



Contents lists available at ScienceDirect

Trauma Case Reports

journal homepage: <http://www.journals.elsevier.com/trauma-case-reports/>



Case Report

Vertical axis dislocation with coronal fracture of the patella: A previously unreported injury pattern

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ARTICLE INFO

Article history:

Accepted 19 October 2015

Available online 4 November 2015

Keywords:

Trauma

Coronal patellar fracture

Vertical axis patellar dislocation

Mechanism of injury

ABSTRACT

The patella usually dislocates laterally. Less commonly, intra-articular dislocation occurs about either the vertical or horizontal axis. Patellar fractures are generally transverse with varying degrees of comminution, and less frequently vertical in the sagittal plane. We present a 9-year follow-up of a previously undescribed coronal patellar fracture associated with vertical axis dislocation of the patella. The mechanism of this severe injury is described.

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Case report

A 14-year-old boy fell down stairs injuring his left knee. Anteroposterior and lateral plain radiographs obtained in the emergency room were interpreted as having shown no bony injury and he was discharged with a knee bandage. He re-attended 11 days later with ongoing severe pain and limitation of knee motion. Review of the initial radiographs revealed the patella to be laterally situated on the anteroposterior view with an abnormally thin profile on the lateral projection (Fig. 1A,B). Skyline view, obtained at the second but not at the first attendance, showed lateral displacement of part of the patella into the lateral recess (Fig. 1C). Physes around the knee were still open. Computerised tomography (CT) of the left knee demonstrated a fracture through the mid-coronal plane of the patella, with lateral rotation and dislocation of the articular fragment into the lateral recess (Fig. 2).

Under general anaesthesia, arthroscopy was first carried out using standard portals. After the evacuation of 30 ml of serosanguineous effusion, the joint was irrigated. Inspection of the intercondylar notch, medial and lateral compartments revealed no additional injuries. Arthrotomy was then performed through a medial parapatellar approach. It confirmed the presence of a coronal fracture of the patella. The articular half was

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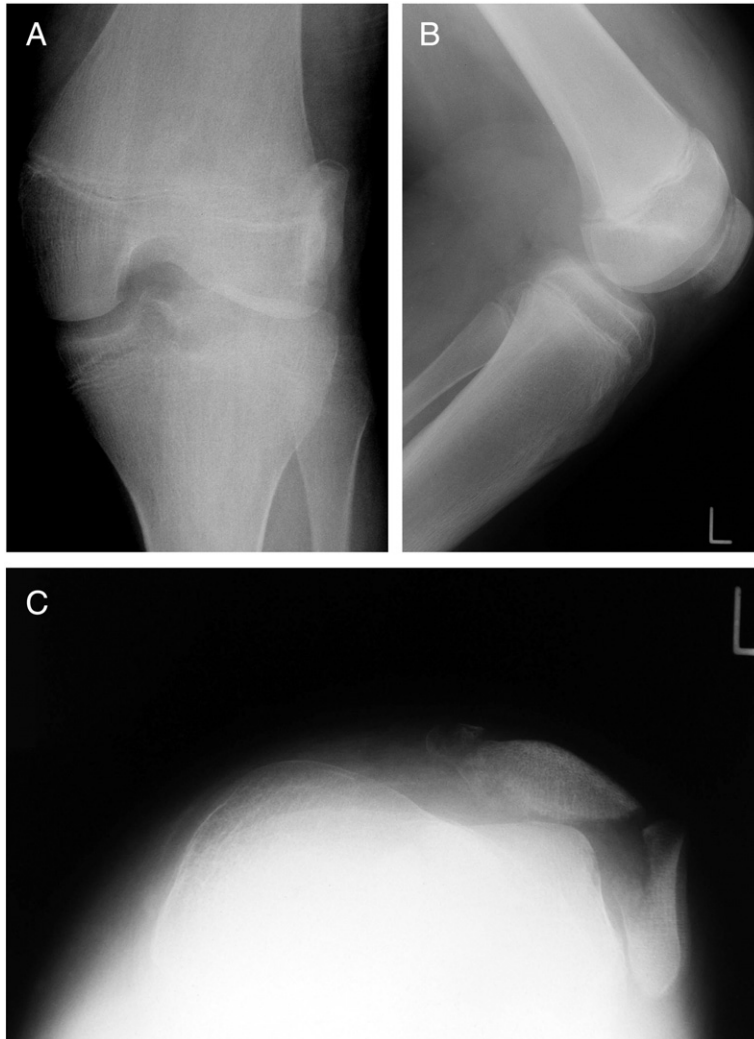


Fig. 1. (A) Anteroposterior radiograph of the left knee showing a laterally displaced patella. (B) An abnormally thin profile of the patella on lateral radiograph. (C) Dislocation of part of the patella on skyline view.

delivered out of the lateral recess, where it had dislocated into. Its lateral soft tissue attachments had remained intact. Its articular surface was well preserved except for a small loose piece, which was removed. The fracture was anatomically reduced and stabilised with medially placed trans-osseous absorbable vicryl sutures.

Post-operatively, he was immobilised in a cylinder cast for 6 weeks, at which time intensive physical therapy was commenced. Six months later, his knee remained markedly stiff with a 20-degree extension block and limitation of flexion at 60°. He underwent arthroscopic arthrolysis and manipulation under general anaesthesia. Full passive extension was obtained. However, the knee could only be flexed safely to 95°.

No further follow-up was available until recently at nine years post injury. He now works as a security officer and reports minimal pain in his left knee. He walks without a limp. There is mild atrophy of the left quadriceps muscles with no associated joint effusion or tenderness. His knee moves from 0° to 115° with no extension lag. Movements of the patella in the medio-lateral plane are full and painless. Up-to-date radiographs confirm sound fracture healing with no evidence of avascular necrosis. Mild to moderate

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