EAS Journal of Orthopaedic and Physiotherapy
Abbreviated Key Title: EAS J Orthop Physiother
ISSN 2663-0974 (Print) | ISSN 2663-8320 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-7 | Issue-4 | Jul-Aug, 2025 | DOI: https://doi.org/10.36349/easjop.2025.v07i04.010

Case Series

Tibial Tubercle Transposition in the Treatment of Recurrent Patellofemoral Instability: A Report of Two Cases

A. Antar [1]*, Charif M.[1], El Amraoui I.[1], Laraichi A.[1], Aguenaou O.[1], Fekhaoui M.R.[1], Mekkaoui M.J.[1], Bouffetal M.[1], Bassir R.A.[1], Kharmaz M.[1], Lamrani M.O.[1]

[1]Department of Orthopedic and Traumatology, University Hospital Center (CHU) Rabat, Morocco

Article History
Received: 03.06.2025
Accepted: 02.08.2025
Published: 14.08.2025

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Introduction:*** Recurrent patellofemoral instability is a frequent condition in young, active individuals. It results from anatomical and biomechanical factors such as trochlear dysplasia, an increased Q angle, or a lateralized tibial tubercle. Surgical treatment may involve tibial tubercle transposition (TTT) to realign the extensor apparatus and improve patellar tracking. ***Objective:*** To report the clinical and radiological outcomes of two patients treated with medial tibial tubercle transposition for recurrent patellar dislocations. ***Case Reports:*** *Case 1*: A 19-year-old female athlete with a 3-year history of recurrent right patellar dislocations. CT scan revealed a TT–TG (tibial tubercle–trochlear groove) distance of 24 mm. A medial tibial tubercle transposition using the Elmslie-Trillat technique was performed. *Case 2*: A 22-year-old male with bilateral subluxations and significant functional limitation. MRI showed type B trochlear dysplasia (Dejour classification) with a TT–TG distance of 22 mm. Anteromedial transposition combined with MPFL reconstruction was performed. ***Results:*** At 12 months postoperative, both patients showed clinical stability with significant improvement in Kujala scores (>85). No recurrence of dislocation was reported, and anterior knee pain had resolved. ***Conclusion:*** Tibial tubercle transposition is a reliable technique in the surgical management of recurrent patellar instability, particularly when TT–TG distance is increased. It may be combined with additional procedures depending on associated anatomical abnormalities.

Keywords: Patellar instability, tibial tubercle, transposition, Elmslie-Trillat, knee.

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INTRODUCTION

Recurrent patellofemoral instability commonly affects adolescents and young adults. It manifests as repeated patellar dislocations or subluxations, resulting in pain, dysfunction, and apprehension. Proper assessment of predisposing factors such as trochlear dysplasia, patella alta, ligamentous laxity, and increased TT–TG distance is essential [1]. Surgical correction with tibial tubercle transposition helps realign the extensor mechanism and restore stability [2].

MATERIALS AND METHODS

Study type: Case series.
Location: Orthopedic Surgery Department, CHU Rabat.
Period: January 2023 – January 2024.
Inclusion criteria: Young patients with recurrent patellar instability and TT–TG > 20 mm.

Surgical procedures:

- **Case 1**: Elmslie-Trillat technique—rectangular medialization osteotomy fixed with 2 cortical screws.
- **Case 2**: Modified Fulkerson procedure—Antero medialization with MPFL reconstruction.

RESULTS

Bone consolidation was achieved within 6 weeks in both cases. At 12-month follow-up:

- No recurrence of dislocation.
- Kujala score improved (from 58 to 92 in case 1, from 61 to 87 in case 2).
- Return to sports at 6 months (case 1).
- Significant pain reduction in both cases.

***Corresponding Author:** A. Antar
Department of Orthopedic and Traumatology, University Hospital Center (CHU) Rabat, Morocco



Figure 1: Malalignment of the patellar axis with lateral tilt



Figure 2:



Figure 3: Medialization of the TTA and fixation by 2 screws

DISCUSSION

Tibial tubercle transposition is clearly indicated when TT–TG distance exceeds 20 mm [3]. It reduces lateral vector force on the patella and improves patellofemoral tracking. The technique must be tailored to the patient's anatomy—anteromedialization for patella alta, or simple medialization otherwise. MPFL reconstruction is often necessary when ligament insufficiency is evident [4]. The choice between Elmslie-Trillat, Fulkerson, or Maquet technique depends on the Q angle, TT–TG, and patellar height.

CONCLUSION

Tibial tubercle transposition is a reproducible and effective technique in managing recurrent patellar instability. Functional outcomes are satisfactory when surgical indications are based on precise morphological criteria. Combining this procedure with MPFL reconstruction enhances joint stability.

REFERENCES

1. Dejour H, Walch G, Nove-Josserand L, Guier C. *Factors of patellar instability: an anatomic radiographic study*. Knee Surg Sports Traumatol Arthrosc. 1994;2(1):19–26.
2. Fulkerson JP. *Anteromedialization of the tibial tuberosity for patellofemoral malalignment*. Clin Orthop Relat Res. 1983;(177):176–181.
3. Smith TO, Davies L, Donell ST, Clark A, Hing CB. *The reliability of the tibial tuberosity–trochlear groove distance in adult patients*. Knee Surg Sports Traumatol Arthrosc. 2007;15(11):1375–1381.
4. Amis AA, Firer P, Mountney J, Senavongse W, Thomas NP. *Anatomy and biomechanics of the medial patellofemoral ligament*. Knee. 2003;10(3):215–220

Citation: A. Antar, Charif M., El Amraoui I., Laraichi A., Aguenaou O., Fekhaoui M.R., Mekkaoui M.J., Bouffetal M., Bassir R.A., Kharmaz M., Lamrani M.O. (2025). Tibial Tubercle Transposition in the Treatment of Recurrent Patellofemoral Instability: A Report of Two Cases. *EAS J Orthop Physiother, 7*(4): 94-96.