

# Treatment of a Rare Osteochondral Lesion in the Lateral Femoral Condyle After Patellar Dislocation in an Adolescent: A Case Study

Diogo Barros<sup>1\*</sup>, José Miguel Araújo<sup>2</sup>, Bárbara Ferreira<sup>1</sup>, Ana Rita Lavado<sup>1</sup>, Ana Margarida Gomes<sup>1</sup>, Afonso Ruano<sup>1</sup>

<sup>1</sup>ULS Nordeste, Portugal.

<sup>2</sup>ULS Braga, Portugal.

\*Corresponding Author: Diogo Barros, ULS Nordeste, Portugal.

<https://doi.org/10.58624/SVOAOR.2026.06.019>

Received: July 08, 2026

Published: July 30, 2026

**Citation:** Barros D, Araújo JM, Ferreira B, Lavado AR, Gomes AM, Ruano A. Treatment of a Rare Osteochondral Lesion in the Lateral Femoral Condyle After Patellar Dislocation in an Adolescent: A Case Study. *SVOA Orthopaedics* 2026, 6:4, 130-134. doi: 10.58624/SVOAOR.2026.06.019

## Abstract

**Introduction:** Osteochondral lesions (OCLs) of the knee are becoming more prevalent among active adolescents, typically due to acute trauma, repetitive microtrauma, or conditions such as osteochondritis dissecans. Patellar dislocation is a common trigger for OCLs. Research shows that a considerable number of patients experiencing patellar dislocation develop OCLs, especially in the anterior lateral femoral condyle and the medial area of the patella.

**Case Presentation:** This case study details the clinical presentation and management of a 15-year-old female athlete with an OCL. After sustaining a direct trauma to the knee during a football match, she developed considerable pain and swelling. Imaging revealed an OCL in the lateral aspect of the lateral femoral condyle. Surgical intervention involved stabilizing the osteochondral fragment and repairing the surrounding cartilage. Postoperatively, she followed a non-weight-bearing protocol, followed by gradual rehabilitation. Follow-up MRIs demonstrated complete healing of the cartilage defect, and the patient successfully returned to football practice six months after surgery.

**Conclusion:** This case demonstrates that early recognition and treatment of these injuries can not only result in knee-preserving surgery but also allow patients to return to their previous level of activity. In the skeletally immature patient population, chondral fixation seems to be a good option.

**Keywords:** *Pediatric trauma, Patellar dislocation, Lateral femoral condyle, Osteochondral lesion, Chondral fixation, Return to sport*

## Introduction

Osteochondral injuries of the knee are becoming increasingly common among active adolescents. These often result from acute trauma, repetitive microtrauma, or idiopathic conditions such as osteochondritis dissecans. Although chondral (cartilage-only) fractures are rare, there have been some documented cases in the pediatric population. These lesions may accompany soft-tissue injuries, and their location and size significantly influence treatment options.

When associated with acute trauma, these osteochondral lesions (OCLs) can be encountered in both the patella and the femur following acute patellar dislocation, or can result from a direct blow to the knee. Seeley et al. reported that approximately one third of patients with a patellar dislocation (46 of 122) had a confirmed OCL on magnetic resonance imaging (MRI) (2).

Sallay et al. (3) reviewed MRI findings in 23 patients with patellar dislocation. The authors detected a bone bruise in the anterior lateral femoral condyle in 20 (87%) and a bone bruise in the medial facet of the patella in 7 (30%) of the 23 MRI scans evaluated. The lesions seen in the lateral femoral condyle were located at the periphery of the condyle, in the anterior, non-weight-bearing portion at the edge of the lateral articular margin.

Clinical presentation can be challenging in children and adolescents, often owing to their inability to describe the mechanism of injury. Hemarthrosis is a common finding.

Prompt diagnosis and effective management are critical for optimal recovery, particularly with regard to an athlete's return to sport. Radiographic imaging is important for assessing the extent of injury; however, its capacity to detect OCLs can be limited, and specific radiographic views may be difficult to obtain in the acute setting. MRI remains the preferred diagnostic tool for OCLs, while computed tomography (CT) aids in assessing larger defects and quantifying injury size.

Treatment modalities remain under debate and include conservative management, most commonly reserved for small and stable lesions, followed by a rehabilitation protocol. Surgical treatment is considered when unstable OCLs are found and can include fragment excision alone or combined procedures with soft-tissue reconstruction and OCL fixation. Injuries involving weight-bearing surfaces (femur) are more likely to be fixed (4).

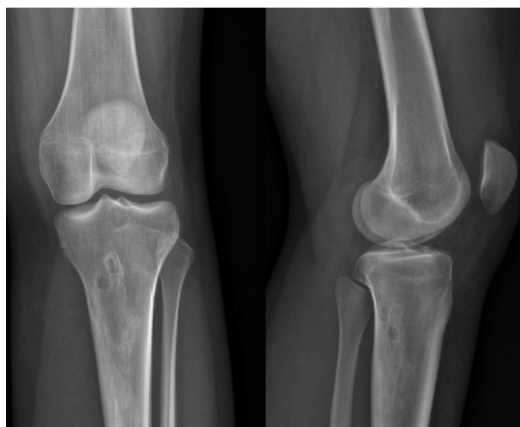
## Case Presentation

A 15-year-old female with no significant past medical history, no prior knee injuries, and no symptoms of previous patellar instability presented to the emergency department following a sports injury. She reported acute left knee pain that began during a football match when she collided with another player. She stated that her foot was fixed to the ground and the knee sustained a direct lateral blow in a flexed position. She reported immediate pain, swelling, and an inability to bear weight on the affected limb. She did not describe a patellar dislocation.

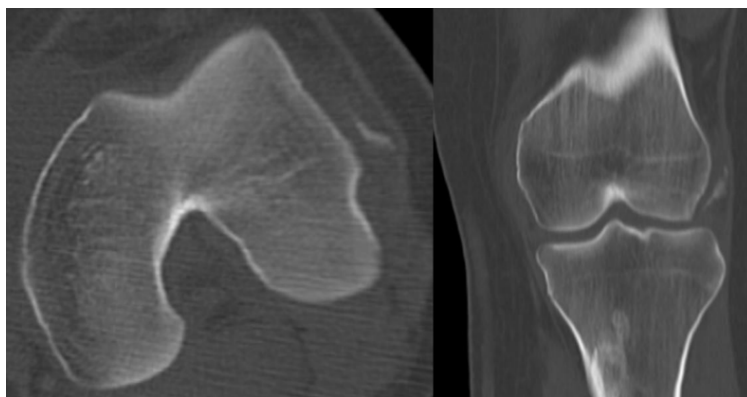
Physical examination revealed pronounced swelling and tenderness in the left knee and restricted range of motion, particularly in flexion, alongside a negative Lachman test and no signs of varus or valgus instability. Ultrasound confirmed a joint effusion. Initial radiographs (Figure 1) showed no acute fracture; however, a CT scan identified an osteochondral defect on the lateral aspect of the lateral femoral condyle, measuring 1 × 1.5 cm (Figure 2). Although the MRI was delayed until one week after injury, it ultimately confirmed a significant effusion and a cartilage defect on the lateral femoral condyle (Figure 3), raising concern for an unrecognized patellar dislocation.

Based on the clinical findings, imaging results, and a review of the literature, the patient was admitted for surgical treatment two weeks after injury. She was positioned supine on a standard table with a thigh tourniquet. Surgery began with diagnostic arthroscopy to determine injury size and identify associated lesions. No meniscal or ligamentous injuries were observed; patellar tracking was normal with a slight lateral tilt. The OCL was larger than expected, with a small, central osteochondral fragment and a larger chondral-only periphery (Figure 4). Following diagnostic arthroscopy, and considering the injury size, we performed a small lateral parapatellar approach to better visualize the lateral condyle defect. Provisional fixation was achieved with a K-wire (Figure 5). The osteochondral fragment was fixed using absorbable screws, and the peripheral chondral fragment was fixed using absorbable pins.

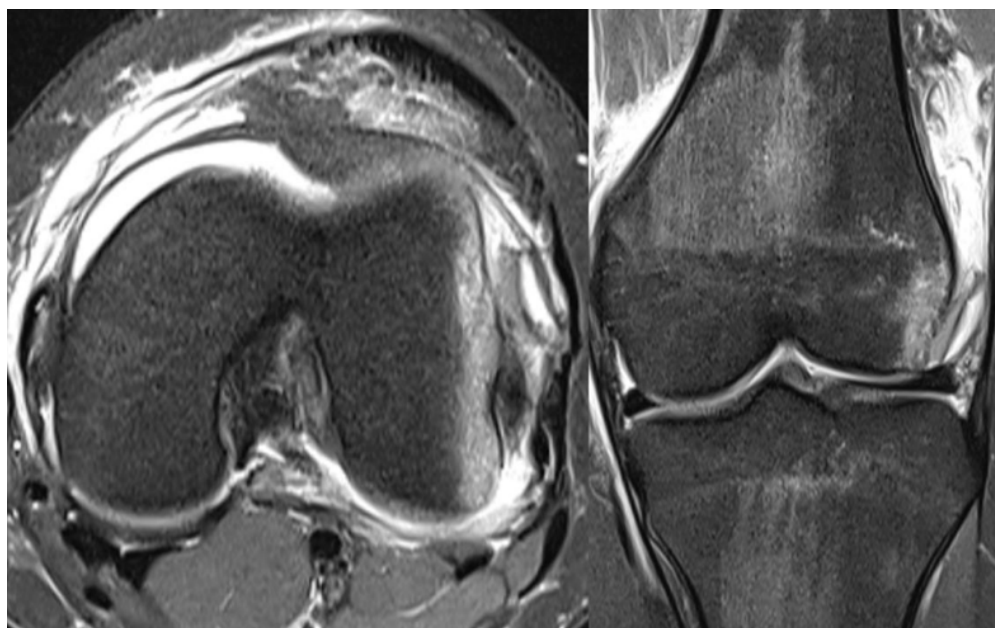
Postoperative management involved two weeks of non-weight-bearing with the knee in full extension. After this period, the patient commenced active flexion, progressing to partial weight-bearing at six weeks. Control MRIs performed at two months and one year after surgery showed complete integration of the cartilage defect (Figure 6). She returned to football practice six months postoperatively, achieving a Knee Injury and Osteoarthritis Outcome Score (KOOS) of 87.



**Figure 1.** Initial radiograph



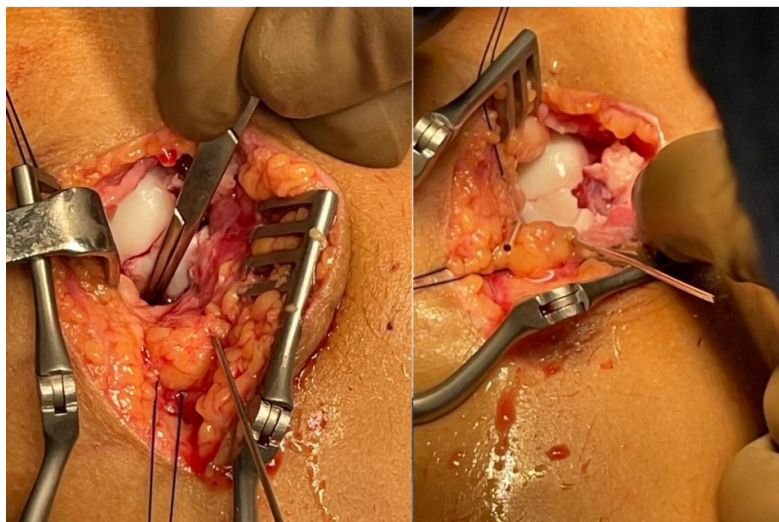
**Figure 2.** Initial CT, showing the displaced osteochondral lesion



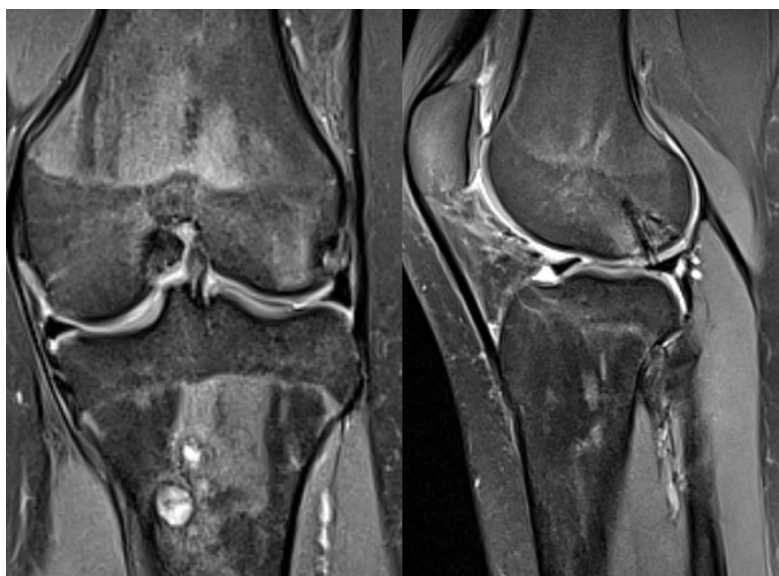
**Figure 3.** MRI images revealing lateral condyle edema and displaced injury



**Figure 4.** Lateral parapatellar approach with injury location and osteochondral fragment previously removed arthroscopically



**Figure 5.** Fragment reduction and provisional fixation with K-wire



**Figure 6.** MRI images at 1 year post-op with complete healing of OCL

## Discussion

This case illustrates the importance of prompt recognition and appropriate management of osteochondral injuries in the adolescent population. The decision to use chondral fixation was based on the lesion's characteristics and the patient's activity level. Other options would have included OCL excision, given the small osseous fragment. Medial patellofemoral ligament reconstruction was also considered (despite retinacular integrity) but, after discussion with the patient and in order to minimize surgical morbidity, was not performed. Soft-tissue healing allowed a safe return to sport with no symptoms of patellar instability. Preservation of the native fragment is preferable to excision when fixation is feasible, as reported for isolated chondral fragments without osseous attachment (1); a further option would be autologous chondrocyte implantation if repair were not viable.

As previously discussed, the most common OCLs found in children and adolescents affect the medial portion of the patella and, less commonly, the anterior aspect of the lateral femoral condyle. This case report describes a less common injury, resulting from a combined flexion–valgus–lateral force with patellar dislocation after a direct lateral blow to the knee. Bioabsorbable fixation of unstable osteochondral fragments has demonstrated good healing and functional outcomes (5), and skeletally immature patients generally retain a favorable capacity for osteochondral healing after repair, whether the injury involves the patella or the femur. This patient achieved complete recovery at one year, with concordant clinical and imaging findings throughout follow-up.

## Conclusion

Lateral femoral condyle osteochondral injuries can be effectively managed in young athletes through a combination of surgical approaches. Soft-tissue procedures and osteochondral repair are effective in skeletally immature patients and, in later adolescence, may be combined with osseous manipulation. Early intervention is critical for preserving joint function and facilitating a successful return to sport.

## Informed Consent

Written informed consent was obtained from the patient and her legal guardian for publication of this case report and the accompanying images.

## Conflict of Interest

The authors declare that they have no conflicts of interest.

## Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## Level of Evidence

V (case report).

## References

1. Siparsky PN, Bailey JR, Dale KM, Klement MR, Taylor DC. Open reduction and internal fixation of isolated chondral fragments without osseous attachment in the knee: A case series. *Orthop J Sports Med* 2017;5(03):2325967117696281
2. Seeley MA, Knesek M, Vanderhave KL. Osteochondral injury after acute patellar dislocation in children and adolescents. *J Pediatr Orthop* 2013;33(05):511–518
3. Sallay PI, Poggi J, Speer KP, et al. Acute dislocation of the patella: A correlative pathoanatomic study. *Am J Sports Med* 1996;24:52-60.
4. Mashoof AA, Scholl MD, Lahav A, Greis PE, Burks RT. Osteochondral injury to the mid-lateral weight-bearing portion of the lateral femoral condyle associated with patella dislocation. *Arthroscopy* 2005;21(02):228–232
5. Millington KL, Shah JP, Dahm DL, Levy BA, Stuart MJ. Bioabsorbable fixation of unstable osteochondritis dissecans lesions. *Am J Sports Med* 2010;38(10):2065–2070

**Copyright:** © 2026 All rights reserved by Barros D and other associated authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.