IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 23, Issue 5 Ser. 8 (May. 2024), PP 55-59
www.iosrjournals.org

Intra-Articular Horizontal Dislocation Of Patella - A Rare Case Report

Dr.Rakshith Kumar K, Dr. Nagaraj B N
(Junior Resident, Orthopaedics, Akash Institute Of Medical Sciences & Research Centre, Bengaluru)
(Professor, Orthopaedics, Akash Institute Of Medical Sciences & Research Centre, Bengaluru)

Abstract:
Acute traumatic intra-articular dislocation of the patella is not a common presentation in orthopaedic practice; less frequently observed than extra-articular dislocation of the patella. Intra-articular dislocation of the patella is a rare injury. Two types of intra-articular dislocations have been described in literature. In horizontal type, the patella has rotated on its horizontal axis. In the second type, the patella rotates on its vertical axis. We hereby We describe here a case of horizontal intra-articular dislocation of patella with near total full thickness quadriceps tendon rupture in a young 22-year-old male managed successfully by open reduction.
Key Word*:Patella, Intrarticular dislocations, knee injuries, orthopaedics, trauma*

Date of Submission: 11-05-2024 Date of Acceptance: 21-05-2024

I. Introduction

Traumatic acute patellar dislocation is an orthopaedic emergency. Its annual incidence is 5.8 per 1,00,000 in general population. It is most common in adolescents in 10–17 year age group with an average incidence of 29 per 1,00,0004. Sports and dance are the main activities associated with patellar dislocation.[1] There are various types of patellar dislocations which have been described. Lateral patellar dislocation is most common. Rarely patella dislocates intra-articularly, either in horizontal or vertical direction. We report a rare case of horizontal intra-articular dislocation of patella with near total full thickness quadriceps tendon rupture in a young 22-year-old patient after a road traffic accident. Patient was managed successfully with open reduction and quadriceps tendon repair.

II. Case Presentation

A 22 year old male patient presented to the Emergency room with alleged history of road traffic accident following which he sustained injury to right knee. The patient on his speeding 2 wheeler motorbike had a collision with a tractor. Patient presented with complaints of pain &, swelling of the right knee and inability to bear weight on right lower limb.

On examination - A Swelling was noted over supra patellar region, lacerated wound below knee joint medial aspect 6 x 2 cm, Tenderness present over lacerated wound and supra patellar region. Palpable supra patellar gap with discontinuity in the quadriceps tendon. Dislocated patella is palpable in the knee joint which is horizontally placed.

Range of movements - no active knee extension, painful passive knee movement present. Active toe movements – present. Distal pulse was palpable. (Figure 1a & 1b)

Figure 1a

Figure 1b

Figure 1c

Radiographs of left knee joint revealed an intra-articular dislocated patella with horizontal type. The articular surface of patella was facing distally. (Figure 2). Ultrasound of the right knee joint was done which showed Near total full thickness tear of quadriceps tendon and moderate hemarthrosis (Figure 3)

Figure 2

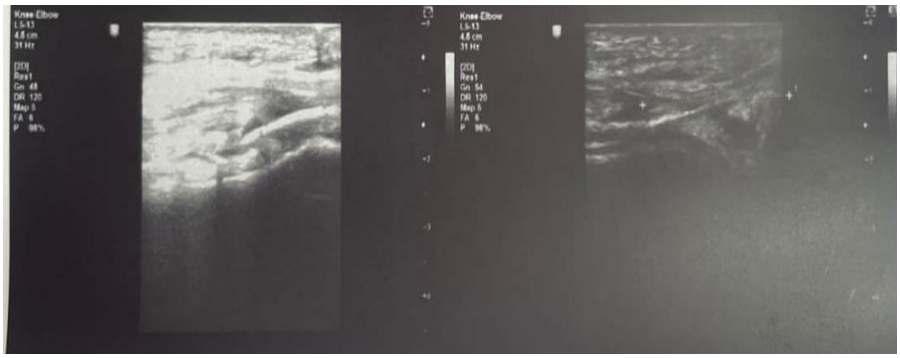

Figure 3

The patient was diagnosed to have horizontal intra-articular dislocation of patella with near total full thickness quadriceps tendon rupture. Patient was taken up for surgical intervention under spinal anesthesia Intraoperatively Midline longitudinal incision 18cm long was made to expose the ruptured tendon and the patella.

Patella was reduced into anatomical position. The quadriceps tendon was identified and tendon ends are freshened.(Figure 4)

With non-absorbable Ethibond suture, strong sutures were placed in the cut tendon end with Krackow suture technique. Suture was passed through the one end of quadriceps tendon. Each bite of the tendon passed through the loop of the previous bite, in order to lock the suture and reduce the risk of tearing out. After 4 bites, a transverse bite was made to take the needle to the other side of the tendon. A second line of locked sutures was placed running distally, and finished by emerging from the torn tendon end. (Figure 5a & 5b)

Three longitudinal holes about 1 cm apart centered over the anticipated area of attachment of the quadriceps tendon was drilled. Sutures were passed from superior pole to inferior pole of patella. (Figure 6a & 6b). Sutures were tied distally, drawing the tendon into the bony trough. (Figure 7). Post-operative x-ray (Figure 8) and follow up neck movements. (Figure 9)

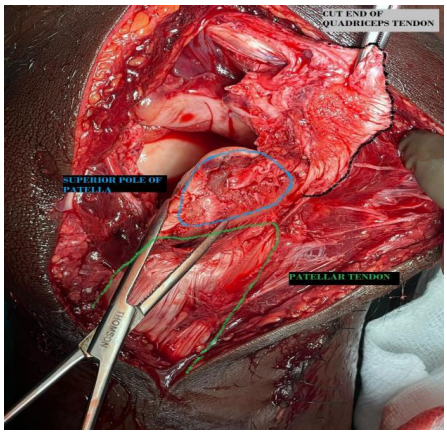

Figure 4

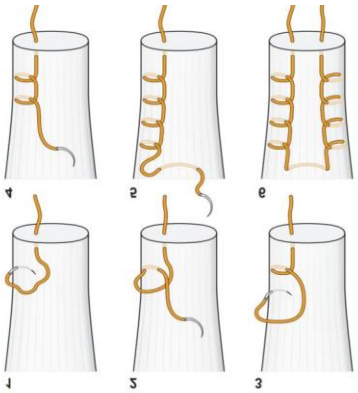

Figure 5a

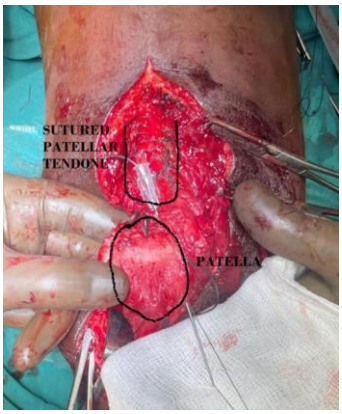

Figure 5b

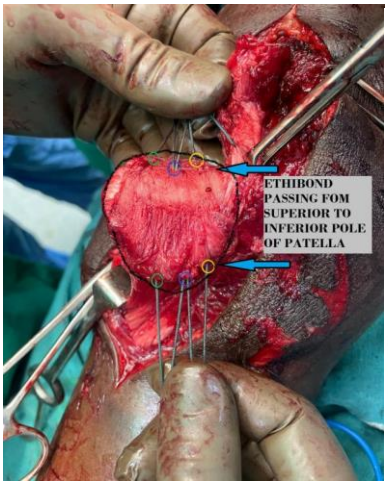

Figure 6a

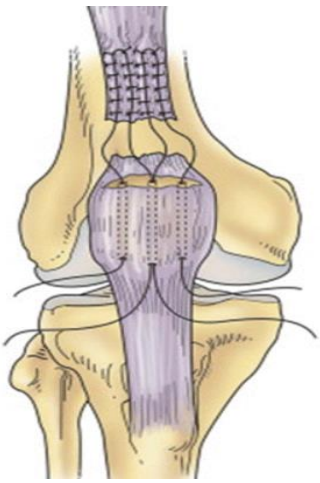

Figure 6b

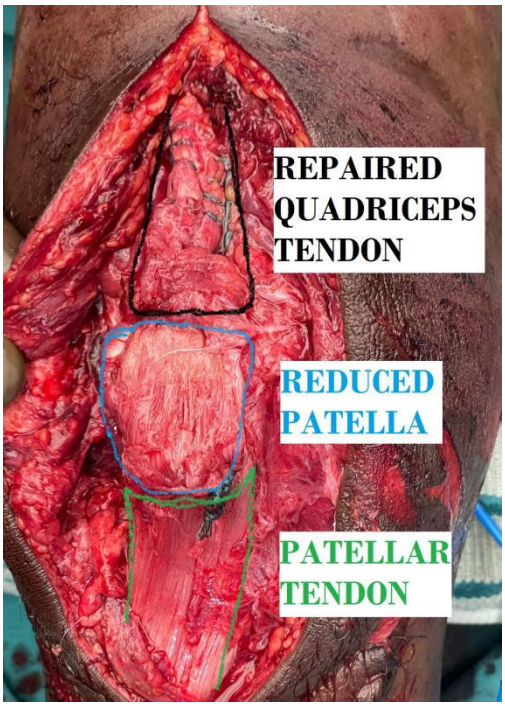

Figure 7

Figure 8

Figure 9

III. Discussion

Patella dislocation is a common knee injury. Acute patellar dislocation typically occur as a result of trauma, usually a non-contact twisting injury to knee or from direct blow to medial aspect of the knee. Lateral dislocation is more common as the direction of pull of quadriceps muscle is slightly lateral to the mechanical axis of the limb. Medial dislocation is rare and usually iatrogenic or congenital. First described in literature by Midelfart, intraarticular dislocation of patella is a rare entity. Several authors have reported its two subtypes – horizontal and vertical depending on its axis of rotation during the traumatic incident.[2] A horizontal force applied at the proximal pole of the patella in a flexed knee leads to quadriceps avulsion and horizontal dislocation with the articular surface facing the tibia.[3] The extensor mechanism of the knee consists of the quadriceps tendon, the patella, the patellar tendon and tibial tuberosity. Quadriceps tendon rupture generally occurs around 2cm above the patella (osteotendinous junction). Acute ruptures of the quadriceps tendon generally results from eccentric contraction of the extensor mechanism against a sudden load of body weight with the foot planted and the knee flexed.

Table 1 – Shafat's classification of dislocation of patella.[4]

Intra-articular patellar dislocation		Extra-articular patellar dislocation	
A. Horizontal	B. Vertical	A. Medial dislocation	B. Lateral dislocation
A1. Articular surface facing proximally	B1. Articular surface facing medially		
A2. Articular surface facing distally	B2. Articular surface facing laterally		

An open reduction allows an inspection of the soft tissues and accurate repair if needed and should remain the preferred treatment for inter-condylar patellar dislocation in young patients where the mechanism force is more important and an associated soft tissue injury more likely to happen. To the best of our knowledge, this is one of the few rare reported cases in which, a horizontally dislocated and inferiorly rotated patella, associated with quadriceps tendon tear was identified and managed successfully with timely orthopedic intervention.

IV. Conclusion

Although intra-articular dislocation of the patella is a complex traumatic entity, most authors agree with the fact that proper recognition of the injury pattern and its appropriate management results in a favorable outcome. We would like the highlight this particular case of horizontal axis dislocation is unique with quadriceps tendon tear. These dislocations are difficult to reduce by closed methods and there is need for open reduction. The Reason to opt for open reduction is to reduce the dislocation without causing further damage to the joint and to visualize any intra articular damage caused by the dislocation, and to repair the quadriceps tendon tear.

References

[1]. Fithian Dc, Paxton Ew, Stone Ml, Silva P, Davis Dk, Elias Da, Et Al. Epidemiology And Natural History Of Acute Patellar Dislocation. Am J Sports Med 2004;32:1114–21.
[2]. Midelfart V. En Sjelden Luxation Of Patella. Norsk Magazin For Laegevidenskaben 1887;4:588
[3]. Despotidis V, Weihs J, Joseph Z, Gousopoulos L. Intra-Articular Horizontal Dislocation Of The Patella: A Rare Injury And Review Of The Literature. Bmj Case Rep. 2020 Jul 9;13(7):E232249. Doi: 10.1136/Bcr-2019-232249. Pmid: 32646932; Pmcid: Pmc7351279.
[4]. Bashir S, Manan A, Wani D, Tantray O, Beigh M, Sharma R. Bilateral Intra-Articular Dislocation Of Patella In An Elderly: A Rare Presentation. Internet J Orthop Surg. 2010;19(1)
[5]. Rangdal S, Bachhal V, Vashisht S, Dhillon Ms. Intra-Articular Dislocation Of The Patella: A Rare Variant To An Uncommon Injury. Bmj Case Rep. 2019 Apr 24;12(4):E228098. Doi: 10.1136/Bcr-2018-228098. Pmid: 31023730; Pmcid: Pmc6506031.
[6]. Pagdal S, Lande O, Jadhav U. Intra-Articular Dislocation Of Patella Reduced By Closed Method - A Rare Case Report. J Clin Orthop Trauma. 2016 Oct-Dec;7(Suppl 1):118-120. Doi: 10.1016/J.Jcot.2016.03.002. Epub 2016 Sep 7. Pmid: 28018089; Pmcid: Pmc5167451.
[7]. Chauhan, Amit & Maheswaran, Shanmuga & Anand, Sanjeev. (2014). Horizontal Intraarticular Dislocation Of Patella–A Case Report And Review Of Literature. Injury Extra. 45. 10.1016/J.Injury.2014.07.008.