A 35-year-old man was seen with pain in the back of the knee. MRI showed a mass in the anterior cruciate ligament. Biopsy indicated mucoid degeneration. Arthroscopic resection of the ligament was carried out, with relief of symptoms.

Case Report

A 35-year-old chauffeur and gardener gave a 12-month history of pain in the back of his left knee after a minor injury to the front. The pain became worse throughout the day. He noticed increasing stiffness and a decreasing range of movement. The joint occasionally gave way, with a sharp pain.

On examination, the range of movement was 0° to 100° but physical signs of instability and swelling were absent. The other joints were normal. Radiographs of the knee and routine haematological, biochemical and immunological tests were also normal. Initially, physiotherapy in the form of stretching and isometric quadriceps strengthening exercises were prescribed with a non-steroidal anti-inflammatory drug, without benefit.

At six months MRI showed an unusual appearance of the anterior cruciate ligament (ACL). An oval lobulated mass gave a high signal on T2-weighted (Fig. 1) and an intermediate signal on T1-weighted images. The mass was relatively well defined, but on the axial image there was some erosion of cortical bone on the posteromedial aspect of the lateral femoral condyle (Fig. 2). The nature of the mass was uncertain and biopsy was arranged.

At arthroscopy, the ACL was seen to bulge forwards although the anterior fibres were normal. Four biopsies were taken from different locations and showed dense collagenous tissue with focal areas of oedema and pools of acid mucopolysaccharide. Some neovascularisation and sparse chronic inflammatory cells were seen, but there were no granulomata or any amyloid or neoplastic tissue.

Since the histological examination was not specific, and because of the symptoms, arthroscopic excision of the ACL was undertaken two weeks later. The resected specimen consisted of dense, fibrous connective tissue. At histological examination focal neovascularisation was seen, along with patchy oedema and a focal myxoid/mucoid degeneration with abundant Alcian-Blue-positive acid mucopolysaccharide. In some areas the mucopolysaccharide had accumulated in pools and cysts measuring up to 5 mm in diameter (Fig. 3). Some deposition of haemosiderin was noted locally and a small foreign-body giant-cell reaction was seen as in the previous biopsies. The overall appearance was of a focal myxoid degeneration of the tendon with early cystic change. No inflammatory, neoplastic or other causative factor was identified from the resected tissue. Eight weeks after operation the pain was...
completely relieved and the range of movement had returned to normal. Since then he has not complained of instability although he has yet to return to full activity.

Discussion

Tumours involving the ACL are rare although ganglia\(^2\) and synovial chondromatosis\(^3\) have been reported within the ligament.

Mucoid degeneration of the patellar ligament\(^4\) has been described, but not of the ACL. Injury is the most likely aetiological factor in the production of mucoid degeneration\(^4\) although we did not elicit a history of a specific incident.

MRI identified the site of the lesion, but it was not diagnostic and raised the possibility of a neoplastic process. The initial biopsies were not helpful and therefore complete excision of the ACL containing the mass was performed. The subsequent complete relief of symptoms suggests that the size of the mass in the posterior recess of the knee was responsible.

Mucoid cystic degeneration of the anterior cruciate ligament is clearly rare. It can produce symptoms similar to those of a mass and may cause local bone erosion. Limited biopsy may not be diagnostic and total removal of the ligament is a safe treatment.

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References