipose cells of tumor positively stained for vimentin. Based on the commonality of positive staining of adipocytes for vimentin in the recent literature, it concludes that lipoleiomyomas probably result from smooth muscle cell metaplasia into fat cells that originate from mesenchymal cells.

The exact pathogenesis of this tumour remains unknown but mechanisms such as metaplasia of immature pluripotent mesenchymal cells or smooth muscle cells into fat cells is considered.[2,12-14] Literature also suggests that a hyperestrogenic state may lead to the development of lipoleiomyomas.[7] The associated gynaecological conditions including adenomyosis, endometriosis, endometrial hyperplasia, polyps and gynecologic carcinomas have also been documented.

Also, metabolic disorders such as hyperlipidemia, hypothyroidism and diabetes mellitus have also been noted to occur commonly in these patients.[5] The increased risk in postmenopausal women is due to lipid metabolic changes and increased plasma levels of lipids if the patient is obese, which could lead to increased likelihood of development.[5,11]

The asymptomatic cases are treated conservatively or are kept for follow up. Though malignant transformation has not been suggested but three cases have been reported by McDonald AG et al.[15] who observed development of liposarcomas within lipoleiomyoma. Oh SR et al found uterine lipoleiomyoma associated with a coexisting cervical cancer.[13] The differential diagnosis for a fat containing uterine lesion includes a benign lipoma, mature ovarian teratoma, benign lipoleiomyoma and benign or malignant degeneration of ordinary leiomyomas.[12,14] Lipoleiomyoma shows even distribution of adipose tissue throughout the lesion, unlike leiomyoma with fatty degeneration. It can also be distinguished from leiomyosarcoma by the bland morphology of the smooth muscle component.[1]

4. Conclusion

It is important for the physicians to be aware of lipoleiomyoma as a differential due to clinical symptoms and radiological findings which are similar to leiomyoma. Though malignant transformation is rare and an excellent prognosis is reported but follow up should be considered. Extensive grossing is advised since many gynaecologic conditions associated with lipoleiomyoma have been reported.

5. Source of Funding

None.

6. Conflict of Interest

None.

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