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Case Report

Rare case of medial Hoffa fracture with ipsilateral femur shaft fracture with unusual mechanism of injury

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ABSTRACT

Hoffa's fracture is a rare fracture which involves coronal fracture of the distal femur involving one or both the condyles. We report a rare combination of Hoffa fracture with ipsilateral femur shaft fracture with an unusual mechanism of injury. This case report will help increase awareness about such combined fracture pattern and eventually avoid missing these important intra-articular injuries- Hoffa's fracture. In a patient with ipsilateral femur shaft fracture and in polytrauma patients, diagnosis of Hoffa's fracture is very challenging because of presence of other long bone fracture and injuries. Missed Hoffa's fracture in a patient with ipsilateral femur shaft fracture may restrict post-operative knee range of motion, knee pain, increased risk of early arthritis and joint deformity and stiffness.

Keywords: Hoffa's fracture, Coronal plane, Femoral condyle, Polytrauma, Femoral shaft fracture

INTRODUCTION

Hoffa's fracture, a coronal plane fracture of femoral condyle has been explained well in association with supracondylar or intercondylar distal femur fractures.[5] These are mostly seen in high velocity trauma or road traffic accidents.[8] But Hoffa's fracture with ipsilateral femur shaft fracture is very rare entity.[7] We report one such case of femur shaft fracture with ipsilateral medial femoral condyle Hoffa's fracture caused by unusual mechanism of injury.

CASE REPORT

Our patient a 37-year male worker involved in tree transplantation process was standing at the construction site and guiding from the ground, while the tree was being lifted by crane. Some malfunction caused the tree to fall. Whilst he tried to escape, he was caught under the tree. He presented to us with left thigh pain, deformity and left knee swelling.

On examination, left thigh deformity with tenderness at mid shaft level with left knee swelling and posteromedial skin bruising. Distal neurovascular status was intact and normal. Haemodynamically patient was stable. After routine trauma X-rays, he was diagnosed to have left femur mid shaft fracture (Figure 1). Also seen was a minimal displaced medial femur condyle coronal fracture (Hoffa's fracture) on same side (Figure 2).

For femur mid shaft fracture closed reduction and internal fixation with IM nailing was done (Figure 4).

Hoffa's fracture was fixed with two 6.5 mm cannulated cancellous screws (Figure 3) by open reduction through medial parapatellar approach. Medial parapatellar approach not only helped in confirmation of reduction and fixation of medial condyle fracture but also to rule out cruciate ligaments, meniscus and cartilage injuries.

Physiotherapy started on post-operative day 1 with non-weight bearing mobilisation with walker, static quadriceps

strengthening, knee rom as per pain tolerance but not more than 90 for first 3 weeks.

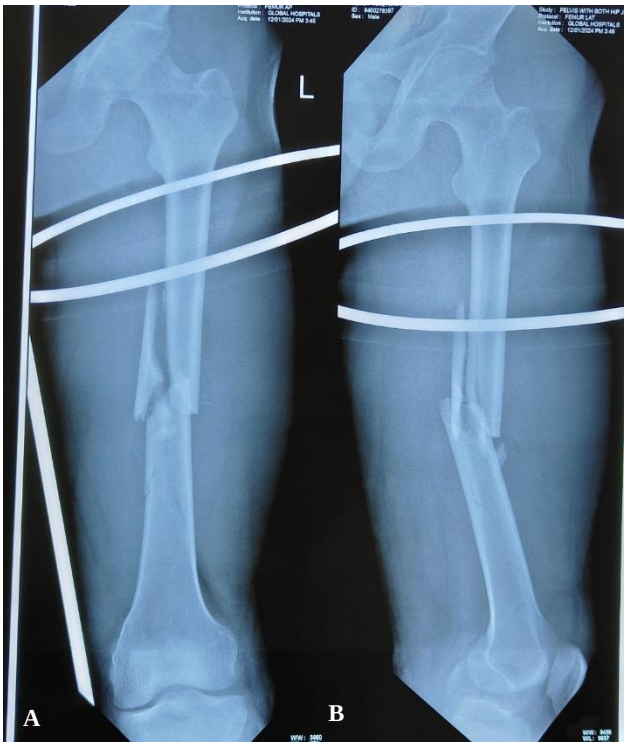

Figure 1 (A and B): Anteroposterior and lateral radiograph of left femur showing left femur mid shaft fracture with a butterfly fragment.

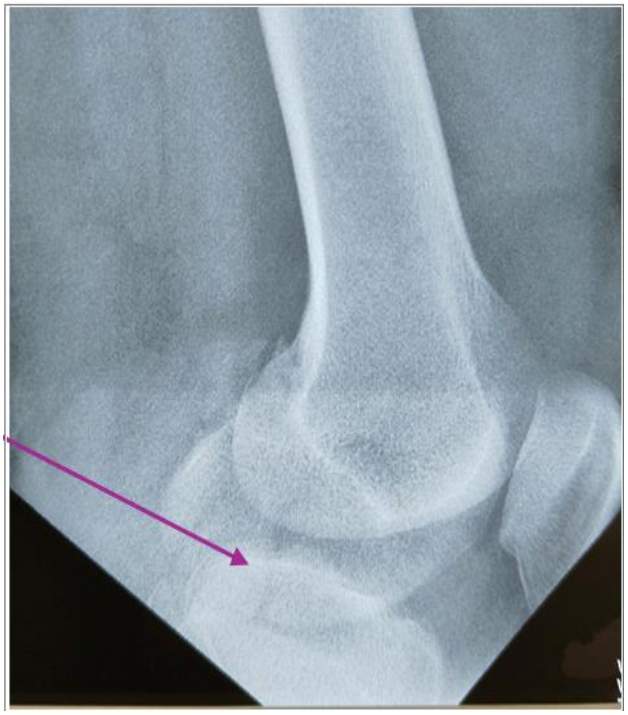

Figure 2: Lateral radiograph of left knee showing minimally displaced coronal fracture (Hoffa fracture) of medial femoral condyle.

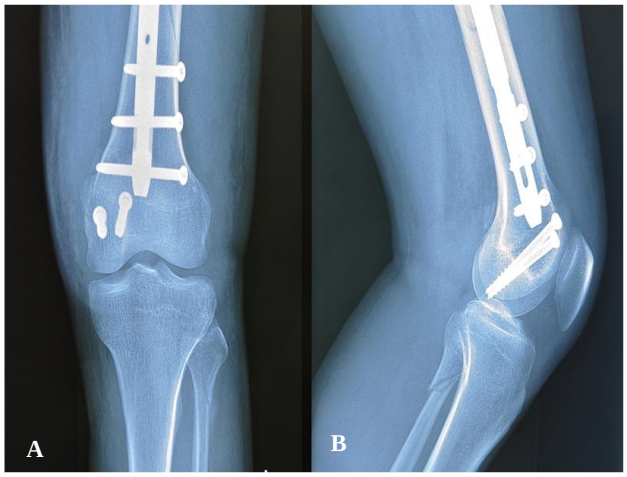

Figure 3 (A and B): Post-operative radiograph showing medial condyle Hoffa's fracture fixed with cancellous screws.

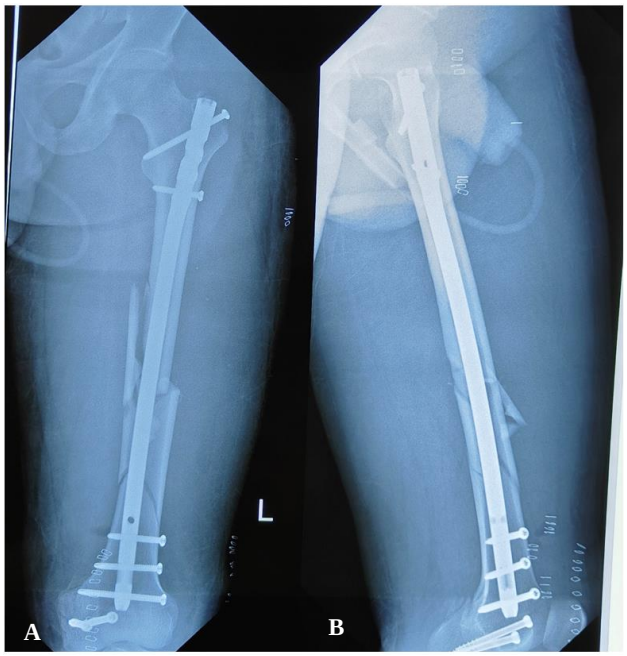

Figure 4 (A and B): Post-operative radiograph showing femur fracture fixed with intramedullary interlocking nail.

DISCUSSION

Coronal fracture of one or both the femoral condyles as described by Albert Hoffa in 1904 are considered to be quite rare. Coronal fractures of the medial femoral condyle are very rare, and there is a high likelihood of these fractures being missed by an average orthopaedic surgeon.[1]

Hoffa's fracture involves lateral condyle more commonly than medial condyle, frequently occurs in association with high-energy supracondylar-intercondylar distal femoral fractures.[2] Hoffa's fracture is usually caused by high

energy trauma, especially in motorcycle accident.[9] Holmes et al described mechanism of injury to be direct force due to impaction of upper tibia on the femoral condyles, with the knee flexed more than 90.[3]

Hoffa's fracture with associated injuries around the knee joint is an uncommon injury that has a high potential for missed diagnosis and improper treatment. An oblique view along with a lateral view is often required to diagnose the injury.[4]

The prevalence of Hoffa fractures in high-energy injuries should be watched for with the evaluating surgeon maintaining a high index of suspicion. Computed tomography (CT) images should be obtained in order to properly diagnose the presence of this injury. Non-operative treatment should be sparingly utilized depending on a case-by-case basis. Open reduction and internal fixation produces satisfactory results for these intraarticular fractures and is the present standard of care.[5]

The key to achieve good outcome is anatomical reduction of the fracture, stable and rigid fixation using a proper implant, while maintaining the blood supply by choosing the optimum approach.[10] Early mobilization ensures that the fruits of the surgeon's efforts and patient's patience are borne.[6]

CONCLUSION

Hoffa's fracture should not be missed in a case of polytrauma patient with femur shaft fracture. This case report emphasize that high index of suspicion is required to diagnose Hoffa's fracture in polytrauma patient with ipsilateral femur shaft fracture. Early diagnosis and treatment indicated to avoid complications like joint deformity, early arthritis, persistent pain and to achieve early mobilisation, knee range of movement.

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