

Case report

Osteochondritis dissecans of the knee: case report



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Abstract

Osteochondritis dissecans has been defined as a focal, idiopathic alteration of subchondral bone structure with risk for instability and disruption of adjacent articular cartilage that may result in premature osteoarthritis. In the light of a case of osteochondritis dissecans and a review of the literature, we propose to present the different epidemiological, etiopathogenic, pathological and radiological aspects of this rare syndrome. The role of imaging investigations is highlighted.

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Introduction

Osteochondritis dissecans is a rare lesion of the knee, whose clinical and radiological findings are different in adult and juvenile subset. The knee is the main location of osteochondritis. Radiographs constitute the initial imaging evaluation of patients with osteochondritis dissecans, but CT scan (computed tomography) and MRI (magnetic resonance imaging) are more efficient to specify location and vitality of the osteochondral fragment.

Patient and observation

A 45-year-old man who suffering of mechanical pain in the right knee for two years. Clinical findings including pain and limitation of knee mobility. CT scan showed a fragment detached from the internal part of the right femoral condyle (Figure 1, Figure 2, Figure 3).

Discussion

Osteochondritis dissecans is commonly described as an acquired lesion of subchondral bone with potential for secondary alteration of articular cartilage [1]. Lesions of the knee are becoming increasingly common in children and adolescents. Enneking proposed a vascular theory related to fragility of the terminal vascularization of the epiphyseal zone. A trauma can interrupt this vascularization and that secondary centers. In adults, repeated trauma can lead to fatigue fractures and trauma may explain the formation of a non-vascularized area. This condition affects boys more frequently than girls in a 3/1 report. These lesions are bilateral between 25 and 33% of cases. The exact prevalence is not known and deserves more information. Hughston reported prevalence of

5 to 21 cases per 100,000 [2]. Several radiologic classifications exist. Most lesions can be identified by plain radiographs as long as four views are obtained, including AP (antero-posterior), lateral, tunnel, and merchant views. Bedouelle distinguished four stages: stage I: clearly incomplete well-defined lesion with few calcifications within; stage II: presence of a nodule with more or less shrinkage of the nodule in relation to the condyle; stage III: sleigh-bell aspect; stage IV: free fragment in the joint with an empty bed [3].

The author has refined this classification distinguishing two stages for the lacunary form and two stages for the form nodular. The most frequent location (75%) is the axial face of the internal condyle, near the insertion of the posterior cruciate ligament. The bearing surfaces of the internal and external condyle are involved in 10% of cases. The trochlea and the patella are in 15% of cases [4]. Cahuzac emphasized that CT and MRI are more efficient to specify the location [2]. MRI confirms extension of the lesion, vitality of the osteochondral fragment and the state of the cartilage. Dipaola distinguished four grade in MRI: grade I: intact cartilage with signal changes; grade II: high-signal breach of cartilage; grade III: a thin, high-signal rim extending behind the osteochondral fragment indicating synovial fluid around the fragment; grade IV: mixed or low-signal loose body in the center of the lesion or within the joint [5]. MRI provides detailed images that provide a noninvasive method to assess the size, location and character of the osteochondritis dissecans lesion, including an estimation of stability (evidence of linear high-intensity signals on T2 sequences between the lesion and parent bone) and state of the articular cartilage (fissuring, thickness, water content, etc) [6]. An unstable lesion is defined by either fractured cartilage or separation of the underlying subchondral bone. Arthroscanner is indicate for cartilage studying and to stability control.

Conclusion

Despite many reports on the subject, there remains no clear understanding of the osteochondrite dissecans etiology, natural history or treatment. CT scan and magnetic resonance imaging (MRI) are modality of choice for the assessment and characterization of knee osteochondrite dissecans lesions.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: coronal CT scan (bone window) of the right knee showing stade 4 ostéocnodritis Osteochondritis dissecans of internal part of the right femoral condyle

Figure 2: sagittal CT scan (bone window) of the right knee showing the ostéocnodritis dissecans lesions of the femoral condyle

Figure 3: axial CT scan of the right knee showing stade 4 ostéocnodritis osteochondritis dissecans of internal part of the right femoral condyle

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Figure 1: coronal CT scan (bone window) of the right knee showing stade 4 ostéocnodritis osteochondritis dissecans of internal part of the right femoral condyle



Figure 2: sagittal CT scan (bone window) of the right knee showing the osteochondritis dissecans lesions of the femoral condyle



Figure 3: axial CT scan of the right knee showing stage 4 osteochondritis dissecans of internal part of the right femoral condyle