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CASE REPORT

Lipoma of the Uterus

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Lipoma of the uterus is a rare condition usually developing in postmenopausal women. Clinical symptoms and physical signs are similar to those found in leiomyomas. The histiogenesis of these lesions is still unclear. We report a case of a pure intramural lipoma of the uterus illustrating characteristic morphological and histological findings. Additional immunohistochemical studies underline the lipomatous but not leiomyomatous nature of the tumor. (Pathology Oncology Research Vol 2, No3, 181–183, 1996)

Key words: uterine neoplasm, postmenopausal woman, lipoma, immunohistochemistry

Introduction

Lipomatous lesions of the uterus are uncommon. Hardly more than 100 cases have been reported since its first description by Lobstein in 1816. Most of these tumors have been associated with vascular and leiomyomatous elements thus designated as lipoleiomyomas, angiolipomas or benign mixed mesodermal tumors.[1] Ninty percent of uterine lipomatous tumors have occurred in women older than 40 years, especially in postmenopausal women.[1,2,3,4] The origin of uterine lipomatous tumors is still obscure and there is no agreement about their histogenesis and nomenclature.

In this paper we report a case of a pure uterine lipoma with reference to morphological, histological and immunohistochemical features and try to determine the etiology of the lesion in the viewpoint of the literature.

Clinical history

The 62 year old patient (4-gravida, 2-para) presented at the gynecology outpatients' unit with a 3 month history of difficulty with passing urine. She had frequency of micturition but voiding was painful and difficult to start. She had no previous operations. She had regular menstrual periods between the age 15 and 48. She never took hormonal contraceptives. No smoking and only occasional alcohol consumption were mentioned in her history. There was no family history of any particular disease. Physical examination, ECG, X-ray and laboratory findings represented normal status. Gynaecological examination revealed a 16-week size firm uterus with no palpable adnexal masses. Pelvic ultrasound appearances were those of a degenerating fibroid with no suspicious vascular pattern on color-doppler studies. The patient underwent an abdominal hysterectomy with bilateral salpingo-oophorectomy. The operation was uneventful, the patient made a complete recovery and was discharged on day five. At six weeks check-up she was asymptomatic and optimal postoperative findings were recorded.

Pathology

The uterus with bilateral adnexae weighed 900 g. The length of the uterus was 14 cm and the fundus of the corpus measured 13x10 cm. The external surface of the cervix was smooth. The entire myometrium contained a 10 cm large intramural mass which was well circumscribed by thin bundles of compressed myometrium. The endometrial cavity was slit-like. The consistency of the mass was unremarkable and showed a homogenous yellow, greasy appearance. The ovaries and tubes were normal except for minute parovarian cysts on both sides.

Histology

The tumor mass was composed of mature adipocytes forming large sheets interspersed by a small amount of connective tissue fascicles and a few thin walled blood

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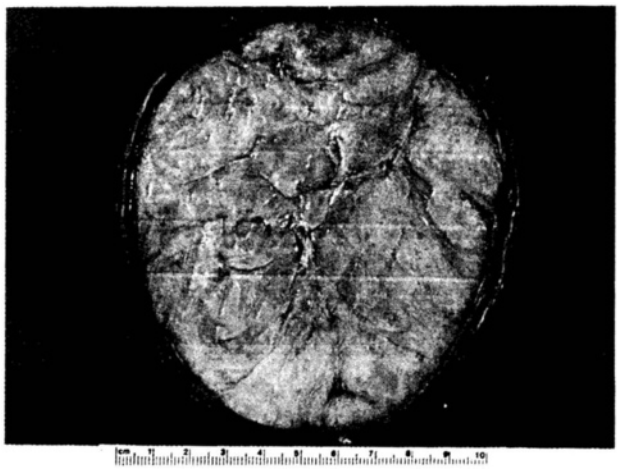

Figure 1. The cut surface of the uterine lipoma, lobulated, well circumscribed adipose tissue with a pseudocapsule formed by the compressed myometrium.

vessels. The adipocytes showed diffuse fat staining with Oil-red-O. S-100 protein (DAKO) was demonstrated in these vacuolated cells. Smooth muscle actin and the other muscle specific intermediate filament, desmin (DAKO) failed to give a positive reaction in the adipocytes but did so in the surrounding myometrium and in the wall of the vessels *(Fig. 1 and 2)*. The cervix showed retention cysts and areas of reserve cell hyperplasia. Both tubes were fibrotic with parovarian cysts on their surface and the ovaries contained corpora albicantia and simplex serous cysts.

Discussion

Uterine lipomas have been reported only sporadically. The low incidence could be attributed to the fact that these lesions are often not fully manifested or do not involve large areas of leiomyoma or myometrium thus they are hardly recognised macroscopically.[4] So-called lipomatous lesions of the uterus are well separated from the surrounding myometrium with greatest diameter ranging between 2 cm to 30 cm. On gross appearance these are hard or soft, yellow, yellow-white to brownish tumors with areas of haemorrhage, necrosis or cartilaginous tissue.[3,4,7,8] Lipomatous tumors of the uterus can be localised to the intramural, submucous and subserosal areas just like leiomyomas.[2,3,4,7,8]

Microscopically, they may show variable elements depending on the presence of fat and other tissue components. Pure lipomas or lipomatous areas revealed mature adipose tissue consisted of adult type lipocytes appearing singly or in small clusters or in sheets[2,3] often rich in thin, sometimes proliferating, blood vessels.[3,4] Foci of loose connective tissue and thin or thick fascicles of smooth muscle frequently course through the adipose tissue.[3,4,8] Other elements, such as cartilaginous islands, have also been described.[7] In other than pure lipomatous cases, macroscopic or rather microscopic areas of leiomyoma can be present.[2,3,4,7] Histo- and immunohistochemical methods like fat-staining, S-100, desmin and smooth muscle actin reactions proved to be useful not only in the diagnosis but in delineating the histogenesis of these tumors.[6,9]

In our reported case, the gross appearance of the intramural lesion suggested lipomatous change. The microscopic findings supported pure uterine lipoma as the entire mass consisted of mature adipocytes with scanty coursing connective tissue fascicles and few thin walled vessels. Immunohistochemical methods ruled out the presence of smooth muscle within the lipomatous area as only the compressed surrounding myometrium and the wall of the vessels were positive with its markers.

The nature of uterine lipomatous tumors is still controversial. The favorable alternatives are: a) misplaced embryonic fat cells, b) metaplasia of muscle or connective tissue into fat cells, c) lipocytic differentiation of a specific primitive connective tissue cell, d) perivascular extension of fat along uterine vessels, e) inclusion of fat cells into the uterine wall during surgery or f) fatty infiltration or degeneration of connective tissue in the uterus.[10,11] A hamartomatous manifestation is also considered mainly by the similarity to that of the kidney angiolipoma which is considered as a hamartoma.[3,8] The most tenable explanation for the nature of these tumors is metaplasia based on the theory which

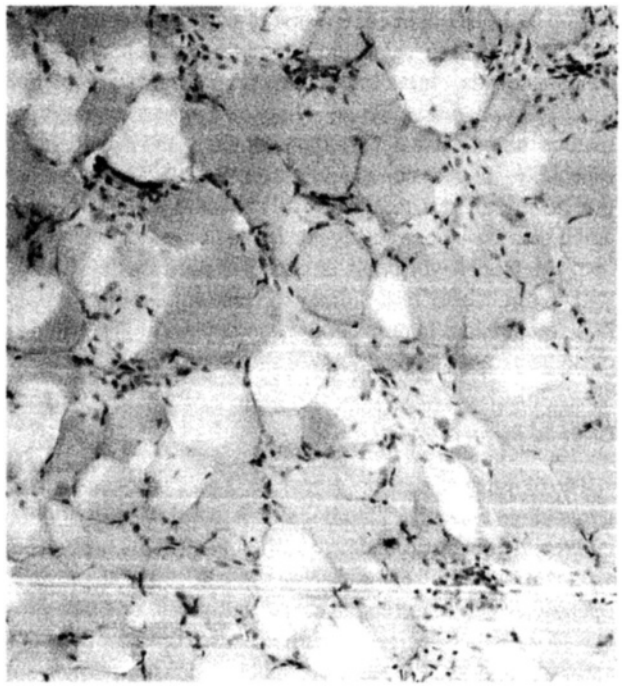

Figure 2. *A. Mature adipose tissue with scanty fibrous stroma and small capillaries (HE, x250) B. Diffuse positive staining with lipid specific Oil-Red O (x100). C. Only the small capillaries are stained with smooth muscle actin (1:100, x250) D. S-100 protein stains mature adipocytes (1:100, x250)*

describes how arteriosclerotic lesions develop.[12] Further differentiation of the fat cells can take place in three directions. They may be mixed with persistent fibro-leiomyomatous structures forming lipomatosis in the leiomyoma, or may proliferate and partially replace leiomyoma in a circumscribed manner and finally, may completely replace leiomyoma giving rise to pure lipoma. Certainly, de novo development of pure lipoma is also acceptable.[4] It is very likely that this was how our lipomatous tumor developed. Recently, cytogenetic studies have pointed to clonal chromosome abnormalities in many tumor types. Typical lipomas often show t(3;12) translocation which shares close similarities with that of t(12;14) in leiomyoma.[13] It is possible that the same genes in 12q13-15 are affected in both tumor types and lipomatous cells and leiomyomatous cells in lipoleiomyomas arise from common multipotent cells in the uterus,[7] most likely from the myometrium.[8]

Most of the lipomas cannot be differentiated from leiomyoma clinically[14] and sometimes can mimic sarcomas.[15,16] The diagnosis is usually made by histological examination or as an autopsy finding. However, the typical yellow appearance of the cut surface may provide exact diagnosis even earlier.

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