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Irreducible lateral patellar dislocation reduced using towel clip technique: A case report

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Abstract
Acute lateral patellar dislocation is relatively common in younger age group and most likely caused by indirect trauma which is a medical emergency. Lateral dislocation accounts for the vast majority of patellar dislocations and make up for approximately 3% of all knee injuries. We report a case of irreducible lateral patellar dislocation which was reduced using a towel clip under spinal anaesthesia. This case is reported for its rarity and reduction technique.

Keywords: acute patellar dislocation, irreducible, indirect injury

Introduction
Most of patellar dislocations are spontaneously reduced and others can be reduced easily in emergency department [4, 5]. Irreducible patellar dislocations are rare injuries, but those that do occur are mainly directed intra-articular [7]. The mechanism of injury for a typical lateral dislocation is indirect trauma occurring when a patient plants the foot and applies an internal rotatory force or tibial valgus force to a flexed knee. Approximately 10% of acute patellar dislocations are result of a direct blow to the medial side of the knee [1, 8]. We hereby report an exceptionally interesting case of an irreducible lateral patella dislocation which was reduced using towel clip technique.

Fig 1: Clinical picture showing Rt Lateral patellar islocation

Case report
A 35-year-old male presented to the ED with the inability to stand or bear weight on his right leg after an alleged history of trauma while playing tug of war.

Patient had complaints of pain and inability to flex the knee and feels that right kneecap moved laterally. He had a history of previous dislocation 3 years before which was also irreducible and closed reduction was done. There was no evidence of other neurologic symptoms.

Examination revealed a laterally dislocated patella, with the knee held in slight flexion and tenting of the skin over the superolateral patellar surface (Figure 1). Peripheries were warm and well perfused with distal pulses intact. The patient had no obvious long bone deformity or bruising, and he had normal light-touch sensation. He was refusing attempts at relocation because of the pain.

X-ray images revealed a right lateral patellar dislocation with no obvious associated fracture (Figure 2). The patient's leg was placed in a Thomas splint, and the plan was to attempt reduction in ED.

We attempted closed reduction under IV sedation and appropriate muscle relaxant. We tried to unlock the patella and push it medially while keeping the knee in full extension and the hip in flexion (to relax the quadriceps). We also attempted to flex the knee fully to reduce the patella from the unnatural position, as mentioned in literature [8, 9]. All attempts were futile and the patella was immovable.

Fig 2: X-ray images showing right lateral patellar dislocation with no obvious associated fracture

Computed tomography (CT) scan of the right knee (Figure 3) revealed Lateral displacement of right patella with small chip bony fragments seen medial to the patella; Mild to moderate joint effusion with extension to the suprapatellar bursa noted.

The patient was taken to theatre, keeping in mind the possible need for open reduction. Under general anaesthesia with bag and mask ventilation, after appropriate preparation of skin and draping, a towel hook was used to apply traction and attempts were made to slide the patella over the prominent lateral femoral condyle. On the second attempt, the dislocation was successfully reduced. The patella was tracked in correct alignment, and the knee was able to flex and extend in a full range of motion. Check x-rays confirmed appropriate position and joint effusion but showed no other fractures or complications. Sterile compression dressing done and long knee brace applied.

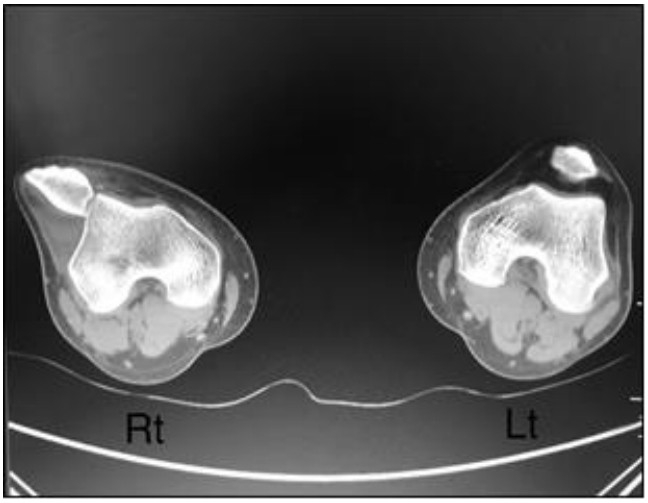

Fig 3: Axial cuts of CT knee showing Lateral displacement of right patella with small chip bony fragments seen medial to the patella

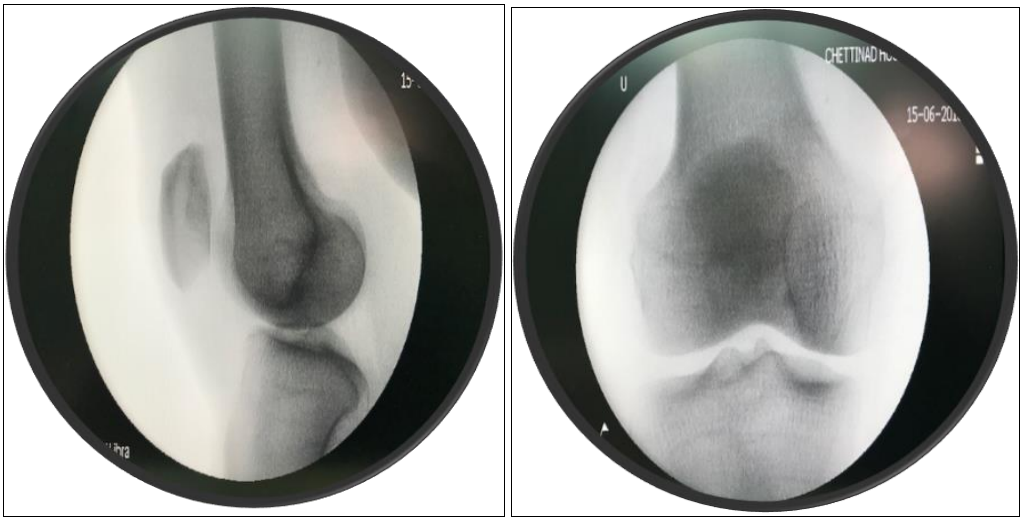

Fig 4(A) **Fig 4(B)**

Fig 4(A&B): Post operative radiograph: The normal patella-femoral relationship has been restored

Postoperatively, the patient had complaints of moderate pain which was treated with analgesics. He had no medial or lateral joint line tenderness, and his range of motion was 0-80 degrees. The patient was ambulated in full-weight-bearing with long knee brace. He was referred to a physiotherapist for vastus medialis exercises and conservative management in a long knee brace.

Discussion

There have been only a few similar cases reported in

orthopaedic literature, since the first description by Cooper in 1844. Lateral dislocations account for the vast majority of patellar dislocations and make up approximately 3% of all knee injuries [1]. People aged <20 years, particularly athletes, adolescent girls, and tall overweight males, appear to be predisposed [1]. The reported risk of patellar dislocation is said to be 6 to 7 per 100,000, with higher incidences in the second decade of life [2, 3].

The annual incidence of patellar dislocation is 5.8 per 100,000 in the general population, with an average incidence of 29 per 100,000 in the 10- to 17-year-old age group [10].

In Lateral patellar dislocation, the knee is typically held in 20-30 degrees of flexion, and the patella is palpable laterally. Additional findings may include a swollen knee, hemarthrosis, and tenderness to palpation along the medial edge of the patella just proximal to the femoral epicondyle [1]. The dislocations usually reduce easily either spontaneously or via closed reduction by simultaneously extending the knee and directing the patella medially [11].

In our case, multiple unsuccessful attempts were made at mechanical closed reduction of the patella. A CT scan was required to identify the bony abnormalities, and the Orthopaedic surgeon's opinion was that an incarcerated fat pad initially created a mechanical block to reduction. The initial plan was for open reduction and fixation of the medial ligaments. However, manipulation under anesthesia was successful using a towel clip.

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