Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(6), 1824-1828 | ISSN:2251-6727

Isolated Medial Condyle Fracture of the Proximal Tibia Managed Using the Lobenhoffer Approach: A Case Report

Dr. Rithvika M[1], Dr. T. Sundararajan[2], Dr. Gopinath G[3], Dr. Siddharth[4*], Dr. Abdul Khader[5], Dr. Mahendhira Varman[6], Dr. L.Y. Sathyanarayana[7], Dr. M Sundaramurthy[8], Dr. Sharan Shaktivel[9], Dr. A. Jeevan Kishor,[10] Dr. C. Tamizarasu[11], Dr. Srijan Roy Chowdhury[12], Dr. Anantha Padmanabhan B.[13]

[1]1st year Post Graduate, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108 India.

[2]Professor, Department of Orthopaedics, Shri Sathya Sai Medical College & Research Institute, Ammapettai, Chengalpattu District, Tamil Nadu, India.

[3]Associate Professor, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India.

[4]Assistant Professor, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India.

[5]Professor, Department of Orthopaedics, Shri Sathya Sai Medical College & Research Institute, Ammapettai, Chengalpattu District, Tamil Nadu, India.

[6]Professor, Department of Orthopaedics, Shri Sathya Sai Medical College & Research Institute, Ammapettai, Chengalpattu District, Tamil Nadu, India.

[7]Professor, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu,603108, India

[8]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India

[9]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India

[10]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India

[11]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India

[12]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India

[13]Senior Resident, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India.

Corresponding Author: Dr Siddharth, Assistant Professor, Department of Orthopaedics, Shri Sathya Sai Medical College and Research Institute under Sri Balaji Vidyapeeth, Ammapettai, Chengalpattu District, Tamil Nadu, 603108, India.

Received Date: 15/09/2025 ***Revised Date: 16/10/2025*** ***Accepted Date: 23/11/2025***

KEYWORDS:

Tibial
Plateau

ABSTRACT:

Background: Isolated fractures of the medial tibial condyle are relatively rare, constituting a small percentage of all tibial plateau injuries. They typically result from high-energy trauma, and the fracture pattern often involves a challenging posteromedial fragment that is critical for

Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(6), 1824-1828 | ISSN:2251-6727

Fractures; Medial Tibial Plateau Fractures; Internal Fixators; Lobenhoffer approach; Surgical Procedures, Operative; Knee Injuries

knee stability [1]. Traditional anterior or medial approaches often offer limited visualization, making anatomical reduction difficult [1]. This report highlights the successful use of the Lobenhoffer posteromedial approach to manage this specific, unstable fracture pattern.

Case Presentation: We report the case of a 42-year-old male who sustained an isolated medial tibial condyle fracture (Schatzker Type IV) following a road-traffic accident. Preoperative CT imaging confirmed the posteromedial displacement of the main fragment. The patient underwent open reduction and internal fixation (ORIF) using a posteromedial buttress plate via the Lobenhoffer approach. This approach allowed for direct visualization and precise reduction of the posteromedial fragment. Outcome/Follow-up: The postoperative course was uneventful. Radiological union was achieved at 14 weeks. At the 6-month follow-up, the patient demonstrated excellent functional recovery, with a Knee Society Score (KSS) of 90 and a Lysholm Score of 92. The patient returned to full activities without pain or instability.

Conclusion: The Lobenhoffer approach is a reliable and effective surgical method for managing isolated medial condyle fractures of the proximal tibia [1, 3]. It provides superior surgical access for anatomical reduction and stable buttress plating of the critical posteromedial fragment, leading to excellent long-term functional outcomes [3].

INTRODUCTION

Proximal tibial fractures are complex peri-articular injuries, with an annual incidence estimated at 10 per 100,000 inhabitants [4]. While the majority of these injuries involve the lateral condyle, isolated medial condyle fractures (Schatzker Type IV) are significantly less common, typically constituting 10–20% of all tibial plateau fractures [1,2]. Their etiology is often a high-energy varus or axial loading mechanism, which results in significant disruption of joint congruity and stability.

What makes this case worth reporting: The successful management of medial tibial plateau fractures is directly dependent on achieving and maintaining anatomical reduction of the articular surface, particularly the posteromedial column, which is critical for achieving anatomic reduction[5]. This fragment is often displaced, making visualization and reduction via conventional anteromedial approaches extremely challenging, frequently resulting in inadequate fixation and increased risk of post-traumatic osteoarthritis [1]. This case is particularly notable for demonstrating the Lobenhoffer posterior-medial approach as a definitive and superior technique for an isolated medial condyle fracture. The Lobenhoffer approach, originally described for posteromedial split-fracture dislocations (Moore Type I) [7], offers a direct and safe corridor to the fracture site, which has been shown to reduce complication rates and improve functional outcomes[6].

Aim of the Report: The aim of this case report is to illustrate the technical advantages and document the excellent functional outcome of using the Lobenhoffer posteromedial approach for the treatment of an isolated medial condyle fracture of the proximal tibia.

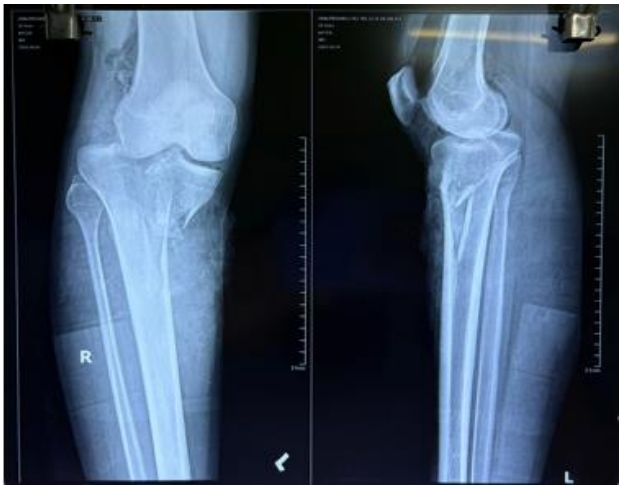
CASE PRESENTATION

A 42-year-old male presented to the emergency department following a high-energy road-traffic accident. He reported severe pain and an inability to bear weight on his right knee. Clinical examination revealed significant swelling and a medial knee joint line tenderness. Initial radiographs and subsequent Computed Tomography (CT) scans confirmed an isolated fracture of the medial tibial condyle (Schatzker Type IV) with a large, displaced posteromedial fragment. The fragment was displaced and depressed, and the joint surface exhibited incongruity. There were no associated neurovascular deficits, and the soft-tissue envelope was intact. The patient was initially placed in a temporary knee immobilizer and scheduled for surgery once the soft-tissue swelling had subsided.

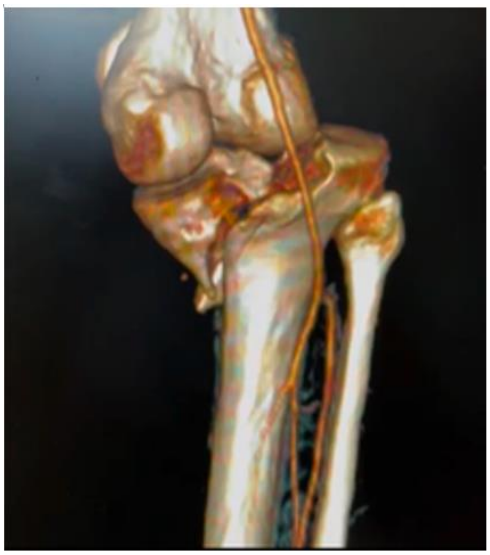
Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(6), 1824-1828 | ISSN:2251-6727



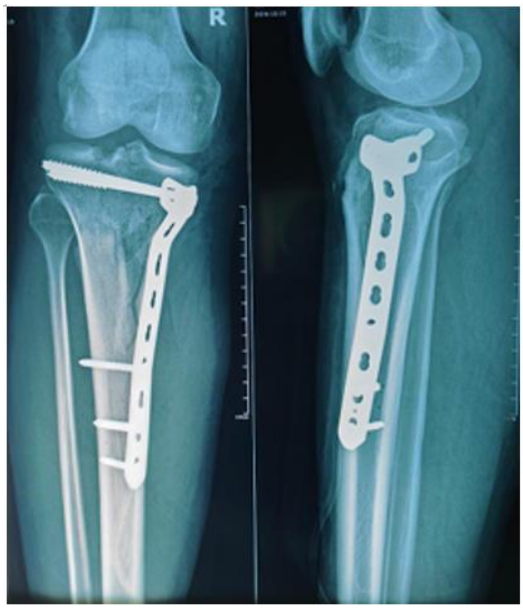
PICTURE 1: PRE OP X RAY



PICTURE 2: PRE OP CT IMAGING

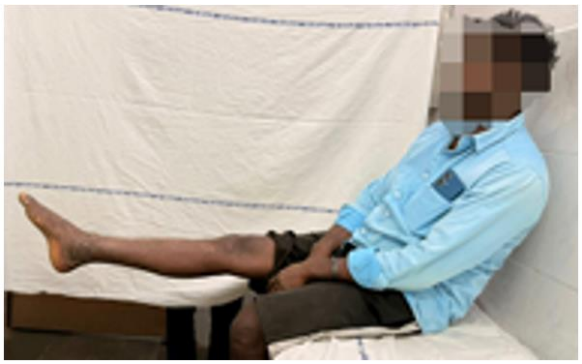
SURGICAL PROCEDURE: The patient was positioned in the prone position on a radiolucent table for the surgical procedure. The Lobenhoffer posterior-medial approach was utilized. A straight longitudinal incision was made along the posterior border of the medial head of the gastrocnemius muscle. The interval between the medial head of the gastrocnemius and the semimembranosus/pes anserinus tendons was identified. The gastrocnemius muscle and the neurovascular structures were safely retracted laterally, providing direct visualization of the fracture site and the posteromedial articular fragment.

The articular surface was anatomically reduced using reduction clamps and periosteal elevators, and provisional fixation was achieved with K-wires. A posteromedial buttress plate was applied in an antiglide fashion to secure the reduction and provide stable fixation, counteracting the shear and axial forces. Final fluoroscopic images confirmed anatomical reduction and satisfactory implant placement.



PICTURE 3: POST OP X RAY

Following surgery, patients underwent a standardized postoperative rehabilitation protocol, which consisted of restricted weight-bearing for a period of six weeks, followed by progressive physiotherapy.

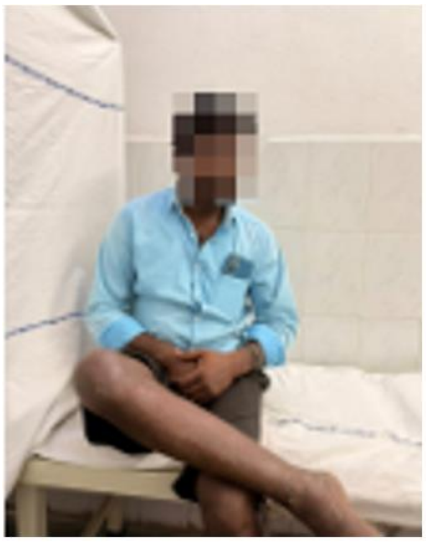


PICTURE 4

Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(6), 1824-1828 | ISSN:2251-6727



PICTURE 5

Scheduled follow-up assessments were conducted at 1, 3, 6, and 12 months postoperatively to monitor patient progress and outcomes

CASE DISCUSSION

Fractures of the medial tibial plateau demand precise anatomical restoration due to the fact that the medial condyle is the major load-bearing compartment of the knee, typically bearing 60% of the axial load [8]. The posteromedial fragment involved in Schatzker Type IV fractures is inherently unstable, and its displacement can lead to chronic knee instability if not adequately buttressed.

Historically, these fractures were often addressed via a conventional medial approach, which necessitates extensive subperiosteal dissection and does not provide an adequate view of the posteromedial corner, increasing the risk of residual depression or malreduction [1,3].

The Lobenhoffer approach, a direct posteromedial approach, addresses these technical limitations by offering:

Enhanced Visualization: It provides a direct, unhindered view of the posteromedial aspect of the tibia, allowing for anatomical reduction under direct vision.

Safe Corridor: It utilizes the interval between the medial gastrocnemius and the pes anserinus, which safely allows for retraction of the neurovascular bundle, minimizing soft-tissue disruption.

Optimal Plate Placement: It enables the placement of a buttress plate directly on the fracture line, providing robust mechanical support against shear forces and ensuring stability.

Studies focusing on the Lobenhoffer approach for posteromedial fractures have demonstrated its reliability and efficacy, resulting in excellent surgical outcomes and a low complication rate [3,9].

CONCLUSION

The management of isolated medial condyle fractures of the proximal tibia requires a surgical approach that can guarantee anatomical reduction and stable fixation of the posteromedial fragment. This case report successfully demonstrates that the Lobenhoffer posteromedial approach provides the necessary direct visualization and biomechanical stability to achieve excellent clinical and radiographic results. The approach's advantages in soft tissue preservation and surgical exposure make it the preferred technique for this challenging fracture pattern.

Novelty

While the Lobenhoffer approach is a well-established technique for complex bicondylar fractures or those with significant posteromedial involvement (Moore Type I), its application for an isolated Schatzker Type IV medial condyle fracture is less frequently documented. This case report contributes to the existing literature by providing strong evidence of its efficacy and highlighting its role in the treatment algorithm for this specific, rarer fracture pattern. It reinforces the principle that approach selection should be based on the fracture's morphology and the need to directly address the most displaced fragment.

REFERENCES

1. Lobenhoffer P, Krettek C. Techniques in posteromedial and posterolateral tibial plateau fractures. Injury. 2008;39 Suppl 3:123–32.
2. Schatzker J, McBroom R, Bruce D. The tibial plateau fracture. The Toronto experience 1968–1975. Clin Orthop Relat Res. 1979;138:94–104.
3. Frosch KH, Balcarek P, Stürmer KM. Fixation of posteromedial tibial plateau fractures using a postero-median approach. Injury. 2011;42(10):1150–5.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(6), 1824-1828 | ISSN:2251-6727

4. Zantop M, Zantop T, Petersen W. Current concepts review. Management of proximal tibial fractures. Front Surg. 2023;10:1138274.

5. Chandele VS, Bhalotia AP, Ingle MV, Koichade MR. Functional outcome of postero-medial condyle fractures of proximal tibia treated using posteromedial locking compression plate. Int J Res Orthop. 2025;11(2):263–8.

6. Rajeendran R, Unni A, Madhusoothanan K, *et al.* Surgical technique and outcomes of postermedial tibial plateau fractures treated by lobenhoffer approach in prone position. Int J Acad Med Pharm. 2024;6(2):819–23.

7. Fakler JKM, Ryzewicz M, Hartshorn C, Morgan SJ, Stahel PF, Smith WR. Optimizing the management of Moore Type I postero-medial split fracture dislocations of the tibial head: description of the Lobenhoffer approach. J Orthop Trauma. 2007;21(5):330–6.

8. Tibial Plateau Fractures. Orthobullets. Published 2025 Apr 14.

9. Frosch KH, *et al.* Fixation of posteromedial tibial plateau fractures using a postero-median approach. Injury. 2011;42(10):1150–5.