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International Journal of Recent Innovations in Medicine and Clinical Research

Journal homepage: https://ijrimcronline.com/

Short Communication

Endoscopic assisted autogenous tensor fascia lata harvest

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Abstract

Chronic wounds often fail to heal due to inadequate vascularity and inflammation. Autologous tensor fascia lata (TFL) grafts, rich in Type I collagen and elastin, provide a regenerative scaffold conducive to cell infiltration and angiogenesis. We describe a minimally invasive endoscopic technique for harvesting TFL in a 35-year-old male with bilateral grade 4 ischial pressure ulcers and underlying osteomyelitis. A 2 cm transverse incision was used, and the graft was harvested under direct endoscopic vision, allowing precise dissection and hemostasis with minimal donor-site morbidity. The procedure was uneventful, with no wound-related complications. This technique offers superior anatomical visualisation, reduced incision length, and minimal trauma. Endoscopic-assisted TFL harvest represents a promising alternative to open approaches in selected chronic wound cases.

Keywords: Tensor Fascia Lata, Regenerative technique, Endoscopic surgery, Minimally invasive surgery

Received: 02-06-2025; **Accepted:** 10-07-2025; **Available Online**: 29-08-2025

1. Introduction

Chronic wounds (pressure ulcers, diabetic foot ulcers, venous stasis ulcers, non-healing surgical wounds) often fail to heal due to poor perfusion, chronic inflammation, and lack of viable matrix for cell ingrowth.[1] New strategies employ biological scaffolds to provide mechanical support, enable cell migration and revascularisation, and deliver regenerative cues. The tensor fascia lata (TFL) – a broad collagenous aponeurotic sheet (iliotibial tract) harvested from the lateral thigh – has emerged as a candidate autologous scaffold. Human fascia lata (HFL) offers a large, easily-harvested, shapeable surface with high tensile strength and elasticity.[2] It is rich in Type I collagen and elastin, and (when used autologously) poses no immunogenic risk. As a biological extracellular matrix, TFL can be remodelled and infiltrated by host cells.

The use of videoendoscopic techniques allows the plastic surgeon to perform subcutaneous surgeries under direct vision and good illumination, thereby allowing a minimally invasive approach that minimises donor site morbidity. Here, we describe our technique of using a video-endoscope for minimally invasive autogenous tensor fascia lata harvest.

2. Materials and Methods

The patient was a 35-year-old male with bilateral grade 4 ischial pressure ulcers complicated by underlying osteomyelitis. Systemic antibiotics were started for management of osteomyelitis based on culture sensitivity, and the wound was managed with debridement, regular dressings and NPWT. Follow-up imaging showed a response to therapy. It was decided to use Autogenous Tensor Fascia Lata (TFL) graft regenerative scaffold as an intermediate strategy, as definitive reconstruction was deferred till complete resolution of osteomyelitis.

We used a minimally invasive approach for TFL harvest. The surgery was performed under general anaesthesia. With the patient in left lateral position, anatomical landmarks- Anterior superior iliac spine, iliac crest, greater trochanter, fibular head, lateral femoral condyle and the groove of lateral crural muscular septum were marked with knee in extension, and a line joining the iliac crest to the fibular head was

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https://doi.org/10.18231/j.ijrimcr.v.7.i.2.5

marked corresponding to the TFL (**Figure 1**). With the hip and knee in flexion to make the TFL taut, A 2cm transverse incision was placed on the line marked and 10cm proximal to the lateral femoral condyle and further dissection through fat to expose the iliotibial tract. The subcutaneous tissue overlying the tract was undermined by blunt dissection to make space for the endoscope (**Figure 2**). Two parallel longitudinal incisions 1cm apart were made on the TFL, hooked out using right-angled forceps and the TFL divided distally. Under direct vision using a rigid 4mm 0-degree endoscope, anterior (subcutaneous) and posterior (subfascial) planes were created by blunt and sharp dissection till 10cm proximal to the incision (**Figure 3**). A periosteal elevator was used to lift the skin flap to create space for the endoscope and instruments to pass. Long vertical incisions were made on the TFL by extending the previously made longitudinal incisions using an endoscopic Metzenbaum scissors (**Figure 4**). The proximal end of the TFL was then divided using the scissors, and the graft was delivered through the lower incision (**Figure 5**). Hemostasis was confirmed in the subcutaneous and subfascial planes by direct visualisation using the endoscope. The incision was closed in layers, and a compression dressing was applied.

3. Results

The endoscopic technique was successfully used to harvest the TFL graft through a small 2cm incision. No hematoma or wound-related complications occurred. No additional surgical trauma related to the endoscope was noted.

Figure 1: Surface landmarks marked

Figure 2: Creating subcutaneous plane for endoscope

Figure 3: Anterior plane created and TFL cut longitudinally

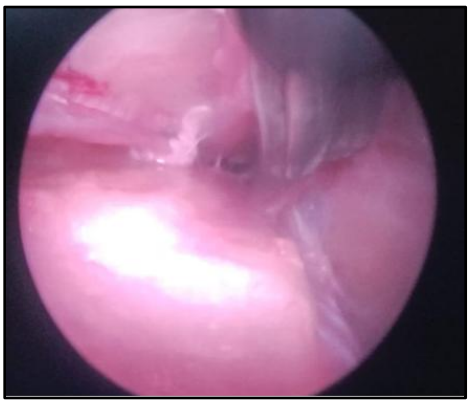

Figure 4: Proximal end of TFL cut using endoscopic Metzenbaum scissors

Figure 5: Harvested TFL graft

4. Discussion

Harvesting TFL does incur donor-site morbidity, though generally mild. The main risks are wound hematoma/seroma and delayed healing at the thigh incision. In abdominal-wall reconstructions with free TFL grafts, donor complications occurred in ~18% of patients, including seroma, hematoma, and minor wound dehiscence.[3]

The Video-endoscope is an emerging tool that allows the plastic surgeon to perform minimally invasive subcutaneous surgeries. It offers the advantages of better illumination and direct visualisation with magnification while minimising the length of incision required.[4] It also helps identify and

delineate regional anatomy, serving as a teaching aid for training surgeons.[5]

Endoscopic TFL harvest can be performed using a high-thigh or low-thigh approach, depending on whether a wide flat sheet or a long thick sheet is required, and also based on the surgeon's preference. This technique does not need insufflation, as the plane created by blunt dissection can easily accommodate the endoscope and dissecting instruments. Although we performed this case under general anaesthesia, this technique can be performed well under tumescent anaesthesia in a properly selected patient. The method can also be used in combination with a fasciotome or fascial harvester, thereby converting an otherwise blind technique to directly visualised surgery. Surgeons inexperienced with using endoscopic instruments may have difficulty in initial cases, but the learning curve involved is not steep.

5. Conclusion

Endoscopic-assisted TFL harvesting offers the advantages of direct visualisation of regional anatomy and better haemorrhage control. The long incisions associated with open techniques can be avoided. This may be considered as an alternative to the conventional approach.

6. Conflicts of Interest

None.

7. Source of Funding

None.

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Cite this article: Sriram V S, Chittoria RK*, Amrutha J S. Endoscopic assisted autogenous tensor fascia lata harvest. *Int J Recent Innov Med Clin Res.* 2025;7(2):59-61.