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Pure Uterine Lipoma, a Very Rare Benign Tumor

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Pure lipomas of the uterus are very rare tumors that may be misdiagnosed on radiological examination due to their rarity and fat content. We present here the case of a 57-year-old postmenopausal woman who presented to the hospital with lower abdominal pain. Abdominal hysterectomy and bilateral salpingo-oophorectomy were performed under the prediagnoses of benign cystic ovarian teratoma or leiomyoma. On the histopathological examination of tissue samples, the tumor was composed of mature fat cells. There were a few smooth muscle cells confined to the periphery. Pure uterine lipoma may be asymptomatic or it may have symptoms similar to those of leiomyoma such as vaginal bleeding or pelvic pain. A pure lipoma should be diagnosed only if smooth muscle cells are confined to the periphery.

Key Words : Lipoma; Uterus; Adipocytes

Benign lipomatous tumors of the uterus are known as lipoma when they only contain fat cells, and as lipoleiomyoma when they contain smooth muscle as well as fat cells.[1] Pure lipomas of the uterus are very rare tumors that may be misdiagnosed on radiological examination due to their rarity and fat content.[2]

CASE REPORT

A 57-year-old postmenopausal woman presented to the hospital with lower abdominal pain. On the physical examination, a midline mass extending towards the left was identified. Abdominal ultrasonography (USG) revealed a 48 × 48 mm hypoechoic mass in the uterine corpus, it was extending towards the fundus and it was not shown to be directly related to the endometrium, and it was diagnosed as a degenerate leiomyoma. Endometrial curettage was performed and microscopic examination showed blood, mucus, endocervical epithelium and endometrial stromal tissue.

The patient was referred to our hospital with the prediagnosis of leiomyoma. The abdominal USG repeated in our hospital revealed a 45 × 39 × 45 mm heterogeneous echogenic mass on the anterior of the uterine corpus, and this was diagnosed as either leiomyoma or fibromyoma. The following pelvic magnetic resonance imaging (MRI) showed a 45 × 35 mm well-circumscribed cystic mass with septation in the left ovarian lodge, which supported the diagnosis of benign cystic ovarian teratoma.

Abdominal hysterectomy and bilateral salpingo-oophorectomy were performed under the prediagnoses of benign cystic ovarian teratoma or leiomyoma. The hysterectomy specimen showed a yellow, well circumscribed intramural mass that had distorted the endometrial cavity (Fig. 1). On the histopathological examination of the tissue samples, the tumor was composed of mature fat cells (Fig. 2). There were a few smooth muscle cells confined to the periphery (Fig. 3). An immunohistochemical study was performed for smooth muscle actin (1 : 100, MM1A4, Dako, Glostrup, Denmark) and S-100 (1 : 400, RP , Dako). The smooth muscle cells in the surrounding tissue and in the periphery of the tumor were reactive to smooth muscle actin (Fig. 4). The adipose cells were negative for smooth muscle actin. S-100, which was used to show the nucleus of the fat cells, was positive in the lipomatous tissue (Fig. 5). The tumor was therefore diagnosed as a "pure uterine lipoma."

The findings of pressure were present in the myometrium. The endometrium showed evidence of postmenopasual atrophy. A leiomyoma was detected in the sections of the myometrium.

Fig. 1. The gross specimen of the uterine lipoma shows a yellow well-circumscribed mass within the uterine corpus.

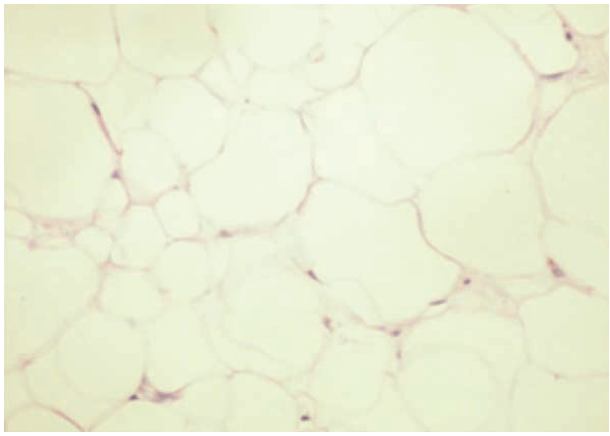

Fig. 2. The tumor is composed of mature fat cells.

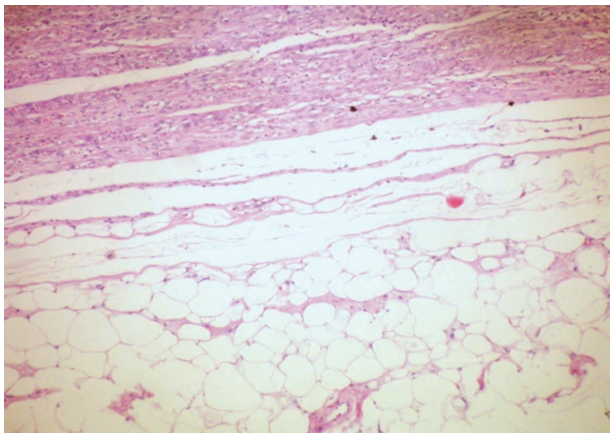

Fig. 3. A small amount of smooth muscle cells among the fat cells in the periphery of the tumor.

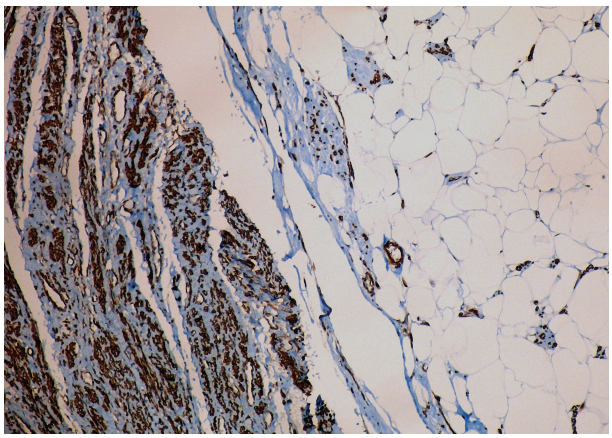

Fig. 4. Smooth muscle actin positivity in the surrounding tissue and in the periphery of the tumor.

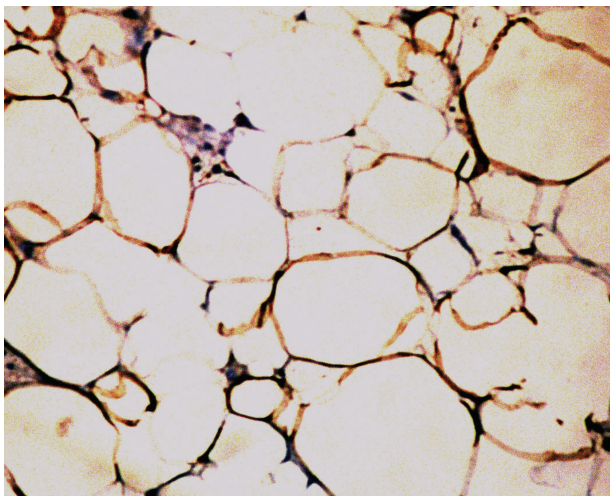

Fig. 5. S-100 positivity in the lipomatous tissue.

Inclusion cysts were present in the ovaries, and cysts resulting from Walthard cell nests were present in the fallopian tubes.

DISCUSSION

Pure lipomas of the uterus are extremely rare and only a few cases have been reported in the medical literature.[2-5] Willen *et al.*[6] concluded that a pure lipoma should be diagnosed only if smooth muscle cells are confined to the periphery.

Most lipoma patients are postmenopausal women.[7] Pure uterine lipoma may be asymptomatic or it may have symptoms similar to those of leiomyoma such as vaginal bleeding or pelvic pain.[8] The most common location of these tumors is the uterine corpus and these tumors are generally between 5-10 cm in diameter.[9] They may be concomitant with uterine leiomyoma.[7] In our patient too, a leiomyoma was detected in addition to the pure uterine lipoma.

Because of their fat content, leiomyoma may be misdiagnosed on radiological examination. It is not possible to differentiate a benign cystic ovarian teratoma from a lipomatous uterine tumor

by USG. Computed tomography (CT) shows a heterogeneous, well-circumscribed mass that predominantly contains fat. MRI usually provides better tissue characterization than CT. The fat content of the tumor is especially demonstrated by MRI because of the evident decrease of the signal on the fat-saturated images.[10]

The histogenesis of lipomatous tumors has not yet been determined. The lipoblastic differentiation of misplaced embryonal nests, pluripotent cell migration along the uterine nerve and vessels, and metaplastic changes of stromal or smooth muscle cells of uterine fibroids are the proposed mechanisms.[1,5] The fact that most patients are postmenopausal women leads to the suggestion that fat metabolism changes in this stage may play a role in lipomatous metaplasia.[11]

Mignogna *et al.*[3] reported that the immunoreactivity of fat cells for vimentin, desmin and actin may support the hypothesis of a direct transformation from smooth muscle cells. Our results, which were positivity for S-100 and negativity for smooth muscle actin, didn't support this hypothesis. The histogenesis of uterine lipomas is still a mystery and this requires further study.

REFERENCES

1. Resta L, Maiorano E, Piscitelli D, Botticella MA. Lipomatous tumors of the uterus: clinico-pathological features of 10 cases with immunocytochemical study of histogenesis. Pathol Res Pract 1994; 190: 378-83.
2. Fujimoto Y, Kasai K, Furuya M, *et al.* Pure uterine lipoma. J Obstet Gynaecol Res 2006; 32: 520-3.
3. Mignogna C, Di Spiezio Sardo A, Spinelli M, *et al.* A case of pure uterine lipoma: immunohistochemical and ultrastructural focus. Arch Gynecol Obstet 2009; 280: 1071-4.
4. Erdem G, Celik O, Karakas HM, Alkan A, Hascalik S. Pure uterine lipoma. Magn Reson Imaging 2007; 25: 1232-6.
5. Dilek TU, Akcin U, Erdem O, Tiras B, Dursun A. Uterine lipoma and coincidental cervical cancer: a case report. Int J Gynecol Cancer 2006; 16: 445-7.
6. Willen R, Gad A, Willén H. Lipomatous lesions of the uterus. Virchows Arch A Pathol Anat Histol 1978; 377: 351-61.
7. Krenning RA, De Goey WB. Uterine lipomas: review of the literature. Clin Exp Obstet Gynecol 1983; 10: 91-4.
8. Lau LU, Thoeni RF. Case report. Uterine lipoma: advantage of MRI over ultrasound. Br J Radiol 2005; 78: 72-4.
9. Dodd GD 3rd, Budzik RF Jr. Lipomatous uterine tumors: diagnosis by ultrasound, CT, and MR. J Comput Assist Tomogr 1990; 14: 629-32.
10. Coumbaras M, Validire P, Strauss C, Herry M, Dahan H, Palau R. Uterine lipoma: MRI features with pathologic correlation. Abdom Imaging 2005; 30: 239-41.
11. Lin KC, Sheu BC, Huang SC. Lipoleiomyoma of the uterus. Int J Gynaecol Obstet 1999; 67: 47-9.