Case Report

Uterine Lipoleiomyoma in Peri- and Post-menopausal Women: A Report of Three Cases

Abstract

Lipoleiomyoma is a very uncommon lipomatous tumor of the uterus, composed of smooth muscles intermixed with mature adipocytes. Herein, we report three cases of uterine lipoleiomyoma. All the patients were peri- and post-menopausal. Except for one lipoleiomyoma in the broad ligament, the other two were found in the uterine corpus. Lipoleiomyomas have a benign clinical course.

Keywords: *Lipoleiomyoma, menopause, uterus*

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Introduction

Lipomatous lesions of the uterus are very unusual benign neoplasms.[1] The incidence of these benign lesions has been reported to range between 0.03% and 0.2%.[1,2] The spectrum of lipomatous lesions comprises pure lipoma, lipoleiomyomas, and fibrolipomyomas.[3] There are various proposed theories regarding the histogenesis of these lesions.[3]

Lipoleiomyoma is a very rare lesion of the uterine leiomyoma comprising an admixture of long intersecting bundles, smooth muscle cells, and lobules of mature fat cells separated by thick fibrous tissue.[3,4] Most commonly described in the uterine corpus, lipoleiomyoma has been reported in cervix, broad ligament, and retroperitoneum.[5,6] Lipoleiomyoma has been reported with other uterine pathologies such as adenomyosis, endometriosis, endometrial hyperplasia, and polyps.[4] It occurs primarily in obese perimenopausal and postmenopausal women. Most of the patients are asymptomatic, but some experience symptoms such as pelvic discomfort, heaviness, and vaginal bleeding.[3] Here, we report a series of three cases of uterine lipoleiomyoma with different clinical presentations.

Case Reports

Case 1

A 51-year-old woman presented with a history of pain abdomen and abnormal uterine bleeding, as shown in Table 1. Further, history revealed that the patient was a known case of hypertension and diabetes mellitus, presently on medications.

On physical examination, vitals were stable and abdominal examination revealed a mass of 12-week size which was firm and nontender. The gynecological examination did not show any vulval or cervical abnormalities. Ultrasonography (USG) revealed a heterogeneously echogenic lesion in the pelvis suggestive of a fibroid. The patient underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy.

On gross examination, the endometrial cavity was patent and normal in thickness. Multiple intramural and subserosal fibroid were identified varying in size from 0.5 to 5 cm in diameter and one, well-circumscribed yellowish lesion measuring 2 cm × 1.5 cm × 1 cm in diameter was identified in the subserosal location of the uterine corpus [Figure 1]. Cervix and both ovaries were grossly unremarkable. Histopathological examination revealed an endometrium in the secretory phase. Myometrium showed a subserosal leiomyoma. The subserosal well-circumscribed lesion showed lobules of mature adipocytes admixed with smooth muscle bundle. On immunohistochemistry (IHC), the smooth muscle bundles were positive for smooth muscle actin (SMA), desmin, and vimentin. Adipocytes were positive for vimentin and S100. Estrogen receptor (ER)

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and progesterone receptor (PR) were negative in both smooth muscle and adipocytes. Based on these findings, the tumor was diagnosed as lipoleiomyoma. The attached uterine adnexal structures were unremarkable. The patient was discharged on the 4th postoperative day and was on regular follow-up.

Case 2

A 49-year-old postmenopausal obese woman presented with a history of recurrent abdominal pain for 4 months, as shown in Table 1. The pain increased in intensity along with multiple episodes of vomiting for the past 2 weeks. She was gravida 2 and para 2 and attained menopause 3 years back. There was no history of postmenopausal bleeding, vaginal discharge, dysuria, abdominal distension, or fever. She was a known case of hypertension and diabetes mellitus, presently on medication.

Systemic examination revealed an abdominal mass of 12-week size, which was firm and nontender. Per vaginal examination was unremarkable. USG revealed a normal uterus with thickened endometrium of 5 mm with a large heterogeneously echogenic lesion in the broad ligament measuring 12 cm × 7.5 cm × 5 cm suggestive of a fibroid.

The women underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. Grossly, a broad ligament mass was also received measuring 12 cm × 7.5 cm × 5 cm. The outer surface was encapsulated, smooth, with few prominent vessels. The cut surface was solid with a yellowish color [Figure 2]. Cervix showed a polyp and the rest of the uterus and bilateral adnexa were grossly normal. Microsections of broad ligament mass showed interlacing fascicular arrangement of smooth muscle bundle admixed with the clusters of mature adipocytes [Figure 3]. On IHC, SMA, desmin, vimentin, ER, and PR were positive in the smooth muscle component, whereas vimentin, S100, ER, and PR were positive in the adipocytic component. Based on the morphological and IHC findings, a diagnosis of lipoleiomyoma of the broad ligament was rendered. Endometrium was in the proliferative phase; myometrium was unremarkable. Cervix showed features of chronic cervicitis with an endocervical polyp and nabothian cyst. Bilateral adnexa were unremarkable. The postoperative period was uneventful and the patient is on regular follow-up.

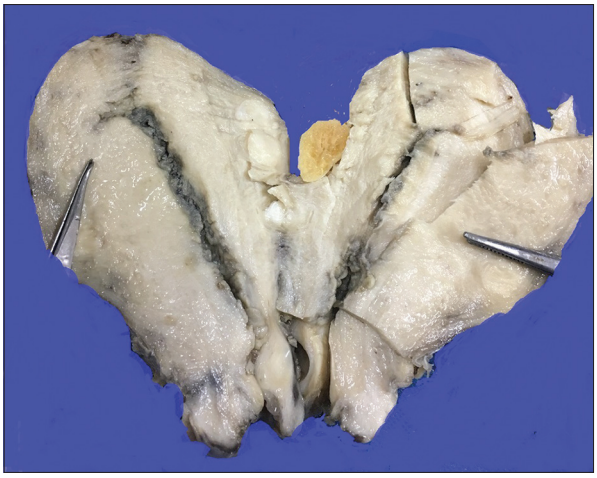

Figure 1: Well-circumscribed yellowish lesion in the subserosal location of the uterine corpus

Case 3

A 75-year-old gravida 4 and para 4, postmenopausal woman presented with the complaint of abdominal pain and abdominal distension, which was gradually increasing since the past 6 months as shown in Table 1. She had a normal menstruation history. On general physical examination, she was hemodynamically stable. The systemic examination showed a palpable mass in the abdominal cavity which could not be lateralized. On per vaginal examination, uterus was anteverted. USG revealed a large left ovarian cystic mass with a solid area measuring 20 cm × 20 cm × 10 cm. Therefore, a radiological impression of the left ovarian malignant neoplasm was made. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was done. Grossly, the ovarian mass was cystic and filled with serous fluid. In uterine corpus, a subserosal fibroid was identified measuring 3 cm in diameter. It was yellowish in color. Other adnexal structures were normal. On microscopic examination, the left ovarian mass showed features of serous cystadenoma and the subserosal fibroid showed features of lipoleiomyoma. On immunohistochemical analysis, the smooth muscle bundles were immunoreactive for SMA, desmin, vimentin, ER, and PR [Figure 4]. Adipocytic cells were immunoreactive for vimentin, S100, ER, and PR [Figure 5]. The intraoperative and postoperative period was uneventful. The patient is on regular follow-up without any recurrence.

Table 1: Clinical details of the patients with lipoleiomyoma

Age (years)	Clinical features	Location and number of lesion	Size of the lesion (cm)	Associated findings
51	G3P3 perimenopausal with abnormal uterine bleeding.	Single subserosal	2×1.5×1	Left peritubal cyst and multiple leiomyomas
49	G2P2 postmenopausal with recurrent abdominal pain and vomiting	Left broad ligament	12×7.5×5	Endocervical polyp
75	G4P4 postmenopausal with abdominal pain and distension	Single subserosal	3×3 × 3	Serous cyst adenoma of the left ovary

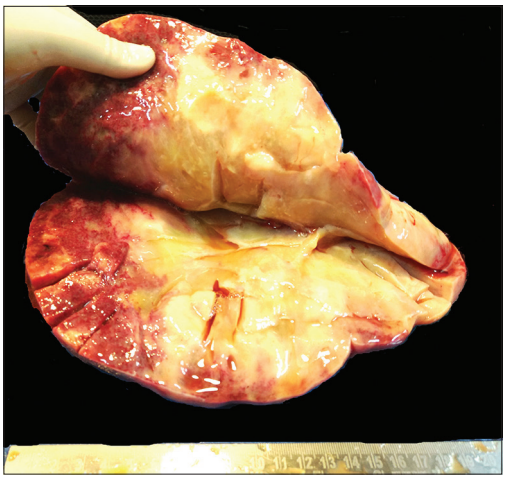

Figure 2: Cut section of the broad ligament mass was solid with yellowish color

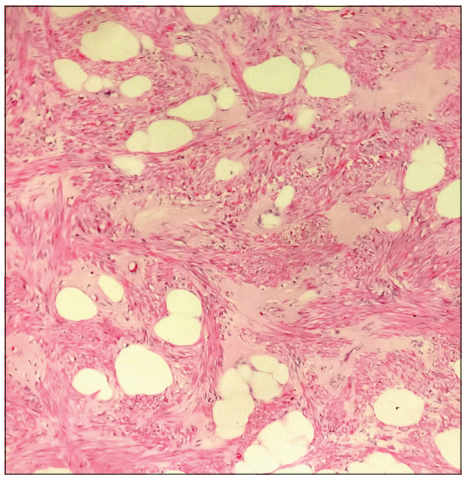

Figure 3: Histopathology showing interlacing fascicular arrangement of smooth muscle bundle admixed with the clusters of mature adipocytes (H and E, ×40)

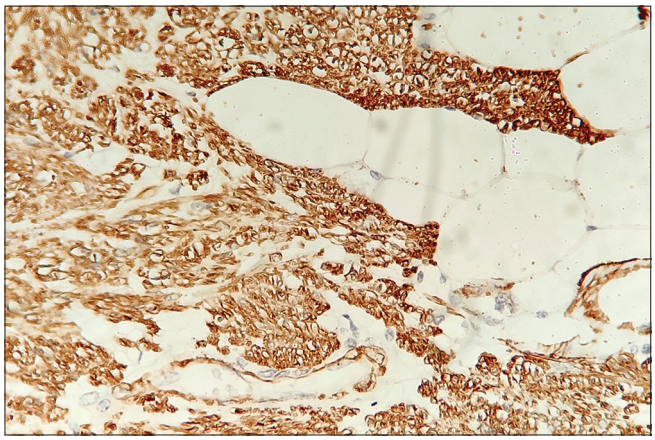

Figure 4: Immunoreactivity of smooth muscle actin in smooth muscle (immunohistochemistry, ×40)

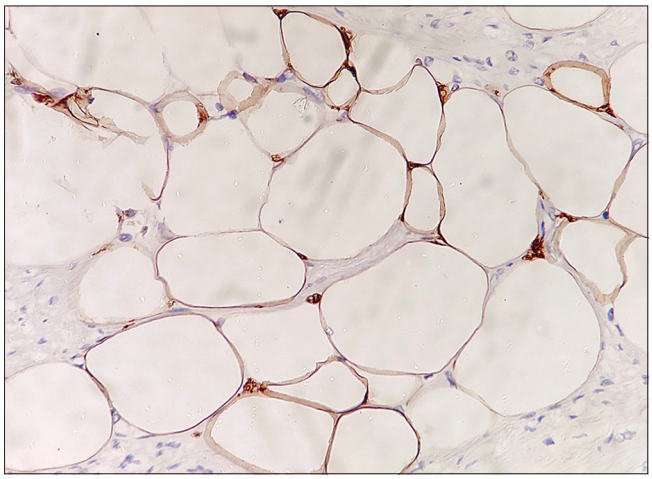

Figure 5: Immunoreactivity of S100 in adipocytes (immunohistochemistry, ×40)

Discussion

Lipoleiomyoma is a very uncommon lipomatous lesion of the uterus.[5] These tumors are composed of benign smooth muscle and mature adipose tissue.[4] There are various hypotheses regarding the histogenesis of the lipomatous lesions of the uterus that includes misplaced embryonic fat cells, adipose metaplasia of stromal or smooth cells, fatty infiltration or degeneration of connective tissue, or pluripotential cells or lipoblasts migrating along uterine arteries and nerves.[3] However, the most accepted hypothesis is that lipoleiomyomas result from adipocytic metaplasia of uterine smooth muscle cells which can proceed to form localized or diffuse mature adipocyte tissue in leiomyoma or in the myometrium.[7]

Uterine lipoleiomyoma is commonly seen in obese perimenopausal and postmenopausal women, which corroborates our case series also. In the present case series, two out of three cases were postmenopausal and one of them was perimenopausal. Most of the patients are usually asymptomatic.[7] However, some may be presented with symptoms such as abnormal uterine bleeding, palpable mass, pelvic discomfort and heaviness along with urinary frequency, and incontinence similar to the symptoms of leiomyoma.[7] In many works of literature, it has been reported that metabolic diseases including hyperlipidemia, hypothyroidism, and diabetes mellitus may be associated with uterine lipoleiomyoma.[3] In the present case series, two of three patients were suffering from hypertension and diabetes mellitus. Lipoleiomyomas most commonly occur in the uterine corpus in an intramural location.[8] They have also been described in the cervix, retroperitoneum, and broad ligament.[6,9] In the present case series, locations of the lesions were subserosal, intramural, and broad ligament. These may present as solitary or multiple lesions, with an average size range of 5–10 cm, but it can vary from a few mm to 32 cm in size.[10] In the present case series, the size of the masses ranged from 2 to 12 cm.

In addition, lipoleiomyomas may be commonly associated with leiomyomas, adenomyosis endometriosis, endometrial hyperplasia, and polyps in the same patient.[3,4] In the

present case series, associated lesions were leiomyoma, endocervical polyp, and ovarian serous cystadenoma.

Magnetic resonance imaging and computed tomography can help in determining the fatty nature and intrauterine location of lipoleiomyomas, but most of the time, these lesions are incidental findings postoperatively and on histopathology.[10] Ultrasonographically, lipoleiomyoma appears as a hyperechoic lesion with a partially hypoechoic rim which represents a layer of myometrium surrounding the fatty component. However, it is difficult to differentiate uterine lipoleiomyoma with other lipomatous tumors.[10]

Histologically, lipoleiomyoma can be differentiated from leiomyoma with fatty degeneration, by the even distribution of adipose tissue admixed with smooth muscle bundle.[10] Further, it can be distinguished from leiomyosarcoma by the bland appearance of the nuclei and occasional mitosis in the smooth muscle component.[9] In the present series of three cases of lipoleiomyomas, the smooth muscle component was positive for SMA, desmin, and vimentin, while the adipocytes were positive for vimentin, thus supporting the theory of direct transformation of muscle cells into adipose cells. Moreover, the immunohistochemical positivity of ER and PR in the adipose tissue component of the two cases suggests that the adipose element is specific fat tissue related to the female genital organs.

The lipomatous mass in the pelvis has varied differential diagnosis including benign cystic teratoma, malignant degeneration of cystic teratoma, nonteratomatous lipomatous ovarian tumor, pelvic lipomas and liposarcomas, and pelvic fibromatosis.[3,5]

It is important to differentiate lipoleiomyomas from other fatty lesions of the female pelvis as the management differs. Malignant fatty lesions require a radical hysterectomy whereas lipoleiomyomas, which are benign like leiomyomas, require myomectomy or hysterectomy if symptomatic. Lipoleiomyomas require no treatment if asymptomatic.[1,5]

Therefore, it is important for the physicians to be aware of the lipomatous lesions of the uterine cavity as clinical symptoms of lipoleiomyoma are very similar to leiomyoma and have a distinctive radiological, histological, and immunohistochemical characteristics so as to make a decision of proper treatment plan of the lesions.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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