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Research Article

Lipoleiomyoma - A rare tumour of the uterus

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Abstract

Background: Lipoleiomyomas are unusual benign neoplasms of the uterus. These tumours generally occur in asymptomatic obese perimenopausal or menopausal women. We report here, six cases of uterine lipoleiomyomas because of its rarity and interesting histogenesis.
Objectives: This study was done to analyse the morphological characteristics of lipoleiomyomas.
Material: A prospective study of cases diagnosed in the Department of Pathology over a period of three years.
Results: Six cases of lipoleiomyomas were identified during the period of study. The age of the patients ranged from 32 to 56 years. The tumours were large, and the sizes ranged from 5.5 to 25 cms in greatest dimension. Five tumours were purely intramural and one case was submucosal. None of the tumours displayed cytological atypia, necrosis, calcification, nor other degenerative changes. Mitotic figures were not seen in any of the cases and none of the tumours had infiltrative margins.
Conclusion: Uterine lipoleiomyomas are uncommon benign tumours in gynaecological histopathology specimens. Confirming the benign nature of this tumour is important because it can closely resemble well-differentiated liposarcoma.
Keywords: benign, uterine neoplasms, lipoleiomyoma

1. Introduction

The term lipoleiomyoma covers a spectrum of lesions with a fat content that ranges from being a minor component to being a neoplasm composed entirely of mature adipocytes. This odd but easily recognized neoplasm is composed of an intimate admixture of mature adipocytes and smooth muscle cells.[1]

Lipoleiomyoma is a very rare benign tumour of the uterus occurring primarily in obese perimenopausal and postmenopausal patients.[2] These tumours maybe associated with abnormalities in lipid metabolism and on occasion closely resemble well-differentiated liposarcomas. Therefore, confirming the nature of these tumours is of much importance.

2. Material and Method

This is a prospective study done over a period of three years from January 2010 to December 2013. The patients' demographic data and detailed clinical history were recorded. The surgical specimens were allowed to fix in 10% formalin for 24-48 hours. The tissue bits from representative areas were taken for histopathological examination and paraffin blocks were prepared. Five micron thick sections were cut and stained with the routine haematoxylin and eosin stain for histopathological examination.

3. Results

Six cases of lipoleiomyomas were identified during the period of study. The age of the patients ranged from 32 to 56 years. All the patients were mulitparous, with parity of two or more. The clinical presentation was menorrhagia in three cases, dysmenorrhea in two patients and abdominal pain in one case. The Body Mass Index and lipid profiles were within normal limits.

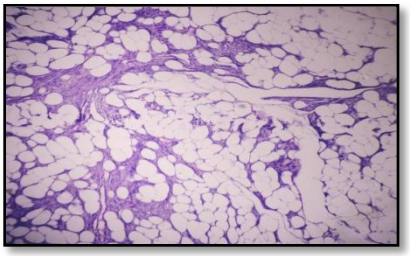
In four cases it was a solitary tumour and in two cases there were other leiomyomas. Of these, five were purely intramural and one was submucosal. The tumours were large and the sizes ranged from 5.5 to 25 cms in greatest dimension.

Histology showed an admixture of varying amounts of mature adipose tissue with smooth muscle cells having bland, uniform, cigar shaped nuclei arranged in interlacing bundles with finely dispersed nuclear chromatin (Figure 1). Mitotic figures were not seen in any of the cases. None of the tumours displayed cytologic atypia either in the smooth muscle cells or the adipocytes. Necrosis, calcification, or other degenerative changes were not seen. None of the tumours had infiltrative margins. The tumours were diagnosed as lipoleiomyomas.

4. Discussion

Uterine lipoleiomyoma is a rare mesenchymal neoplasm and is described as a variant of uterine leiomyoma.[3,4] The incidence is variously reported as 0.03–0.2%.[3, 4] Lipoleiomyomas were first described by Lobstein in 1816. It is an alteration that was previously called as fatty metamorphosis, lipomatous degeneration, adipose metaplasia, etc. It is now regarded as a distinct true neoplasm.[3]

Figure 1: Photomicrograph of lipoleiomyoma showing an admixture of abundant mature adipose tissue with few smooth muscle cells (H&E x40)



Pathologically, lipomatous tumours of the uterus can be categorized into three groups: pure benign lipomas, which are encapsulated and composed of mature fat cells; lipoleiomyomas, which are benign mixed tumours containing various portions of mesodermal tissue such as fat, muscle and connective tissue, and the rarest group is the malignant neoplasms, which consist of fat cells that have undergone sarcomatous changes.[5]

Lipoleiomyomas are most frequently found in the uterine corpus and are usually intramural as in the present study. However, they can be found anywhere in the uterus or cervix and may be subserosal. Many of these patients are asymptomatic, but in some patients symptoms are similar to those of uterine leiomyomas, such as pelvic discomfort, heaviness and pressure or vaginal bleeding. Lipoleiomyomas tend to occur in middle aged or elderly women. The tumour size averages 6cm in diameter and it has soft yellow areas on cut surface. Histologically, the neoplasm comprises of an admixture of varying amounts of mature adipose tissue with smooth muscle and collagen. The amount of adipose tissue may vary from 5% to 95% of the tumour. The adipose tissue can be seen distributed diffusely within the leiomyoma or can be seen as circumscribed areas. In many cases, the smooth muscle cell component predominates.[6, 7, 8]

A number of various lipid metabolic disorders or other associated conditions, which are associated with estrogen deficiency as occurs in peri or postmenopausal period, possibly promote abnormal intracellular storage of lipids.[7]

The origin of the lipomatous tumour is controversial and different theories have been proposed: (1) Misplaced embryonal mesodermal rests with a potential for lipoblastic differentiation. (2) Lipoblast or pluripotential cells migrating along uterine arteries and nerves. (3) Adipose metaplasia of stromal or smooth muscle cells in leiomyoma.[4]

Immunohistochemical findings suggest a complex histogenesis for these tumours, which may arise from perivascular immature mesenchymal cells or direct transformation of smooth muscle cells in to adipocytes by means of progressive intracellular storage of lipids.An immunohistochemical study done revealed reactivity of adipocytes for vimentin and desmin, thus confirming the hypothesis of their direct transformation from smooth muscle cells into adipose cells.[4]

Cytogenetic analyses of uterine lipoleiomyoma suggest that uterine lipoleiomyomas have a pathogenetic origin similar to that of typical leiomyomas in which t(12;14) is a primary event.[9]

The differential diagnoses of similar uterine tumours with adipose tissue and spindle cells include spindle cell lipoma, angiolipoma, angiomyolipoma, leiomyoma with fatty degeneration, atypical lipoma, and well differentiated liposarcoma.[10]

Angiolipoleiomyoma is an admixture of mature fat, smooth muscle and blood vessels. The latter are seen as anomalous arterial blood vessels which show an irregular tortuous appearance resembling those seen in a renal angiomyolipoma. Pure lipoma of the uterus are very rare, only few cases exist in the literature.[11]Liposarcoma of the uterus is rare, however lipoleiomyomas of the uterus undergoing sarcomatous transformation to uterine liposarcomas has been reported.[10, 12]

Imaging plays an important role in determining the intrauterine location and fatty nature of lipoleiomyomas. However,the diagnosis is confirmed on histopathological examination.

Lipoleiomyomas when asymptomatic require no treatment and are clinically similar to leiomyomas. In conclusion, uterine lipoleiomyomas are benign neoplasms that represent a variant of leiomyoma with adipocyte differentiation rather than a degenerative change in an ordinary leiomyoma. It is seen primarily in obese perimenopausal and postmenopausal patients and may provide a clue to associated lipid metabolic disorders in the patient. With the increased awareness among pathologists the benign nature of lipoleiomyomas can be identified.

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