

Bicondylar Hoffa's Fracture Operated by Anterior Midline Approach – A Rare Case Report

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Abstract

Intra articular Coronal fracture of the femoral condyle (Hoffa) is rare-especially that of both medial and lateral condyle. We report the case of a patient who had a Bicondylar Hoffa fracture of the medial and lateral condyles occurred as a result of an accident due to fall from bike. Next day of surgery functional score was excellent with normal flexion, an absence of laxity, an absence of pain and an unlimited market.

Keywords: Hoffa fracture, bicondylar fracture, Herberts screws

INTRODUCTION

In 1904 Hoffa described isolated coronal plane fractures of the distal femoral condyle. It is rare entity representing only 0.65% of all femoral fractures. Approximately 40% of the intercondylar fractures have a Hoffa's fragment involved. Hoffa's fracture usually involves a single femoral condyle, most commonly the lateral condyle in coronal plane than the medial condyle yet the reason is unknown. Bicondylar involvement is a rare entity. Literatures have reported only 11 cases so far, the mechanism of injury is attributed to the We describe a case of bicondylar Hoffa fracture operated by open anterior midline approach and fixation done by Herbert screws.

Case Presentation: A 18-year-old male was admitted to the Orthopedic department at Dhiraj Hospital after a fall from bike. Plain radiography and computed tomography revealed a bicondylar Hoffa fracture on the right knee. The lateral and medial Hoffa fragments were comminuted with dislocated Patella. Three days after the accident, open reduction and internal fixation were performed. Under spinal anesthesia, the patient was placed in the supine position with the right limb exsanguinated. Medial parapatellar arthrotomy was performed. This revealed comminuted Hoffa fractures of both femoral condyles. The knee was flexed to

allow initial, manual anterior delivery of the Hoffa fragments. The fragments were then anatomically reduced and multiple Kirschner wires were inserted for temporal reduction and stabilization. Anatomical reduction was confirmed by flu direct visualization of the articular surface and radiographically. Four (two per condyle) Herbert screws were inserted over the Kirschner wires in the deep flexion position at the posterior articular surface directing anteriorly perpendicular to the fracture plane to compress the fractures (Figure 4). These screws were sunk to just below the cartilage bone interface and at the end Patella was relocated and quadriceps muscle was repaired using Ethibond. Next day after surgery, intermittent knee mobilization was started along with isometric muscle strengthening exercise. The range of motion of the knee was 0–90°.

Discussion Hoffa fracture generally results from severe high-energy trauma secondary to motor vehicle accidents or a fall from a height. The specific mechanism of the injury that produces Hoffa fractures remains unknown. Lewis et al. suggested that axial load to the femoral condyle when the knee is flexed to >90° produces posterior tangential fractures. Since the lateral femoral condyle has a greater anteroposterior

(AP) dimension and the knee has a physiologically valgus orientation, the lateral condyle is more commonly involved. In our case, the bicondylar fracture might have been caused by a posterior and upward directed force with a hyperflexed knee without any varus or valgus, as suggested by Ul Haq et al. Conservative treatment of displaced Hoffa fracture with plaster cast was reported to lead to nonunion or deformity joint contracture, and subsequent osteoarthritis. Most authors recommend open reduction to restore normal condylar anatomy and rigid internal fixation, allowing functional recovery. Screw fixation is the most accepted method to fix Hoffa fractures. A midline incision with medial parapatellar arthrotomy is the most commonly reported approach. Medial parapatellar arthrotomy provides visualization of fractures and articular surface that is necessary for achieving perfect anatomical reduction and the exposure required to compress and rigidly fix the fractures with multiple lag screws. No consensus has been reached on the fixation method in terms of the

anterior/posterior direction of screw insertion and type/number of screws to use. Hoffa fractures are ideally fixed with AP-oriented screws. In our case, we used 4 Herbert screws in the deep flexion position at the anterior articular surface directing posteriorly perpendicular to the fracture plane. The screws we used with a minimal diameter of 4 mm and a maximum diameter of 5 mm. This is the first report describing the use of such screws for the treatment of a bicondylar Hoffa fracture. One advantage of using these screws is that compression along the entire length of the screw can be achieved, possibly resulting in improved stability compared with other screws.

Conclusion Bicondylar Hoffa's fracture is a rare entity, Anterior midline approach seems ideal for such bicondylar Hoffa's Fracture as it provides excellent joint exposure and knee flexion aids in fracture reduction with careful reduction and immediate post-op physiotherapy it may give excellent results in short term.