Deep intermuscular spindle-cell lipoma

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We report the case of a 58-year-old man who presented with a deep intermuscular spindle-cell lipoma. By pressure on the neurovascular bundle this tumour caused neurological symptoms in the affected leg. The clinical presentation, investigations, surgical intra-operative findings, the gross pathology and histological light and electron microscopy findings are described and the surgical outcome and prognosis are discussed.

Introduction

The case report of the deep intermuscular spindle-cell lipoma of the leg presented here is of interest because of the symptoms produced by the expanding tumour, the radiographic appearance of the affected site and the complete recovery of the patient after surgical removal of the tumour.

Case Report

MW was a 58-year-old executive in good general health who presented to his physician complaining of discomfort in his right leg just below the knee. The symptoms gradually increased in severity over six months and interfered with his driving. The affected leg felt tired, with numbness and a sensation of heaviness. The discomfort and pain increased after exercise or after a long walk.

Examination revealed a firm diffuse swelling on the lateral aspect of the right leg just below the knee. The mass was non-tender and immobile. There was hypoaesthesia of the leg along the lateral aspect. He was referred to a consultant neurologist but no diagnosis was reached. A radiograph of the lumbar spine was normal. Radiographs of the right leg showed a well demarcated, multinodular area of radiolucent soft tissue just below the knee on the lateral aspect.

In view of the progressive disability, discomfort and increasing size of the mass, operation was advised. The approach was made through a longitudinal incision along the anterolateral aspect of the leg just below the knee. Dissection was by separation of muscle planes up to the anterior aspect of the interosseous membrane where a yellowish, lobulated, intermuscular mass with the consistency

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of a lipoma was found. The mass extended along the neck of the fibula where it perforated the membrane into the posterior compartment. The mass was adherent to the upper part of the interosseous membrane and was pressing on the peroneal nerve. The mass, which measured 6cm x 7cm, was completely removed and sent for histology. Macroscopically it was diagnosed as a lipoma (Fig 1). Microscopic examination was not typical of a lipoma and hence electron microscopy was done which showed it to be a spindle-cell lipoma (Figs 2,3).

The patient made a good recovery after operation with complete relief of pain, discomfort and numbness within one week of surgery.

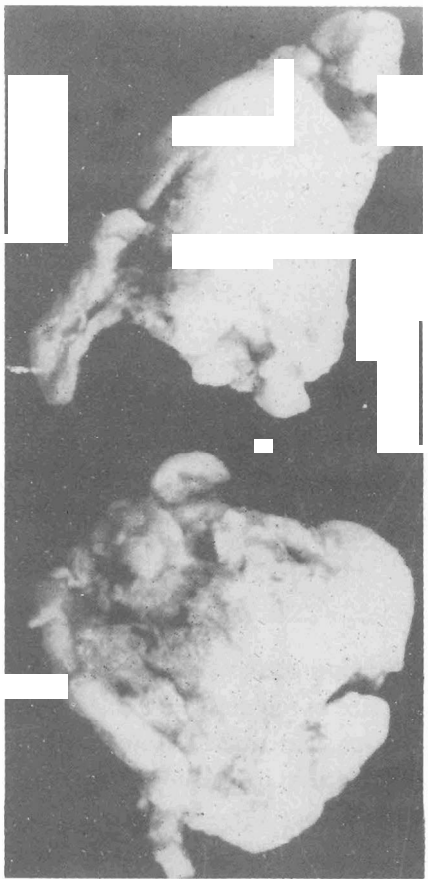
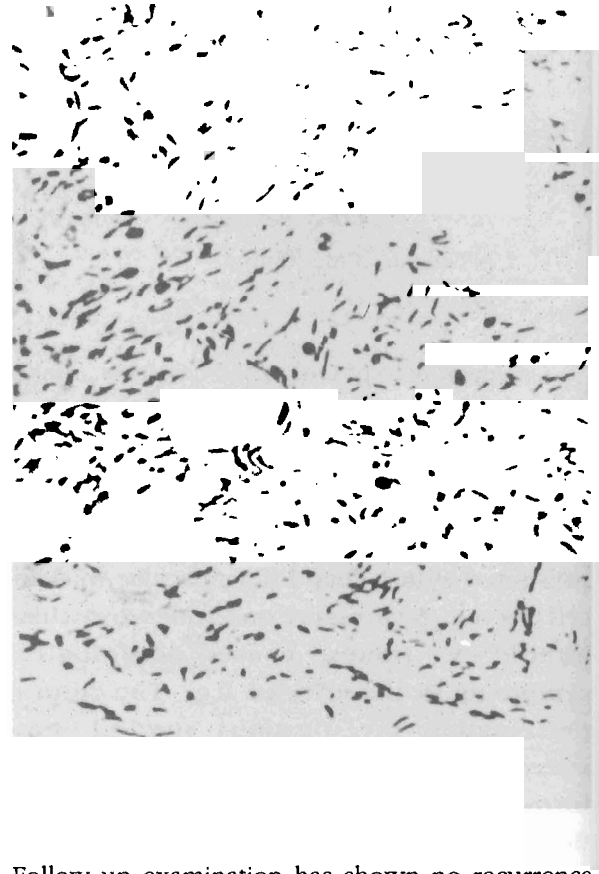


FIG 1 *The operation specimens*

FIG 2 *Histological picture showing spindle cells admixed with mature fat cells*



Follow up examination has shown no recurrence of the mass or symptoms.

Discussion

Deep lipomata have been reported in almost every anatomical site. The topic is extensively covered in the literature and appears under numerous headings such as "subfascial", "subaponeurotic", "submuscular", "subsynovial" and "deep intermuscular" lipomata. There were early reports by Plettner in 1889[1] and by Behrend in 1929[2]. However, spindle-cell lipomas have recently been recognised as distinctive soft tissue tumours[3,4]. They have various light microscopic appearances but clinically run a benign course just like the ordinary lipomas. The basic histological pattern consists of

two distinctive populations of tumour cells, namely non-fat-storing spindle cells admixed with mature fat cells[4]. In this case spindle cells made up varying proportions of the tumour mass.

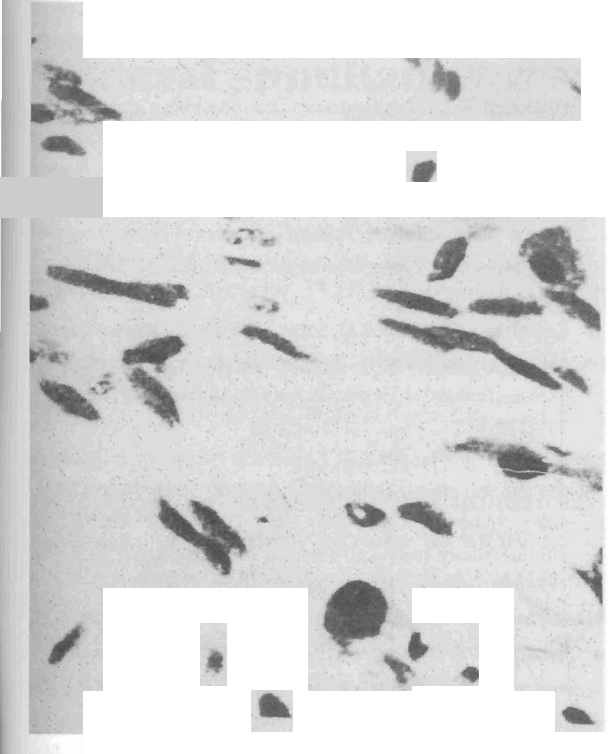


FIG 3 *High-power photomicrograph showing non-fat-storing spindle cells*

Enzinger and Harvey in 1975[4] reported the first cases of spindle-cell lipomata which occurred mainly in males of mean age of 56 years and were located on the shoulder and posterior aspect of the neck while Angervall reported 14 cases in 1976[3].

Long term follow-up has demonstrated that spindle-cell lipomas are benign. They are slow-growing and cause symptoms due to the increasing size or by pressure on adjacent nerve trunks as happened in this particular case. Richmond has reported a case of an intermuscular lipomatous tumour which caused paralysis of the posterior interosseous nerve[5].

The clinical diagnosis may be difficult and may be confused with fibroma, cyst, muscle herniation and other soft tissue masses. Radiographs may be helpful as they show lobulated, sharply demarcated radiolucent areas which Samuel[6] emphasised are almost pathognomonic of a lipomatous tissue mass.

Various theories of the histogenesis of spindle-cell lipomas have been advocated. Some believe that spindle cells are fibroblasts[3,4], while others have speculated that the spindle cells and the mature fat cells of typical lipomas arise from resting pre-adipocytes during embryonic life.

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