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**Knee Surgery, Sports Traumatology,
Arthroscopy**

ISSN 0942-2056

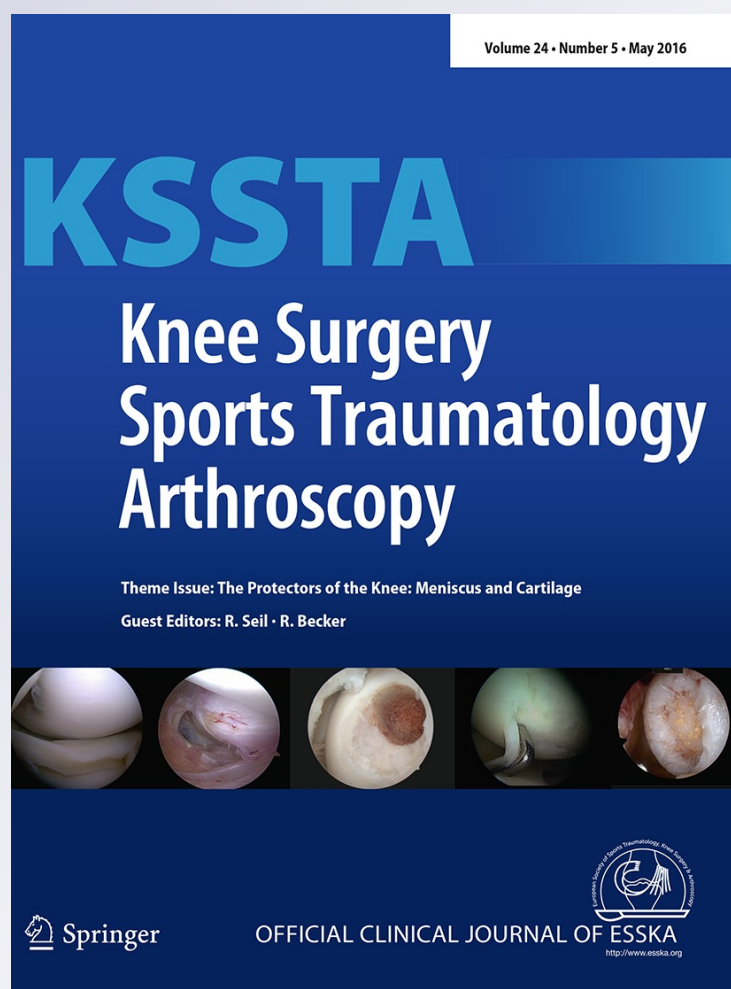
Volume 24

Number 5

Knee Surg Sports Traumatol Arthrosc

(2016) 24:1544-1546

DOI 10.1007/s00167-015-3596-6



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Medial meniscal cyst as a cause of painful erosion of the tibial plateau

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Received: 17 December 2014 / Accepted: 31 March 2015 / Published online: 9 April 2015
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Abstract Medial cysts are rarely encountered as a cause of bone erosion. It is thought meniscal cysts are present in up to 22 % of meniscal tear operations. MRI is the gold standard for visualisation of meniscal cysts. Decompression is often guided by careful study of the pre-operative MRI scans in multiple planes. This is the first case report demonstrating erosion of the medial tibial plateau due to an incarcerated meniscal cyst highlighting the potential for bone damage if left untreated.

Level of evidence IV.

Keywords Meniscal · Cyst · Tibial · Plateau · Erosion

Case report

A 47-year-old man presented with a 1-month history of perfidious onset right knee pain. This occurred following the completion of an uncomplicated 36-km bike ride. The

knee felt tight and painful after, only managing a few minutes of walking then ensuing debilitating pain. There was a small swelling felt to be on the medial aspect of the knee, with no gross effusion. Anti-inflammatory use provided no therapeutic benefit.

At the age of 25 the right knee was cast immobilised for a presumed medial collateral ligament (MCL) injury for 2 months. A full recovery was made. Aged 37 a hyper-extension injury to the right knee resulted in anteromedial bone bruising requiring no more than supervised rest. At the age of 46 following a 55-km bike ride the knee again became painful, without an effusion. Magnetic resonance imaging (MRI) was performed at this point (Fig. 1), which revealed an undisplaced horizontal cleavage medial meniscal tear with an associated medial parameniscal cyst measuring 0.5 × 0.5 cm. There was also a Grade I sprain of the MCL and tendinosis of the semi-membranosus. The treating orthopaedic surgeon at that time recommended watching the medial meniscal pathology. A diagnosis of hamstring tightness was made requiring physiotherapy. The patient then had the same pain at 1, 3 and 8 months post-consultation. This prompted a referral to our clinic and the acquisition of plain radiograph standard knee series (Fig. 2). An MRI (Fig. 3) had been ordered and performed prior to consultation, by the referring physician.

On examination the gentleman walked into the 30 clinic; he had a normal gait. The right knee had a full range of movement, but painful after 60° of flexion continuing to 120°. There was no associated effusion. Point tenderness was elicited over the posteromedial joint line with positive testing for medial meniscal irritation. There was normal clinical interrogation of the ACL/PCL/PLC/LCL and MCL. He was unable to squat or duck walk due to pain. MRI revealed an enlarged medial parameniscal cyst when compared to the previous MRI from the year previous.

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Fig. 1 Initial MRI showing medial meniscal cyst and some early change to the tibial plateau

The medial meniscal cyst had been incarcerated under the medial meniscus, with a resultant erosion of the medial tibial plateau which was not present on previous imaging. The patient underwent arthroscopic medial meniscectomy and decompression of the cyst without sequelae and excellent recovery. The bone erosion was left untreated.

Discussion

Meniscal cysts are one of the three types: parameniscal, intrameniscal or pericruciate. Lateral meniscal cysts are frequently diagnosed as they are seen by the patient and the practitioner, usually at 30° of flexion. Medial cysts are rarely encountered as a cause of bone erosion, in part due

Fig. 2 AP weight-bearing plain radiographs and a lateral on presentation to our clinic 1 year later



Fig. 3 MRI on presentation to our clinic with medial meniscal tear, cyst and bone erosion 1 year later

to the fact that the medial meniscus attaches at its periphery to the medial collateral ligament preventing fluid collection [4]. In theory injury to the MCL may allow for this fluid to accumulate, as was the case with this patient. This would facilitate fluid accumulation, which results in medial cyst formation. MRI is the gold standard for visualisation of meniscal cysts; there can be difficulty in visualisation arthroscopically. Decompression is often guided by careful study of the pre-operative MRI scans in multiple planes. It is thought meniscal cysts are present in up to 22 % of meniscal tear operations [4].

This is the first case report demonstrating erosion of the medial tibial plateau due to an incarcerated medial meniscal cyst highlighting the potential for bone damage if left untreated [1–3, 5–7].

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