Case Report *Volume 5, Issue 4*

JCMCRI **Journal of Clinical & Medical Case Reports, Images**

Received: April 02, 2026 Published: April 15, 2026

DOI: 10.55920/3064-8025/1189

Acute Patellar Dislocation in an Adolescent Athlete: Case Report and Literature Review

Dr. Turkia B EROUK[1]* and Mohamed B RASHED FRCSI[2]

[1]Lib Board, Consultant Orthopedic Surgeon/ Khadra Hospital-Tripoli

[2]Chairman of Libyan sports Medicine Federation

Abstract

Acute patellar dislocation is a common injury among adolescents and athletes. This report presents a case of a first-time traumatic lateral patellar dislocation with associated medial patellofemoral ligament (MPFL) rupture and osteochondral injury. Management included closed reduction, structured rehabilitation, and subsequent MPFL reconstruction due to persistent instability. The case highlights the importance of early imaging and individualized treatment planning. A concise review of current evidence is provided.

Keywords: Acute patellar dislocation; MPFL rupture; Patellar instability; Osteochondral injury; Knee trauma; Adolescent athlete.

Introduction

Acute lateral patellar dislocation accounts for up to 3% of knee injuries and is most common in young, active individuals [1]. Typical mechanisms include twisting, valgus stress, or direct trauma to the knee. While most cases respond to conservative treatment, associated injuries—such as MPFL rupture, osteochondral fractures, and cartilage damage—may necessitate surgical management [2,3]. This case report describes an acute patellar dislocation in a 17-year-old athlete and reviews recent evidence guiding management.

Managements

A- Emergency Treatment

1. Immediate Assessment

Evaluate pain, effusion, patellar position.

Check neurovascular status (dorsalis pedis/posterior tibial pulses; peroneal nerve function).

Obtain **AP, lateral, and sunrise radiographs** to rule out fracture.

2. Urgent Closed Reduction

Perform gentle extension of the knee with medial pressure on the patella.

Reassess neurovascular status immediately after reduction.

3. Post-Reduction Imaging

Repeat radiographs to confirm reduction and identify osteochondral fragments.

MRI recommended within days to assess MPFL rupture, cartilage damage, or loose bodies.

4. Initial Immobilization & Pain Control

Immobilize in knee brace (0–20° flexion) for 1–2 weeks.

Ice, NSAIDs, and crutches as needed.

5. Early Referral

Orthopaedic referral to evaluate risk factors and plan follow-up care.

B- Definitive Treatment

1. Rehabilitation (First-Line for Most Patients)

Start early motion once pain/swelling improve (typically after 1–2 weeks).

Strengthening of quadriceps, especially **vastus medialis oblique (VMO)**.

Proprioception, gait training, and gradual return to sports over 8–12 weeks.

2. Indications for Surgical Intervention

Large osteochondral fractures (>5 mm)

Persistent or recurrent instability

High-risk anatomy (trochlear dysplasia, patella alta, TT–TG > 20 mm)

MPFL avulsion with mechanical instability.

3. Surgical Options

MPFL Reconstruction (most common and effective for instability).

Fixation or removal of osteochondral fragments.

Tibial tubercle osteotomy (if TT–TG high or patella alta present).

Trochleoplasty (for severe trochlear dysplasia—select cases).

4. Postoperative Rehabilitation

Controlled ROM progression (0–90° initially).

Progressive strengthening, proprioception, and sport-specific training.

Return to sport typically **4-6 months** after MPFL reconstruction

Case Presentation

A 17-year-old female soccer player sustained an acute lateral patellar dislocation during a sudden pivot maneuver. She reported immediate pain, swelling, and inability to bear weight. Physical examination confirmed lateral displacement of the patella, with substantial effusion. Radiographs excluded fracture, and MRI revealed a complete MPFL rupture and a small osteochondral fragment from the medial patellar facet. Closed reduction was performed in the emergency department. She was immobilized in extension for 2 weeks, followed by structured physiotherapy. Persistent instability after rehabilitation led to MPFL reconstruction at 12 weeks. At 6-month follow-up, the patient demonstrated full range of motion, normal tracking, and return to competitive sport.

Discussion

Acute lateral patellar dislocation is a common traumatic knee injury in adolescents, and first-time episodes are frequently associated with soft-tissue and osteochondral damage. MRI studies have shown that medial patellofemoral ligament (MPFL) rupture occurs in up to 90% of first-time dislocations [4]. This structural injury contributes significantly to early functional impairment and the risk of recurrent instability. The mechanism typically involves valgus stress combined with external rotation of the tibia. Adoles-

***Corresponding Author:** *Turkia B Rouk Lib Bd , Lib Board, Consultant Orthopedic Surgeon/ Khadra Hospital-Tripoli; Email: turkiarouk19@Gmail.com

Citation: Turkia B Rouk Lib Bd*, Acute Patellar Dislocation in an Adolescent Athlete: Case Report and Literature Review. Jour of Clin & Med Case Rep, Imag 2026; 5(4): 1189.

cents are particularly vulnerable because of their higher activity levels and ligamentous laxity. Fithian et al. reported recurrence rates ranging from 15–60% depending on anatomical risk factors [1].

Radiographs are essential initially, while MRI identifies MPFL tears, osteochondral fragments, and risk factors such as trochlear dysplasia or patella alta. Stefancin and Parker emphasized that missed osteochondral injuries-present in up to 40% of cases—can lead to chronic pain and early patellofemoral arthritis [2,3]. Multiple anatomical abnormalities predispose to recurrence, including trochlear dysplasia, patella alta, increased tibial tubercle–trochlear groove (TT-TG) distance, and generalized laxity [5,6]. Dejour et al. demonstrated higher recurrence risk when TT-TG exceeds 20 mm or when patella alta is present [6]. Younger patients also have a higher likelihood of recurrence [5].

Table 1: Proposed Emergency Department Algorithm for Acute Patellar Dislocation.

Step	Action
1	Clinical examination (pain, effusion, patella position)
2	AP/lateral/sunrise radiographs
3	Immediate closed reduction if displaced
4	MRI for MPFL and cartilage evaluation
5	Immobilization + referral to orthopedics

Table 2: Summary of Risk Factors and Associated Recurrence Rates.

Risk Factor	Description	Recurrence Influence
Trochlear dysplasia	Shallow trochlea increases lateral instability	High [5]
Patella alta	Elevated patella reduces bony stability	High [6]
TT–TG > 20 mm	Lateralized tibial tubercle	Moderate–High [6]
Age < 20 years	Higher activity and ligamentous laxity	High [5]

Although conservative management remains standard for first-time dislocations without large osteochondral fragments, several studies suggest that early MPFL reconstruction may benefit patients with high-risk anatomy. Smith et al. reported improved short-term stability with reconstruction compared to conservative care, though long-term outcomes remain debated [7]. In this case, the combination of MPFL rupture and osteochondral injury increased the recurrence risk. Persistent instability despite physiotherapy justified MPFL reconstruction, consistent with current evidence. Her successful return to sport aligns with outcomes reported in adolescents undergoing similar procedures.

Early identification of risk factors, structured rehabilitation, and timely surgical intervention when indicated are essential for preventing chronic patellofemoral instability and long-term cartilage degeneration.

Conclusion

Acute patellar dislocation requires careful clinical evaluation and early imaging to identify associated injuries. While conservative treatment is effective for many cases, persistent instability or osteochondral damage may justify surgical intervention. Individualized assessment remains the cornerstone of optimal functional recovery.

References

1. Fithian DC et al. Epidemiology of acute patellar dislocation. Am J Sports Med.
2. Stefancin JJ, Parker RD. First-time traumatic patellar dislocation. Clin Orthop Relat Res.
3. Sillanpää P et al. MPFL injuries in patellar dislocation. Knee Surg Sports Traumatol Arthrosc.
4. Nomura E. MPFL injury patterns. Arthroscopy.
5. Balcarek P et al. Risk factors for recurrence. Am J Sports Med.
6. Dejour H et al. Patellofemoral disorders and TT–TG. J Bone Joint Surg.
7. Smith TO et al. Surgery vs. conservative treatment. Knee.