

Traumatic Tibialis Anterior Muscle Herniation with a Large Fascial Defect Managed by Prolene Mesh Repair: A Rare Case Report

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Learning Point of the Article:

Traumatic tibialis anterior muscle herniation with large fascial defects can be effectively managed with tension-free Prolene mesh repair, providing excellent functional and cosmetic outcomes.

Abstract

Introduction: Tibialis anterior muscle herniation is an uncommon condition caused by a defect in the deep fascia, most frequently following trauma.

Case Report: We report a rare case of a 22-year-old male who presented with symptomatic tibialis anterior muscle herniation 1 year after blunt trauma. Clinical examination revealed a reducible swelling over the anterolateral aspect of the right leg, becoming prominent on standing and muscle contraction. Intraoperatively, a large fascial defect measuring approximately 9 × 3 cm was identified.

Conclusion: The defect was successfully managed using a Prolene mesh for tension-free repair. At the 6-month follow-up, the patient was asymptomatic with no recurrence or complications. This case highlights Prolene mesh repair as a reliable option for large traumatic fascial defects.

Keywords: Tibialis anterior herniation, fascial defect, Prolene mesh, muscle herniation, trauma.

Introduction

Muscle herniation is a rare clinical entity characterized by protrusion of muscle tissue through a defect in the overlying fascia [1]. The tibialis anterior muscle is the most commonly involved due to its superficial location and vulnerability to trauma [2]. Although many cases are asymptomatic, patients may present with pain, functional limitation, or cosmetic deformity [3]. Recent literature supports surgical intervention in symptomatic cases, particularly when large fascial defects are present [4,5,6]. We report a rare traumatic tibialis anterior muscle herniation with a large fascial defect treated successfully using Prolene mesh repair.

Case Report

A 22-year-old male presented with a swelling over the anterolateral aspect of the right leg that became prominent on standing and during contraction of the tibialis anterior muscle. The patient complained of intermittent pain during physical activity. There was a history of blunt trauma to the same leg 1 year before presentation.

On clinical examination, a soft, reducible bulge was observed over the tibialis anterior region. The swelling appeared at rest and became prominent on ankle dorsiflexion (Fig. 1).

No neurovascular deficit was noted. As the clinical findings were classical, no imaging studies were performed.

Author's Photo Gallery



Dr. Ghulam Meeran



Dr. Zohaib Nadeem



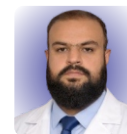
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Figure 1: Pre-operative clinical photograph.

Given persistent symptoms and cosmetic concern, surgical intervention was planned.

Surgical technique

Under regional anesthesia and tourniquet control, a



Figure 3: Intraoperative photograph.

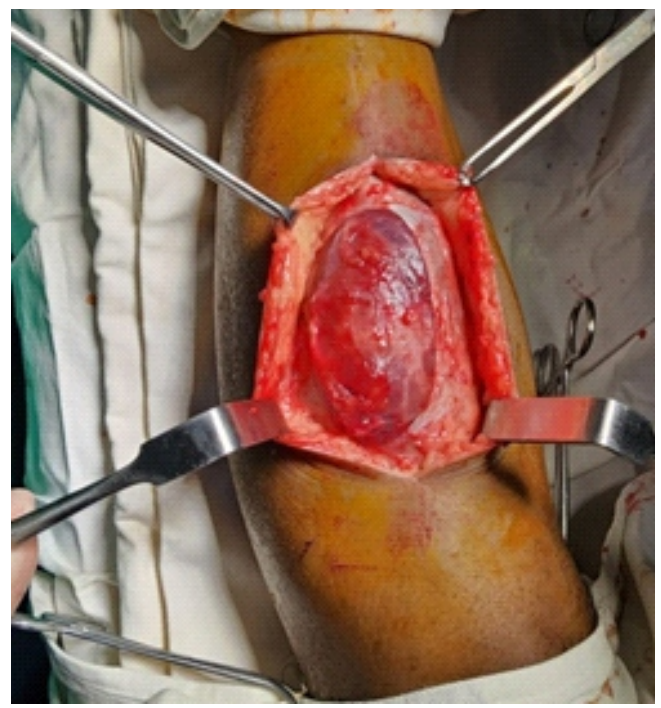


Figure 2: Intraoperative photograph.

longitudinal incision was made over the swelling. Intraoperatively, a large fascial defect measuring approximately 9×3 cm was identified with herniation of the tibialis anterior muscle (Fig. 2).

After reduction of the muscle, primary closure was deemed unsafe due to the size of the defect.

A Prolene mesh was placed over the defect and secured to the surrounding healthy fascia using non-absorbable sutures, ensuring a tension-free repair (Fig. 3).

The wound was closed in layers (Fig. 4).

Post-operative outcome

The post-operative period was uneventful. At the 6-month



Figure 4: Immediate post-operative photograph.



Figure 5: Follow-up photograph.

follow-up, the patient was pain-free, with no recurrence of herniation and a satisfactory cosmetic outcome (Fig. 5).

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

- Rodríguez-Roiz JM, Montañana-Burillo J, Diaz JS. Tibialis anterior muscle hernia: A rare cause of leg pain. Case report and review of the literature. *Apunts Med Sports* 2020;55:153-6.
- Kim KH, Shin YS. Surgical repair of tibialis anterior muscle herniation using a synthetic mesh that was beneath the fascia after a military training program: A case report. *J Korean Fract Soc* 2019;32:102-6.
- AlZahrani AM, AlMarshad FA, Mahabbat NA, Alsaud NN, Fayi K, Jarman YA, et al. Tibialis anterior muscle hernia in a young woman. *Cureus* 2023;15:e36596.
- Quaranta M, Poeta N, Oliva F, Maffulli N. Muscle herniae: Conservative and surgical management. Systematic review. *Surgeon* 2023;21:181-9.
- Al Rehaili HA, Al Ghamdi AM, Al Juhani WS. Tibialis anterior muscle herniation repaired with trevira tube: A surgical technique and review of literature. *J Musculoskelet Surg Res* 2019;3:357-62.
- Tan SH, Chin BZ, Doshi C, Hoi J. Lower leg muscle hernia: A systematic review. *Ann Case Rep* 2023;8:1477.
- Kramer DE, Pace JL, Jarrett DY, Zurakowski D, Kocher MS,

Discussion

Recent literature suggests that traumatic tibialis anterior muscle herniation is increasingly recognized due to improved clinical awareness [1,3]. Diagnosis is often clinical, while dynamic ultrasound or MRI may be reserved for equivocal cases [7,8,9]. Surgical options include fasciotomy, primary repair, autologous grafts, and synthetic mesh reinforcement [4,6,7].

Historically, muscle herniation of the leg has been described in early surgical literature, emphasizing its traumatic etiology and varied presentation [10,11,12]. Fasciotomy may relieve symptoms but can worsen cosmetic appearance, while primary closure of large defects carries a risk of compartment syndrome [7,10]. Contemporary reports favor synthetic mesh reinforcement for large defects, providing durable support and minimizing recurrence [2,5,6]. In our case, prolene mesh repair resulted in excellent functional and cosmetic outcomes without complications at 6 months.

Conclusion

Prolene mesh repair is a safe, effective, and reproducible technique for managing large traumatic fascial defects associated with tibialis anterior muscle herniation.

Clinical Message

Large traumatic fascial defects causing tibialis anterior muscle herniation can be effectively treated using Prolene mesh repair, achieving excellent functional and cosmetic outcomes.

Micheli LJ. Diagnosis and management of symptomatic muscle herniation of the extremities: A retrospective review. *Am J Sports Med* 2013;41:2174-80.

8. Artul S, Habib G. The importance of dynamic ultrasound in the diagnosis of tibialis anterior muscle herniation. *Crit Ultrasound J* 2014;6:14.

9. Mellado JM, Palomar LP. Muscle hernias of the lower leg: MRI findings. *Skeletal Radiol* 1999;28:465-9.

10. Masoumi A, Ramogida G. Tibialis anterior herniation - a rare clinical entity: a case report and review of the literature. *J Can Chiropr Assoc*. 2020 Apr;64(1):88-91. PMID: 32476672; PMCID: PMC7250514..

11. Miniaci A, Rorabeck CH. Muscle herniation of the leg: A review. *Can J Surg*. 1986;29:329-331.

12. Harrington AC, Gifford RM. Muscle herniation of the leg. *J Bone Joint Surg Am*. 1950;32:379-382.

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