

## CASE REPORT

# Localised pigmented villonodular synovitis: an uncommon cause of knee pain mimicking a meniscal tear

R Roach, I dos Remedios

*Br J Sports Med* 2003;**37**:368–369

A previously well 30 year old man presented with a short history of intra-articular mechanical locking, swelling, and anteromedial joint line pain. There was localised tenderness, and McMurray's test was positive. Arthroscopy revealed a  $3.6 \times 2.6 \times 1.5$  cm firm pedicular localised pigmented villonodular synovitis originating from the insertion of the anterior horn of the medial meniscus. Owing to its size and consistency, mini-arthrotomy was required. This allowed a return to sporting activities. Localised pigmented villonodular synovitis can mimic symptoms of a meniscal tear.

Knee problems account for a large portion of physiotherapy and orthopaedic practice. Clinical history and good examination are of paramount importance. Many problems require no intervention and settle. Meniscal injury and tears of the anterior cruciate ligament are common, and a variety of surgical techniques have been described for their management. Radiological investigation and arthroscopy further assist in diagnosis, and the problem may be amenable to treatment at the same sitting.

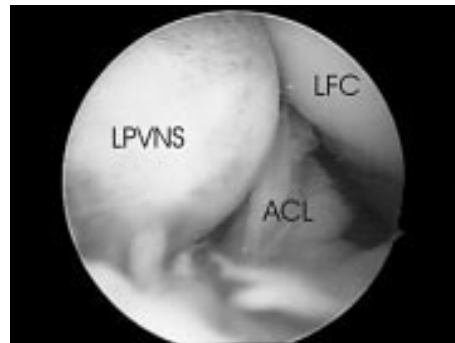
Meniscal tears typically affect those under the age of 40, following a twisting knee injury in flexion. Patients present with various symptoms and signs, typically joint line pain and tenderness, locking, and quadriceps wasting.

We describe the case history of a physically active man with a seemingly straightforward meniscal tear. We discuss localised pigmented villonodular synovitis (LPVNS) and highlight the importance of remembering this differential diagnosis in the sportsman.

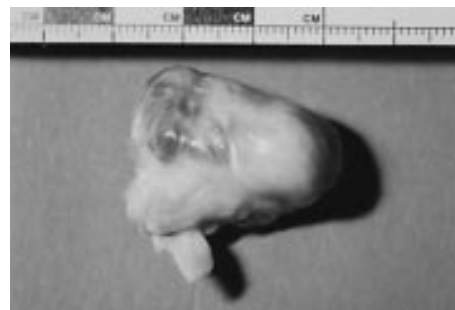
### CASE REPORT

We present the case of a fit 30 year old man who was a regular weekly sportsman. During a game of football, there were a number of twisting episodes associated with pain. He was able to complete the match, but subsequently the knee swelled and became increasingly uncomfortable. Symptoms failed to settle with rest and protected mobilisation. Periods of locking and recurrent swelling with pain remained a regular feature. On examination there was specific anteromedial joint line pain. McMurray's test was positive with a painful clunk. Radiographs were normal. A diagnosis of a medial meniscal tear was made.

Arthroscopy, however, revealed a large ( $3.6 \times 2.6 \times 1.5$  cm) pedicular lesion originating from the insertion of the anterior horn of the medial meniscus (fig 1). Owing to its size and firmness, it was safest to perform a mini-arthrotomy (fig 2). Histological examination confirmed a pigmented villonodular synovitis (PVNS). Excision led to immediate resolution of symptoms and a rapid return to sporting activities.



**Figure 1** Arthroscopic findings: a large localised pigmented villonodular synovitis originating from the anterior insertion of the medial meniscus. LFC, lateral femoral condyle; ACL, synovium on anterior cruciate ligament; LPVNS, localised pigmented villonodular synovitis.



**Figure 2** Localised pigmented villonodular synovitis after removal.

### DISCUSSION

Although PVNS usually affects the knee,<sup>1–14</sup> it is not common. The arthroscopic incidence is estimated to be 1 in 250, with a yearly incidence of 1.8 cases per million population.<sup>1</sup> A quarter of these are of the localised form.<sup>1</sup>

Original descriptions date back to Chassaignac 150 years ago.<sup>11</sup> A diffuse form in the knee was reported in 1909, with the term PVNS finally adopted by Jaffe *et al* in 1941.<sup>2</sup>

It can be diffuse or localised as a pedicular lesion typically anteromedial from the meniscocapsular junction. Features are typically mechanical with localised pain.<sup>2–9 13</sup> Recurrence is a reported problem with the diffuse form of PVNS. Only two cases of recurrence of the local variety have been reported.<sup>11 15</sup>

Macroscopically, PVNS has a characteristic yellow-brown colour from haemosiderin deposition. Histological findings include synovial proliferation with multinucleated giant cells and macrophages.<sup>11 12</sup>

Our patient had a short history in relation to symptoms. The convincing intra-articular features prompted the early arthroscopy, otherwise magnetic resonance imaging would have been a useful diagnostic tool. The size of the lesion and its

**Take home message**

LPVNS can mimic symptoms of meniscal injury.

resilience precluded piecemeal removal. Hence the arthroscopy portal was enlarged sufficiently to allow visualisation of the base and safe removal. Indeed a safe mini-arthrotomy is better than a poorly performed arthroscopy.

Although it is uncommon, we emphasise the importance of remembering any differential diagnoses when dealing with any seemingly straightforward injury. LPVNS affecting the knee can be detected by magnetic resonance imaging<sup>15</sup> or arthroscopy. Open excision, however, may be necessary for large firm lesions to allow safe and complete removal.

**Authors' affiliations**

**R T Roach, I dos Remedios**, Sports Department, Robert Jones and Agnes Hunt Hospital, Oswestry, Shropshire, UK

Correspondence to: Mr Roach, Rose Cottage, 2 Gravel Leasowes, Lightmoor, Telford TF4 3QL, Shropshire, UK; candr.roach1@btinternet.com

Accepted 29 September 2002

**REFERENCES**

- 1 **Myers BW**, Masi AT, Feigenbaum SL. Pigmented villonodular synovitis and tenosynovitis: a clinical and epidemiologic study of 166 cases and a literature review. *Medicine* 1980;**59**:223–38.
- 2 **Flandry F**, Hughston JC. Current concepts review, pigmented villonodular snovitis. *J Bone Joint Surg [Am]* 1987;**69**:942–9.
- 3 **Bojanic I**, Ivkovic A, Dotlic S, *et al*. LPVNS of the knee: diagnostic challenge and arthroscopic treatment: a report of three cases. *Knee Surg Sports Traumatol Arthrosc* 2001;**9**:350–4.
- 4 **Delcogliano A**, Galli M, Menghi A, *et al*. LPVNS of the knee: report of two cases of fat pad involvement. *Arthroscopy* 1998;**14**:527–31.
- 5 **Mancini G**, Lazzeri S, Bruno G, *et al*. LPVNS of the knee. *Arthroscopy* 1998;**14**:532–6.
- 6 **Lee B**, Yoo J, Lee S, *et al*. LPVNS of the knee: arthroscopic treatment. *Arthroscopy* 1998;**14**:764–8.
- 7 **Hammer D**, Dienst M, Kohn D. Arthroscopic treatment of tumor like lesions of the knee joint: LPVNS and ganglion cyst of the anterior cruciate ligament. *Arthroscopy* 2001;**17**:320–3.
- 8 **Bronstein R**, Sebastianelli W, DeHaven K. LPVNS presenting as a loose body in the knee. *Arthroscopy* 1993;**9**:596–8.
- 9 **Asik M**, Erlep L, Altinel L, *et al*. LPVNS of the knee. *Arthroscopy* 2001;**17**:1–6.
- 10 **Beguín J**, Locker B, Vielpeau, *et al*. PVNS of the knee: Results from 13 cases. *Arthroscopy* 1989;**5**:62–4.
- 11 **Ogilvie-Harris D**, McLean J, Zarnett M. PVNS of the knee. *J Bone Joint Surg [Am]* 1992;**74**:119–23.
- 12 **Williams A**, Myers P. LPVNS: a rare cause of locking of the knee. *Arthroscopy* 1997;**13**:515–16.
- 13 **Howie C**, Smith G, Christie J, *et al*. Torsion of LPVNS of the knee. *J Bone Joint Surg [Br]* 1985;**67**:564–6.
- 14 **Muscolo D**, Makino A, Costa-Paz, *et al*. LPVNS of the posterior compartment of the knee: diagnosis with magnetic resonance imaging. *Arthroscopy* 1995;**11**:482–5.
- 15 **Rao A**, Vigorita V. PVNS (giant cell tumor of the tendon sheath and synovial membrane). *J Bone Joint Surg [Am]* 1984;**66**:76–95.