

CASE REPORT

Degenerative Osteophyte Causing Acute Locked Knee in a Young Man: A Case Report

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ABSTRACT

Acute locked knee is usually caused by mechanical blockage. We report an unusual case of a locked knee due to tibial osteophyte in a young man following a sport injury. To the best of our knowledge, there has been no previous report describing the same etiology. This case report emphasizes the need for thorough history taking and careful assessment to aid us in the diagnosis. The findings made by arthroscopy confirmed our diagnosis.

Keywords: Locked knee, Osteophyte, Sport injury

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INTRODUCTION

Acute locked knee can be defined as a sudden inability to fully extend the knee while flexion is spared. Meniscus tear, stump of a ruptured anterior cruciate ligament (ACL) and osteochondral injury are commonly reported mechanical causes of this problem (1). Other causes include loose bodies, plicae, pigmented villonodular synovitis, intra-articular tumors, extruded fixation, rarely due to tophi (2) and sometimes the cause may be idiopathic. We report an unusual incident of acutely locked knee in a young man caused by tibial osteophyte.

CASE REPORT

A 32-year-old physical education teacher who is also a competitive football player presented to our clinic with acute onset of right knee pain and locking. Further history revealed an injury during a football game two weeks prior with direct hit to the right knee. After the incident, he was still able to continue the match. He has been having discomfort in his knee ever since. Although he could bear weight, he walked with a limp but his knee was otherwise stable. Previously, he had history injury to the contralateral knee and was diagnosed with ligamentous injury, however, no surgical intervention was done. Clinical examination revealed the affected

knee in 10° flexion deformity with effusion. Further passive extension of the knee caused pain. Otherwise, knee flexion was not affected. There was joint line tenderness along the medial aspect of the knee. Ligament tests were unremarkable. Plain radiograph only showed narrowing of medial compartment of both knees suggestive of osteoarthritis with no other significant findings. The patient was then subjected to diagnostic arthroscopy of his knee for further evaluation (Figure 1).

Examination under anaesthesia and arthroscopy was performed two months after the initial presentation; in view of operation scheduling constraint at our center. In addition, upper respiratory infection experienced by the patient also contributed to the delay. The knee remained locked despite anesthesia. Intraoperatively, there was a bony mass measuring 1x1x1cm located at the base of the tibial insertion of the ACL suggestive of an osteophyte. The osteophyte appeared impinging on the superior aspect of the femoral notch upon knee extension hence causing blockage (Figure 2). The osteophyte was then curetted and removed. No meniscal or ligamentous pathologies were observed. The chondral surfaces over the femoral, tibial and patellar were normal as well. The histopathological examination confirmed our diagnosis of osteophyte. The patient was able to achieve full extension two weeks post-operatively and he remained asymptomatic during the next six months of follow-up.

DISCUSSIONS

In acute locked knee, there is an extension defect with



Figure 1: Antero-posterior plain radiograph of right knee (left) - shows narrowing of medial compartment suggestive of osteoarthritis. No evidence of tibial osteophytes on lateral plain radiograph (right).

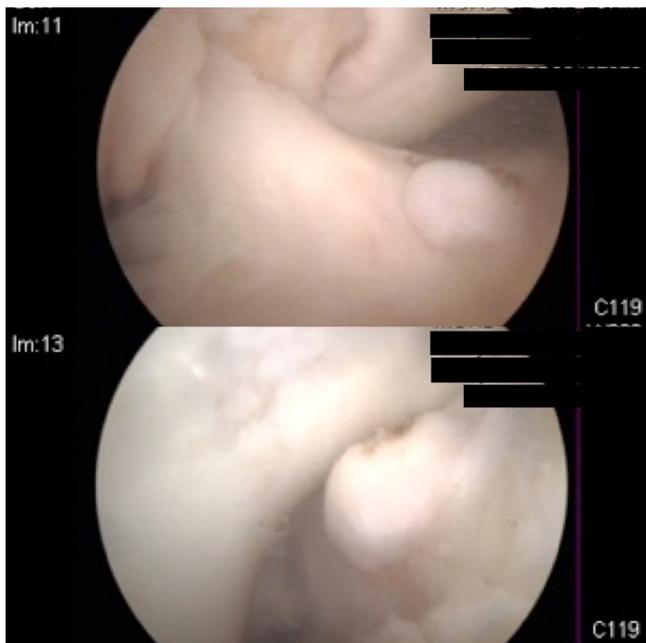


Figure 2: Arthroscopic images showing osteophyte at the base of the ACL stump. Impingement of the osteophyte to the superior aspect of femoral notch was seen on passive extension.

an elastic resistance against forced extension. Common causes of locked knee are mechanical in origin from various aetiology as mentioned earlier or it can be as a result of muscle spasm secondary to ligamentous or bony injury. However, from the literature search, none of the reported cases mentioned the tibial osteophyte as the cause of this condition.

Commonly, osteophyte formation occurs in the later stage of osteoarthritis as a result of defective articular cartilage and related changes in bone morphology. However, it can also be found in early osteoarthritis without explicit cartilage damage (3). Classically, it is thought to be a progressive disease of the elderly. However, there are several risk factors apart from age that predispose an individual to this condition. In this patient, his occupation, recreational activity and previous contralateral knee injury lead to this derangement in his knee.

Thorough history taking is vital as clinical examination might be vague. Our patient had history of sport injury but the fact that he could resume his game and asymptomatic for the next two weeks could suggest that he had no any other internal derangement of the knee due to the incident. As expected, clinical examination cannot conclude the diagnosis hence further investigation is needed.

Plain radiographs are usually unremarkable, and MRI is the preferred investigation (4). But in this case, MRI is not an option for preoperative evaluation and planning because MRI is not available as an emergency diagnostic tool at our center.

Acute locked knee is a relatively emergency condition as delay in the release of the underlying cause will result in damage of the articular surface, contracture and persistent limping. Therefore, it is proposed that these cases should be managed urgently by prompt examination under anaesthesia, arthroscopy and definitive surgery (5). Many patients are able to unlock their knee spontaneously or after adequate analgesia. They are encouraged to flex and extend the knee continuously. Arthroscopic assessment of the joint is required for knees that remained locked after failed attempts to self-release. However, repeated attempts to unlock the knee by manipulation risks damaging the chondral surface. During arthroscopy, the mechanical block is removed and often a concurrent structural repair or reconstruction is performed.

CONCLUSION

Despite other common mechanical cause of locked knee, the sign of osteoarthritis should trigger surgeons to identify it as a possible cause of acute locked knee.

REFERENCES

1. J. Gillquist, G. Hagberg & N. Oretorp. Arthroscopy in acute injuries of the knee joint. *Acta Orthopaedica Scandinavica*. 1977; 48(2):190-196
2. Paisal Hussin, Maliza Mawardi, Nizlan Mohd Nasir. The 'chalky culprit' of acute locked knee. *Il Giornale di Chirurgia- Journal of Surgery* 2014; 35:239-240

3. Peter M. van der Kraan, Wim B. van der Berg. Osteophytes: relevance and biology. *Osteoarthritis and Cartilage*. Volume 15, Issue 3, March 2007; 237-244
4. Eugene G. McNally, Khalid N. Nasser, Stewart Dawson, Leslie A. Goh. Role of magnetic resonance imaging in the clinical management of the acutely locked knee. *Skeletal Radiol*. 2002; 31:570–573
5. Kaseb M H, Mortazavi S J, Sobhan M R, Variani A, Fallah Y, et al. Arthroscopy in Traumatic Hemarthrosis of Knee, *J Orthop Spine Trauma*. 2016;2(2):e7228.