Mitotically active haemorrhagic cellular (apoplectic) leiomyoma

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Summary

Apoplectic leiomyoma is a distinctive smooth muscle tumour usually occurring in women either taking oral contraceptives or who are pregnant or recently postpartum. Most of these tumours show 0-2 mitoses per 10 high power fields, but a mitotic index of up to 8 per 10 high power fields is allowed in such tumours. We describe an apoplectic leiomyoma with a number of atypical features including a high mitotic index (up to 20 per 10 high power fields) in a 47-year-old woman. Follow-up clinically and by computerised tomography (CT) for 3 years demonstrates no recurrence.

Key words: Apoplectic leiomyoma; Atypical features; Mitotic index.

Introduction

Haemorrhagic cellular (apoplectic) leiomyoma is a more or less distinctive but infrequently encountered smooth muscle tumour usually occurring in women either taking oral contraceptives or who are pregnant or recently postpartum [1, 2]. Patients present with abnormal uterine bleeding or abdominal pain and tenderness due to rapid growth of tumour. Histologically such tumours are well circumscribed. Most show 0-2 mitoses per 10 high power fields [2], but a mitotic index of up to 8 is allowed in such tumours. We report a case of apoplectic leiomyoma with a number of atypical features (atypical haemorrhagic cellular leiomyoma). The atypical features include a high mitotic index of up to 20 per 10 high power fields, an irregular tumour margin, extensive necrosis and only a very short exposure to exogenous hormone (2 days of Norethisterone).

Case Report

A 47-year-old woman presented with a one-year history of menorrhagia and with a haemoglobin level of 6.9 gms/dl. She was a P3 + 1 with a menstrual cycle of 7 - 10/14 - 28. She was prescribed Norethisterone 5 mg/bd for 2 days, 21 days prior to hysterectomy. Hysterectomy was carried out on the 18th day of her menstrual cycle. Following hysterectomy, the patient was followed-up regularly with CT scans and was free from any recurrence 3 years after surgery.

Pathological Findings

A uterus 11.5 x 9 x 9 cm was received with attached fallopian tubes and ovaries. The corpus of the uterus showed 3 intramural nodules, the largest 5.5 cm in diameter which showed a central haemorrhagic yellow area. All nodules were macroscopically well demarcated.

Microscopically the largest tumour showed extensive haemorrhage, dissecting smooth muscle fascicles and considerable collagenization (Fig. 1). Whilst broad areas of necrosis were seen these appeared to be due to infarction and showed peripheral hyalinization. No coagulative tumour cell necrosis was seen. There was no significant cellular infiltrate related to necrotic areas. The tumour showed a mitotic rate up to 20 per 10 high power fields (HPF) (0.312 mm^2 area/high power field) by the maximum count method (Fig. 2) and was poorly defined with irregular margins.

There was no vascular invasion and cellular atypia was slight. Hypercellular zones were related to the margins of infarction and haemorrhage where mitoses were also most frequent. The medium sized nodule also had a raised mitotic count of 7 per 10 HPF but showed no other untoward features and was therefore regarded as a benign mitotically active leiomyoma. The smallest tumour was poorly demarcated with a mitotic count of 20 per 10 high power fields but without significant necrosis or atypia.

Discussion

The necrosis present in the main tumour was of "hyaline" type with a zone of collagen interposed between the dead and the preserved cells, reminiscent of the organisation of an infarct by granulation tissue. This together with the presence of only minimal cytologic atypia and zonal hypercellularity suggests this was a benign leiomyoma.

There were also areas of haemorrhage dissecting smooth muscle fascicles characteristic of "apoplectic" leiomyoma. However, the mitotic rate was above the 8 per 10 HPF maximum (by the average count method) generally accepted in such tumours. Nevertheless, because of the increased mitotic activity in all three "fibroids" it was felt that this mitotic activity most likely reflected the response of the myometrium to a stimulus (most likely hormonal) rather than a malignant change. It was also felt that the 2 days of Norethisterone was unlikely to have made such a marked effect and the hya-

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Figure 1. — Tumour showing extensive haemorrhage and collagenization (H & E x 40).

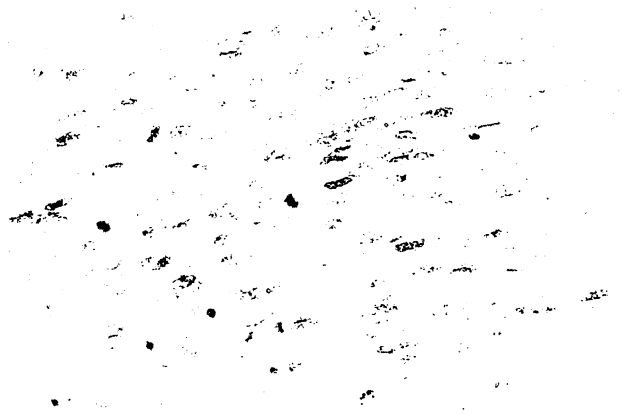

Figure 2. — High power view of cellular area showing smooth muscle cells with prominent mitotic activity but only slight cytologic atypia (H & E x 400).

linization suggested a long-term necrotic process. In view of these uncertainties the tumour was originally reported as "smooth muscle tumour of uncertain malignant potential" and close clinical follow-up was advised.

The patient has been followed-up regularly for 3 years by clinical examination as well as CT scans and shows no evidence of any recurrence. This suggests that the tumour was indeed a benign leiomyoma, and as this possesses a number of atypical features, we would regard this as an "atypical mitotically active apoplectic leiomyoma". Recent data suggests that in uterine smooth muscle neoplasms, the presence of coagulative tumour necrosis and cytologic atypia are the most important predictors of clinical aggression [3]. As there was no genuine coagulative tumour necrosis in our case and the atypia was slight, the outcome in this case supports and emphasises these two features as the most important predictors of clinical outcome. Although it is well recognised that alarming histopathological features may be encountered in benign uterine smooth muscle tumours of the apoplectic type including cellularity, a mitotic index of up to 8 and some hyaline necrosis, to our knowledge mitoses of up to 20 per 10 high power fields with such extensive necrosis and irregular tumour margins have not been described in apoplectic leiomyomas. This case extends the spectrum of atypical histological features which can be seen in apoplectic leiomyoma. Careful close follow-up with no untoward clinical outcome suggests that, on the follow-up evidence of this case as long as there is no genuine coagulative tumour necrosis, significant cytologic atypia, vascular invasion or destructive invasion of the adjacent myometrium, these tumours may probably still be regarded as benign apoplectic leiomyomas. Further studies or series of cases are needed to confirm this.

The other unusual feature in our case was a very short duration of hormonal exposure. Apoplectic leiomyomas usually occur in women taking oral contraceptives or who are pregnant or recently postpartum. Our patient had only 2 days Norethisterone (5 mg/bd). The presence of an increased mitotic index in all 3 tumours in our case indicated there was clearly an underlying stimulus in this patient.

Although the previous Norethisterone therapy would obviously be suspect, to our knowledge, apoplectic changes have not been described in association with such a short course of Norethisterone therapy. The presence of hyalinization in this case also suggests a long-term necrotic process though the nature of the stimulus here is unclear as no pathology was found in the ovaries to account for the changes.

The findings in this case suggest that haemorrhagic cellular (apoplectic) leiomyoma may show a wider range of histopathological features than previously described including a mitotic index of up to 20. Lack of genuine coagulative tumour necrosis and significant cytologic atypia appear to be the most important criteria to differentiate mitotically active apoplective leiomyoma from leiomyosarcoma.

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