

Case Report

Neglected Medial Hoffa Fracture for 9 years -A Case Report

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Abstract

Hoffa fractures, coronal fractures of the femoral condyle, are uncommon injuries. It is often missed on initial plain radiographs. Medial Hoffa fractures are three times less common than lateral Hoffa. Here we present a case of neglected non-union of medial Hoffa fractures for 9 years, with good outcome after Open reduction and internal fixation.

Keywords: Hoffa fracture, Non-union

Introduction

Hoffa fractures, coronal fractures of the femoral condyle, was first described by Hoffa¹ in 1904, are uncommon injuries. Nonunion of a Hoffa fracture appears to be even more uncommon². This article presents a case of nonunion of a medial Hoffa fracture in an adult who suffered the Hoffa fracture 9 years ago.

Case report

Twenty four year young man presented to our hospital with a complaint of worsening pain and deformity in his left knee for last 9 year. Upon presentation he described that he had sustained a major trauma to his left knee 9 years ago. He explained that he has some fracture around left knee and was managed with long leg cast for 2 month. He had pain, stiffness and deformity of left knee since then, which is gradually progressive. On physical examination, the knee range of motion (ROM) was full extension to 110° flexion with 15° varus deformity at 0° extension, and the positive valgus stress test. Anteroposterior and lateral radiographs of the knee showed a non union medial Hoffa fracture with posteromedial proliferative osteophyte, with osteoarthritis changes in knee (Figure1). We made diagnosis as neglected non-union left medial hoffa fracture & planned for surgery.

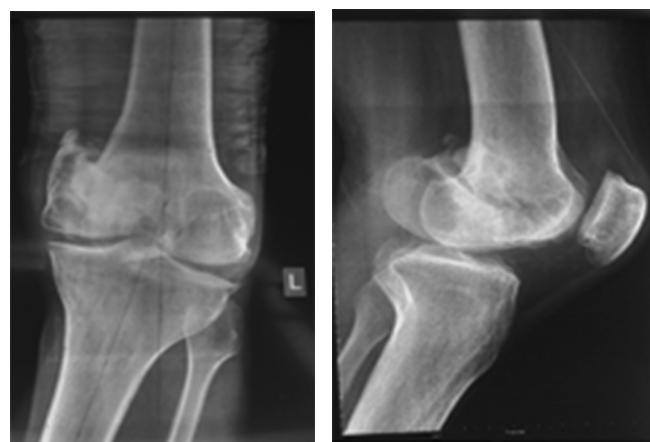


Figure 1. X-ray of Left knee AP/Lateral view: Non-union medial Hoffa fracture with posteromedial proliferative osteophyte, Varus knee with osteoarthritis changes

We approached the fracture through subvastus approach. Intraoperatively there was dense fibrous tissue bridging across the displaced Hoffa fragment and the remaining medial condyle, with proliferative osteophytes posteromedially (Figure 2).

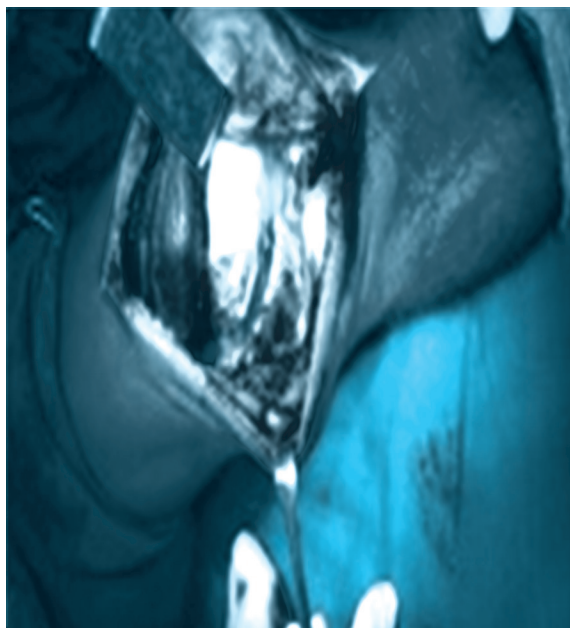


Figure 2. Intraoperative picture showing the subvastus approach with non-union at medial Hoffa fracture

When the valgus test was done intraoperatively, the gap widened, which meant that the medial collateral ligament (MCL) was intact and the displaced condylar fragment was attached to the MCL and the posterior capsule. We meticulously removed all fibrous tissue and some osteophytes. Fracture edge were sclerotic. We curetted and drilled several holes with 2.5 mm drill bit in both fragments. The condyle was then anatomically reduced. The rigid fixation of the fracture was then achieved with two 4.0 mm cannulated partially threaded cancellous screws with washers, put in AP direction parallel to the sagittal plane of the medial femoral condyle (Figure 3).

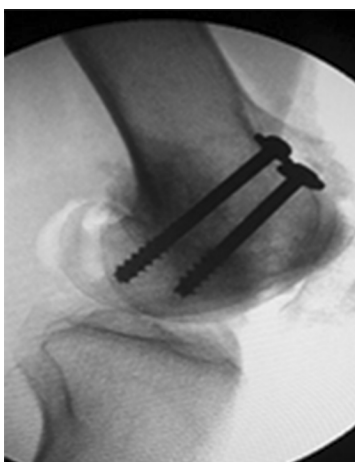


Figure 3. Intraoperative Lateral view X-ray confirms anatomical reduction of the medial Hoffa fracture

with two anteroposterior 4 mm cannulated screws and washers

Immobilization on was done with above knee posterior slab. Toe-touch weight bearing mobilization was allowed on first postoperative day. Knee range of motion was started after stitch removal on 14th postoperative day. At the 6month follow-up, the patient was ambulatory without aids and with no valgus instability and knee ROM was 5–100 degrees, X-ray showed healed fracture (Figure 4).



Figure 4. Lateral X-ray of knee at 6 month followup: United medial Hoffa fracture

Discussion

The Hoffa fracture is an intraarticular fracture, in coronal plane of posterior aspect of the femoral condyle. Usually, the injury results from high-energy trauma events, and is often missed on plain radiographs but easily found on a CT scan.^{2,3} There is a biomechanical vulnerability of the lateral condyle due to a physiological valgus of the knee joint.⁴ Hence, the lateral condyle is involved three times as often as the medial condyle in a Hoffa fracture.⁵ Initially missed diagnosis is considered to be one of the most common reasons for nonunion of such fractures.⁶ Our patient had a neglected nonunion of Hoffa fracture for last 9 year, which is very rare presentation.

Jiang Y et al.⁷ reported a case of an adult who had nonunion of a Hoffa fracture for 27 years and

was treated by open reduction and internal fixation, and the varus deformity corrected with xenogenous bone graft with an excellent result.

McDonough and Bernstein⁸ also described a nonunion of a lateral Hoffa fracture in an 8-year-old boy. The boy suffered a motor vehicle accident 5 years earlier. The patient underwent open reduction and internal fixation with 2 partially threaded cancellous screws through a lateral approach. At 6 months he was ambulatory without pain, and radiographs showed a successful union. At 30 months, the range of motion

in his knee was 0°–130° and his examination was normal.

Strauss et al⁹ reported a 16-year-old boy with 10 year old neglected lateral Hoffa fracture. Open reduction and fixation with corticocancellous bone screws and 2 partially threaded cancellous screws were performed. Unfortunately, the patient was subsequently lost to follow-up.

Payne et al¹⁰ reported a 34-year nonunion of a lateral Hoffa fracture in a 50-year-old man. The fracture fragment was fixed with two screws and iliac crest bone graft. No follow-up was reported in this article.

This unusual case reminds us that nonunion is very likely in Hoffa fractures of the medial femoral condyle in adults if they are treated non-operatively. We can achieve good results with internal fixation in neglected nonunion of the Hoffa fracture.

Conclusion

We conclude that isolated medial Hoffa fractures are rare. Neglected nonunion of medial Hoffa fracture is very rare. Good results can be achieved in such fractures with open reduction and internal fixation with two lagscrews with or without bone grafting.

Conflict of interest: None declared

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