Case Report

Knee Locking Due to a Single Gouty Tophus

ALEJANDRO ESPEJO-BAENA, STEPHAN MESCHIAN CORETTI, JOSE MIGUEL SERRANO FERNANDEZ, JOSE MARIA GARCIA-HERRERA, and JOAQUINA RUIZ DEL PINO

ABSTRACT. Knee locking is a highly incapacitating condition attributable to mechanical or functional factors. Pain, mostly of capsuloligamentous or intraosseous origin, is the cause of functional locking. Meniscal injuries are the most frequent arthroscopic finding in the locked knee, due to mechanical factors. We describe a patient experiencing locking during extension whose history and examination suggested a tear of the anterior horn of the lateral meniscus of the right knee; a diagnostic/therapeutic arthroscopy revealed an intraarticular gouty tophus growing from the anterior horn of the lateral meniscus. (J Rheumatol 2006;33:193–5)

Key Indexing Terms:
LOCKING KNEE GOUT TOPHUS MENISCI URATE CRYSTALS

Locking of the knee joint may be due to mechanical factors or to a functional irregularity caused by muscular spasm resulting from pain (false locking)[1]. Etiological diagnosis is often difficult, sometimes requiring direct evaluation via arthroscopy to establish the causes. A clinical history with a clearly defined previous trauma and examination for traits typically associated with a meniscal lesion[2], combined with imaging tests indicating a joint lesion, will suggest that locking is of mechanical origin. Some investigators advocate an immediate arthroscopy to diagnose and treat such patients, given the high incidence of correctible lesions[3].

The most frequent findings during arthroscopic surgery on patients with knee locking are meniscal lesions, which account for almost 70% of all cases in some series; these are generally longitudinal tears, in particular of the "bucket handle" variety, which primarily affect the medial meniscus. Ligament tears are found in 10% of arthroscopies. Also common are loose articular bodies in the femorotibial joint, the result of loosened osteochondral fragments[4].

Other less frequent causes of mechanical locking are cruciate ligament pathology, including Hoffa's fat pad adhesion to the anterior cruciate ligament (ACL), incomplete ACL lesion[5], and isolated posterior cruciate ligament tears[6]; synovial plicae[4,7]; dislocations and subdislocations of the patella[8,9]; acute calcific tendinitis of the popliteus tendon[10]; iatrogenic causes (detachment of implants)[11]; intraarticular tumors such as lipoma[12]; and cysts in the cruciate ligaments[13].

Gout generally causes joint pain and erythema in men. The symptoms are often acute, with pain, edema, and burning experienced in the same joint, starting in most cases with the metatarsophalangeal joint in the big toe. Chronic gout is characterized by copious deposits of monosodium urate crystals around the joints. Tophus sufferers tend to be elderly women.

Gout of the knee joint normally causes inflammatory attacks in the knee, with burning, redness, and hydrarthrosis. Mechanical locking of the knee during gout is a rare occurrence; it is associated with the appearance of multiple periarticular gouty tophi, which are normally associated with degenerative processes of the joint[14]; in one case, a gouty tophus in the form of a loose articular body was found[15]. We found no cases in the literature of mechanical joint locking caused by a single gouty tophus.

CASE REPORT

A 53-year-old man had been experiencing knee locking upon extension after standing up from a squatting position for 2 weeks. He described a feeling of impingement during the extension process. Examination revealed slight hydrarthrosis, with tenderness of the lateral femorotibial compartment. The rest of the examination was normal and radiography revealed no significant irregularities.

Taking into account that examination hinted strongly at a meniscal lesion, and with the insistence of the patient, a fellow orthopedic surgeon, on a rapid intervention due to the extreme functional limitations caused by the condition, we performed a diagnostic/therapeutic arthroscopy rather than investigate a possible meniscal lesion by magnetic resonance imaging (MRI).

Arthroscopy revealed a proliferative synovitis (Figure 1), for which a synovectomy was performed. A tumor (Figure 2) was found growing from the anterior horn of the lateral meniscus; having determined it to be the cause of the locking, we removed it, leaving the healthy edge of the meniscus untouched. Arthroscopic examination also revealed crystal deposits in the menisci and joint cartilage (Figure 3).

Analysis of the synovial liquid revealed it to have inflammatory properties, containing crystals with negative birefringence.

During anatomicopathological study of the piece removed, we discovered connective (synovial) tissue with deposits of monosodium urate crystals (Figure 4).

From the University Hospital "Virgen de la Victoria," Málaga, Spain.

A. Espejo-Baena, MD, Orthopaedic Surgeon; S. Meschian Coretti, Resident; J.M. Serrano Fernandez, Resident; J.M. Garcia-Herrera, Resident; J. Ruiz del Pino, MD, Orthopaedic Surgeon.

Address reprint requests to Dr. A. Espejo-Baena, Paseo Reding 9–1ºC, Málaga 29016, Spain. E-mail: espejoreina@terra.es

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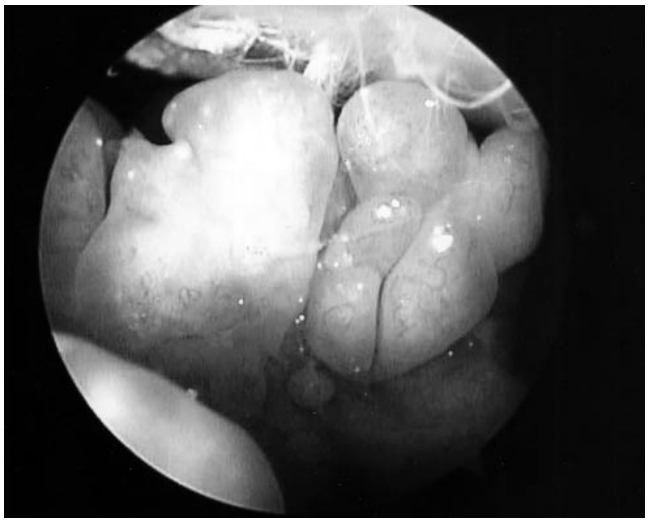

Figure 1. Arthroscopy revealed a proliferative synovitis.

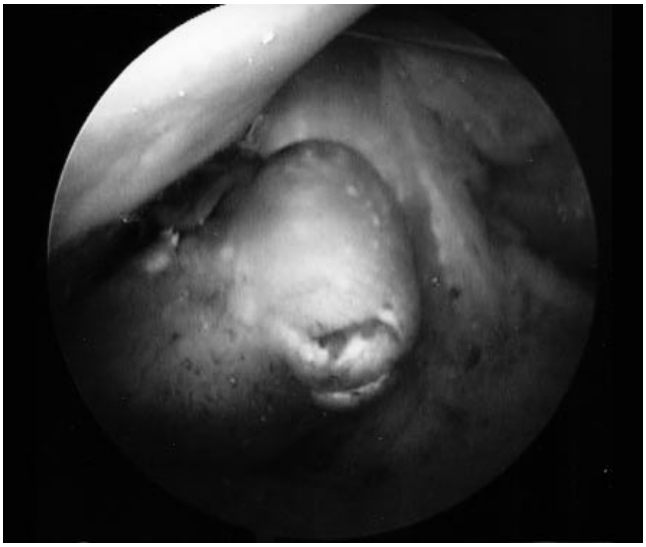

Figure 2. Tophus in anterior horn of the meniscus.

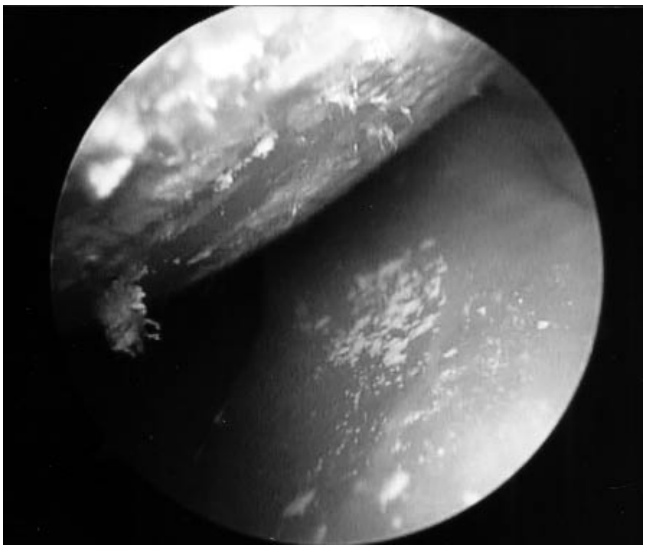

Figure 3. Arthroscopic examination revealed crystal deposits.

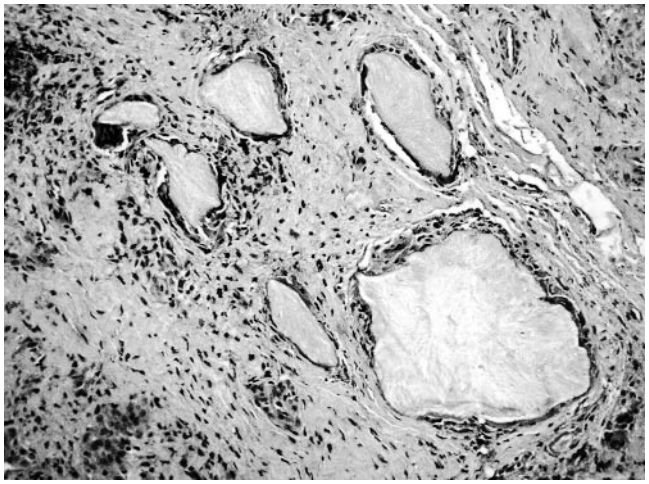

Figure 4. Chronic granulomatous reaction due to deposits of monosodium urate crystal.

Other indicators determined in the test were normal, although the level of uric acid was close to the upper limit.

A year later, the patient displayed no symptoms and enjoyed a full range of movement.

DISCUSSION

Knee locking of mechanical origin is normally caused by meniscal lesions, which are generally suspected when a description of a painful mechanism from the patient is combined with examination revealing characteristics such as those outlined in this case. The suspected diagnosis in this case was a lesion of the anterior horn of the lateral meniscus.

Common causes of mechanical knee locking are degeneration of the joints, torn cruciate ligaments, and loose articular bodies. It is rarely the result of a metabolic or tumoral disorder. In the literature, we found no other case of joint locking due to a single gouty tophus.

In this case, taking into account the patient's history and the examination findings, the suspected cause was a tear of the anterior horn of the lateral meniscus. Although some authors suggest MRI study of joint locking is crucial for diagnosis and treatment, we proceeded directly to a diagnostic/therapeutic arthroscopy due to strong suspicion that a meniscal lesion was present. The arthroscopy led to an unexpected finding, namely knee gout with a single tophus growing from the lateral meniscus that was the cause of locking, along with a proliferative synovitis that required synovectomy during the same operation.

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