



Tenosynovial juxta-articular giant-cell tumour of the knee – an unusual location of the tumour

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We present a case of a physically active 46 year-old woman who was treated operatively for a juxta-articular tenosynovial giant cell tumour of the knee that caused mechanical symptoms. The preoperative diagnosis was retropatellar lipoma. The tumour was located in the infrapatellar fat pad. No recurrence was observed by MRI in 1-year follow-up.

Keywords : giant cell tumour ; pigmented villonodular synovitis ; knee ; anterior knee pain ; surgical treatment.

INTRODUCTION

Three types of pigmented villonodular synovitis have been identified : extra-articular tenosynovial giant cell tumours, commonly seen in the hand, solitary intra-articular nodules, commonly encountered in the knee, and a diffuse villous, pigmented process, involving the entire synovial membrane of large joints (10).

We report a case of localized juxta-articular tenosynovial giant-cell tumour of the knee which was treated operatively with success. The preoperative diagnosis was retropatellar lipoma.

CASE REPORT

A 46-year old physically active woman was sent to the hospital in August 2003 with discomfort in the anterolateral part of the left knee. The symptoms consisting of pain, swelling, loss of motion

and locking, had already begun in childhood and were occasional. The patient had no history of injury or overloading in her occupation or in sports.

The patient had been examined by an orthopaedic surgeon in another clinic a few months before, and radiographs of the knee had been performed. The radiological diagnosis was retropatellar lipoma, because of the soft tissue mass shadow in the lateral view (fig 1). There were no erosions or degenerative changes on radiographs. Also the sonography showed a lipoma.

Clinical findings showed no swelling, no limitation of function of the joint, but a palpable tumour on the anterolateral side of the knee during extension. During flexion the palpable tumour disappeared.

In September 2003 a standard arthroscopy of the knee was performed (tourniquet, 350 mmHg ;

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Fig. 1. — Lateral radiograph of the knee shows a soft-tissue mass shadow behind the patellar ligament.

inflow pressure, 60 mmHg). The arthroscopic findings were normal. There were no changes in cruciate ligaments, menisci or articular cartilage. The tumour was located extra-articularly. To achieve complete radical excision of the tumour an anterolateral approach was performed. There was a yellow-brown tumour which filled the whole infrapatellar fat pad region. Because the tumour reached the medial side of the posterior patellar tendon, a second anteromedial approach was necessary. The tumour was radically excised. During the preparation, it was necessary for a part of the anterior synovium to be excised, because the tumour was attached to the anterior synovium. Anteriorly the tumour was excised from the patellar tendon, and cranially from the inferior part of the patella. A closed suction drain was placed in the retropatellar region and was removed the next day.

The postoperative regimen included thrombosis prophylaxis (dalteparin), NSAID for one to two

weeks, compression bandage for a few days and early mobilisation. Quadriceps-strengthening exercises were started on the first postoperative day. Full weight-bearing was allowed after 5 days.

The size of the tumour was 3.5 cm × 6.0 cm. Histologically a typical benign and pigmented villonodular synovitis (giant-cell tumour) was found. There were no mitoses. The macrophages contained haemosiderin, and giant cells were present. The lesion had a nodular appearance.

The patient returned to work after one month postoperatively. She was re-examined after 6 and 12 months postoperatively by MR imaging (T1- and T2-weighted images, also with gadolinium administration). In both examinations MRI showed scar tissue lesions in the retropatellar region, but no recurrence. During the last clinical examination one year postoperatively the patient occasionally complained of some discomfort during activities which were somewhat different from the preoperative situation, but no longer of swelling or locking. The clinical findings were normal (ROM, no knee effusion, good quadriceps function).

DISCUSSION

In this patient, the tumour was juxta-articular and located in the infrapatellar fat pad behind the patellar ligament. This location is extremely rare. Only a few reports with 1, 2 or 4 patients each have been published (1-3, 4, 6, 7, 9).

Tenosynovial giant-cell tumour is a benign, slow-growing tumour that may occur at any age, but most patients are in their thirties (5). The incidence of both diffuse and localised pigmented villonodular synovitis is approximately 2 patients per million, as estimated by Myers *et al* (5).

In a review of 81 cases, the location of the lesion was in 57% in the long fingers and thumb, in 28% in the knee, in 9% in the toes, in 2.5% in the hip, in 2.5% in the ankle and in 1% in the wrist (8). Recurrences were noted in 29% of the digits of the hand and in 21% of the knees that were operated on (8). The follow-up time was on average 45 months for lesions in the hand and 43 months for nodular lesions and 24 months for villonodular lesions in the knee.

The lesions consist of lobulated masses and range in size from 0.5 to 4 cm. The cut section is mostly brown or yellow or brown and yellow depending on the haemosiderin content and lipid accumulation within the foamy macrophages. Multinucleated giant cells are scattered throughout the lesions (8).

The treatment of choice of localised pigmented villonodular synovitis is marginal excision of the tumour. In case of a diffuse pigmented villonodular synovitis of the knee, total synovectomy shows the lowest recurrence rate (8%, with an average follow-up time of 58 months) (2). If the origin of the giant cell tumour is the patellar tendon sheath, radical excision of the lesion is sufficient (9). The post-operative follow-up by MR imaging is the most valuable imaging method for detecting recurrence.

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