

Case Report

The Largest Osteochondral Fracture of Patella, Case Report

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Abstract

Fractures of the patella, generally occurring by direct trauma, constitute 1% of all fractures. The most comprehensive classification of the patella fractures is the Orthopaedic Trauma Association (OTA) classification. This is a report of a 15-year-old male patient examined after falling down and suffered from a patella fracture. The fracture could not be classified by the current classifications. At the operation, the extensor mechanism was normal and the medial joint surface of the patella was displaced superiorly. The fragment was considered as a very big osteochondral fragment and two headless full-threaded compression screws were used for fixation.

Introduction

Patella is the biggest sesamoid bone in the body [1] that is necessary for the extensor mechanism of the knee. Fractures of the patella constitute approximately 1% of all fractures [1,2] generally occurring after direct trauma. Indirect trauma by pulling the tendon is another mechanism. Most prominent effects of patellar fracture are the loss of extensor mechanism and irregularity of the patellofemoral joint [3,8]. Osteochondral fractures are generally seen after patellar dislocation [4].

Patellar fractures are basically classified as displaced and nondisplaced [5]. Displaced fractures have some subtypes like; transverse, vertical, lower and upper pole, comminuted and osteochondral [5]. The most comprehensive classification for patellar fractures is OTA classification [1]. In this classification there are three types basically distinguished with joint involvement. Type-1 is extra-articular, type-2 is particularly articular and type-3 is completely articular [6]. Type 1 and 2 have two subtypes and type-3 has three subtypes [6]. The fractures, those are just intraarticular and do not destroy the extensor mechanism, are very rare and can not be classified with current classifications. These types of fractures may be recognized as osteochondral fractures of the patella.

In this article, a different type of patella fracture case, that is not classified by current classifications, is presented.

Case

A 15-year-old male patient was consulted to us with a pain in his left knee after falling down during running. Physical examination demonstrated tenderness over the patella, minimal effusion and locking. Neurovascular examination was normal.

For radiological examination, direct anteroposterior (AP) and lateral views of the knee were taken and the fracture of the patella was diagnosed (Figure 1A,1B). Open reduction and internal fixation was planned.

Under general anesthesia, the operation was made through an anterior longitudinal incision. The extensor mechanism was totally normal. The joint was opened with median parapatellar incision. At

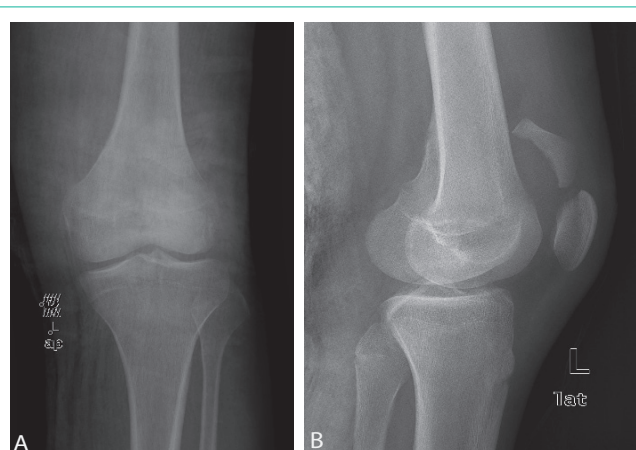


Figure 1A: Preoperative anteroposterior radiography of the left knee. B: Preoperative lateral radiography of the left knee.

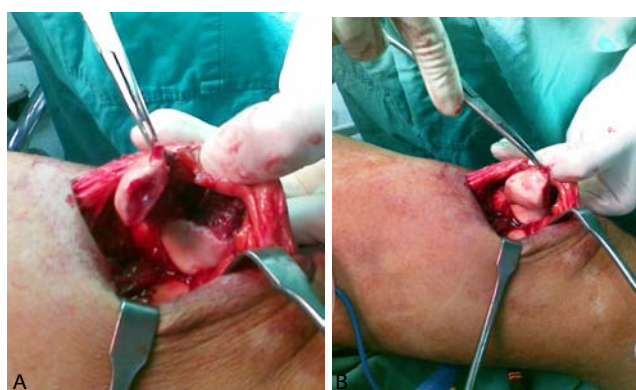


Figure 2A: Intraoperative view of the displaced fragment. B: The fragment before reduction.

the patellar joint surface, a longitudinal fracture line containing only the posterior cortex was demonstrated and the medial joint surface of the patella was displaced superiorly like a big osteochondral fragment. (Figure 2A, 2B). After the reduction of the fragment, fixation was performed with two full-threaded headless compression



Figure 2C: Intraoperative view after fixation of the fragment.



Figure 3A: Postoperative anteroposterior radiography.
B: Postoperative lateral radiography.

screws (Figure 2C). Reduction and fixation were controlled with postoperative direct radiographies (Figure 3A, 3B).

Discussion

Direct anteroposterior and lateral views of the knee are generally sufficient for radiological examination. Skyline views may be needed to establish the longitudinal and osteochondral fractures [1]. In the present case, the fracture was diagnosed only with anteroposterior and lateral radiographies.

The purpose of treatment in patellar fractures is to restore the extensor mechanism and the joint surface. Tension band

technique is generally used for restoring the extensor mechanism. Interfragmentary screws and the combinations of these are also used [2,3]. For the joint surface fractures, like osteochondral fractures, the use of interfragmentary headless compression screws may be a suitable technique for treatment [7].

To our knowledge, the present case could not be classified with current classifications. This type of fracture may be considered as an unicortical (osteochondral) fracture pattern with a very big fragment. When the literature was reviewed; we could not find any patellar fracture that could not be classified with OTA classification and also did not destroy the extensor mechanism containing only the joint surface. If it is considered as an osteochondral fracture, there is no case in the literature having such a big fragment as in our case. Osteochondral fractures may be considered more in comprehensive fracture classifying systems.

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