Pleomorphic lipoleiomyoma of uterus

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Abstract
Scattered adipocytes in an otherwise typical leiomyoma are a relatively common finding. A leiomyoma that contains a large number of adipocytes is called a lipoleiomyoma. We report a unique case of leiomyoma that presented with the following morphological features: mature spindled smooth muscle cells with and without nuclear atypia, epithelioid smooth muscle cells, mature adipose tissue, benign clear cells, coagulation necrosis. Only a few mitotic figures were noted. The rare occurrence of lipoleiomyomatous features in an otherwise pleomorphic leiomyoma prompted the report of the case below.

Introduction
Lipoleiomyoma is a very rare lesion of the uterus occurring primarily in obese perimenopausal or postmenopausal women. The tumour consists of long intersecting bundles of bland, smooth muscle cells admixed with nests of mature adipocytes and fibrous tissue. We report a patient who presented with suspected leiomyoma who was subsequently found to have lipoleiomyoma showing pleomorphic changes without any increased mitotic activity.

Case report
A 63-year-old postmenopausal woman presented with uterine bleeding that had been ongoing for 3 months, with each episode lasting for approximately 3 days. She had begun menopause 13 years ago and had undergone modified radical mastectomy for breast carcinoma 1 year previously, followed by six cycles of chemotherapy and a prescription of tamoxifen for 6 months. Clinically, there was no evidence of recurrence in the breast or axilla. On abdominal examination, a mass corresponding in size to a uterus of 22 weeks’ gestation was palpable, occupying the suprapubic area and the right and left iliac fossae.

Several tests were conducted and a gynaecological examination revealed a polyp arising from the cervix; a chest radiograph returned normal results and ultrasonography of the abdomen showed a bulky uterus with multiple fibroids and a bilateral ovarian mass.

All the standard serological and haematological parameters were within the normal range and the patient underwent an abdominal hysterectomy with bilateral salpingo-oophorectomy.

Gross examination of the uterus showed that it measured $13 \times 8 \times 4$ cm and the outer surface of the cervix showed a polypoid growth with a stalk measuring $1.3 \times 0.4$ cm. On the cut surface of the uterus, the endometrial cavity could not be seen owing to three large intramural fibroids, the largest of which measured $6 \times 5$ cm; the second measured $4 \times 4$ cm and the smallest measured $2 \times 1$ cm (Figure 1).

The cut surface of the fibroids showed a whorled pattern and the lower part of largest mass was brown in colour. The left ovary measured $3 \times 1.5 \times 0.5$ cm, the right ovary was much larger and measured $16 \times 10 \times 5$ cm; however, the fallopian tubes were of normal size.

Histological examination of the uterus showed non-secretory endometrium and adenomyosis, and the endometrial stroma displayed foamy cytoplasmic changes.

Histological sections from the largest fibroid showed a mixture of bland, spindle-shaped smooth muscle cells with nuclear atypia in a whorled pattern admixed
Sections from the brownish area of the fibroid showed smooth muscle cells of varying sizes with pale pink vacuolated cytoplasm containing hyperchromatic bizarre nuclei and some areas of clear cytoplasm (Figures 3 and 4). Areas of coagulation necrosis (red degeneration) and congested blood vessels with haemorrhagic zones could be seen, as could epithelioid smooth muscle cells with clear cytoplasm; however, mitosis was not significantly advanced. Following examination of the ovaries, it was concluded that both ovaries showed features of mucinous cystadenoma.

**Discussion**

Adipose tissue is the most common heterologous component in leiomyomata, and uterine leiomyomata containing a large number of adipocytes are classified as lipoleiomyomas. Lipoleiomyomas also occur in the cervix and ovaries and generally occur in asymptomatic and obese perimenopausal or postmenopausal women. Lin et al. analysed 2878 cases of leiomyomata and 2071 hysterectomy specimens and reported that approximately 0.28% of all leiomyomata and 0.39% of all hysterectomies were harbouring a lipoleiomyoma.

The pathogenesis of lipoleiomyomas remains obscure; however, immunohistochemical studies confirm the complex histogenesis of these tumours, which may arise from immature mesenchymal cells or from direct transformation of smooth muscle cells into adipocytes. A number of lipid metabolism disorders and related conditions which are associated with oestrogen deficiency, such as that which occurs in perimenopausal or postmenopausal women, possibly promote abnormal intracellular storage of lipids.

Leiomyomata that are not associated with a mitotic index of over 10 mitotic figures (mfs) per 10 high-power fields (hpf), even if they are associated with severe cytologic atypia, are unreliable for identifying clinically malignant uterine smooth muscle tumours. The defining features of atypical leiomyomata include symplastic growth, bizarre cells and the presence of cells with atypical pleomorphic nuclei, which can...
be multinucleated or mononucleated large cells associated with abundant eosinophilic cytoplasm. There are spindled cells with variable degrees of nuclear atypia interspersed between the cells with bizarre nuclei; however, in areas of the tumour that are not involved with bizarre cells, the spindled cells have uniform and bland cytological features. It has been shown that an excess of global DNA methylation associated with DNA inactivation may be one of the molecular mechanisms underlying the benign nature of this leiomyoma variant. This striking atypia most likely represents the presence of abundant heterochromatin, which is known to be associated with inactivated DNA.

Bizarre leiomyoma has been diagnosed in sites other then uterus, such as the vagina, nasal cavity and the scrotum.5

The characteristics of lipoleiomyomas, such as average age of patient at presentation and maximum tumour size, are identical to those of common leiomyomata but the clinical behaviour and prognosis of these rare tumours depends on the number of mf/hpf.6

References