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Research Article

Should It Stay or Should It Go? The Postless Technique for Intertrochanteric Fracture Fixation Using a Traction Table: A Case Series Describing a Technical Approach to Avoid Perineal Post–Related Complications

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Abstract

Objectives: To describe a modified postless technique for cephalomedullary fixation of intertrochanteric femoral fractures, potential benefits and limitations, as well as their clinical and radiographic results.

Methods: This is a prospective cohort study involving five patients undergoing intertrochanteric fracture fixation with a postless technique. Clinical and radiographic outcomes were evaluated over a 6-month follow-up period.

Results: All five cases (four 31-A2 and one 31-A1) achieved satisfactory intraoperative fracture reduction without the need to convert to a perineal post. Radiographic union was obtained within three months in all patients. No postoperative complications were observed.

Conclusion: The modified postless technique appears to be a feasible and safe alternative for intertrochanteric fracture fixation, offering the benefits of traction table use while avoiding perineal post related complications.

Keywords: *Bone nails, Femoral fractures, Fracture fixation (intramedullary), Orthopedic procedures, Pudendal nerve, Traction*

Introduction

The use of traction tables has long been established as an essential tool in the operative treatment of femoral fractures, offering controlled traction and positioning for optimal approach, fracture reduction, and fixation. [1,2] However, traditional fracture table setups typically involve a perineal post, which serves as a counterforce to the axial traction applied to the affected limb.

Although effective in stabilizing the pelvis and facilitating reduction, the perineal post has been linked to a variety of complications, most notably neurologic palsies involving the pudendal, sciatic, and common peroneal nerves. [3-8] Reports of perineal skin injuries, erectile dysfunction, urinary retention, and even permanent neuropathies have raised concerns regarding the safety of prolonged use of perineal posts, particularly in procedures requiring high traction forces or extended surgical times. [9-18] The emergence of postless techniques has gained popularity in recent years, initially within the field of hip arthroscopy. [19-22] This method aims to eliminate the need for a perineal post by modifying patient positioning to create natural countertraction. Aprato et al. [23] extended this concept to the orthopaedic trauma field, describing a postless setup for femoral shaft fracture fixation utilizing a contralateral lithotomy position. Building upon this innovation, this technical note explores a variation of the postless technique, specifically designed for the fixation of intertrochanteric femur fractures, utilizing a scissors-leg position and a banana-shaped torso alignment. The aim of this study is to present an alternative technique that mitigates the risk of post-related complications while retaining the potential advantages of using a fracture table.

Materials and Methods

This study was prospective, with an observational cohort. Five patients who underwent intertrochanteric fixation with a postless technique between April 2025 and June 2025 participated in the study. We collected and recorded demographic data including age, gender, laterality, and AO (Arbeitsgemeinschaft für Osteosynthesefragen)'s fracture classification. Moreover, we collected time to union, fixation method, and complications. This study followed the ethical standards of the Declaration of Helsinki. The Research Ethics Committee approved the present study under CAAE 92498125.0.0000.5125.

Sample characteristics

Table 1 depicts the sample characteristics of a case series of five patients who underwent trochanteric fixation using the postless technique.

Table 1. Demographic data, classification, fixation method and complications.

Patient	Sex	Age	Side	AO-OTA classification	Fixation method	Complications
1	Female	83	Left	31-A2	Short cephalomedullary nail	None
2	Female	71	Left	31-A2	Short cephalomedullary nail	None
3	Female	71	Right	31-A2	Long cephalomedullary nail	None
4	Female	85	Left	31-A1	Short cephalomedullary nail	None
5	Female	89	Right	31-A1	Short cephalomedullary nail	None

Abbreviations: AO-OTA, Arbeitsgemeinschaft für Osteosynthesefragen - Orthopaedic Trauma Association

Surgical technique: Modified postless positioning for trochanteric fractures

After general or spinal anesthesia, the patient is placed supine on a standard radiolucent fracture table. The feet are wrapped around a foam padding to protect the sensitive dorsal nerves and skin, which are usually fragile, particularly in the elderly. The torso is slightly inclined toward the contralateral side, adopting a 'banana-shaped' configuration, while the extremities are placed in a scissors position. If necessary, a subtle Trendelenburg of about 5 degrees can be applied to enhance the traction effectiveness. The contralateral hip is extended approximately 5 to 10 degrees and pushed against the pelvis. An adduction of up to 5 degrees may be applied. This position is important to guarantee that the contralateral limb will play the role of countertraction, dismissing the utilization of the perineal post.

The fractured limb is prepared and draped. A thoracic strap is applied to secure the patient and prevent accidental falls from the traction table. Reduction is achieved through a combination of longitudinal traction and internal rotation, as a standard procedure for trochanteric fracture reduction, and confirmed by fluoroscopy. However, the reduction maneuvers should be adapted according to the fracture pattern. The cephalomedullary fixation follows the standard technique. No specialized equipment beyond a standard fracture table is required. This technique waives any high-cost device such as a pink pad.

Figures 1 and 2 depict a clinical case demonstrating patient positioning with the postless technique during cephalomedullary fixation of an intertrochanteric femoral fracture.

Case 2 involves a 71-year-old woman who suffered an unstable intertrochanteric fracture of the left femur following a low-energy fall (Figs. 3-9).

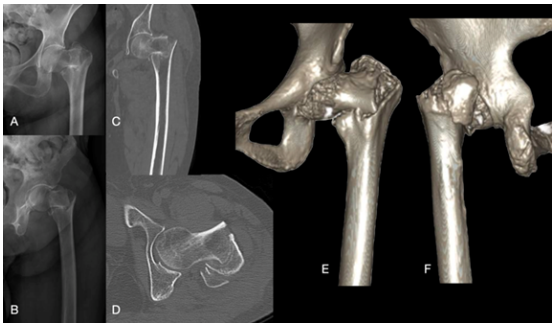

Fig 1. (A and B) Anteroposterior and lateral radiographs of the left femur of an 83-year-old female patient who sustained an unstable intertrochanteric fracture after a fall. (C and D) Coronal and axial CT scan demonstrating fracture displacement and comminution. (E and F) Three-dimensional CT reconstructions highlighting the instability of the intertrochanteric fracture.

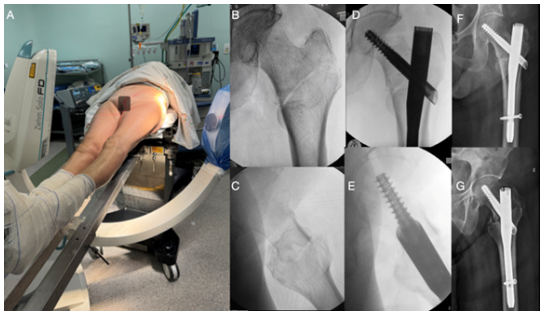

Fig 2. (A) Preoperative photograph of the operating room setup showing the postless technique, with the limbs in scissors and the torso in a banana-shaped position. (B and C) Intraoperative fluoroscopic images in anteroposterior and lateral views demonstrating fracture reduction achieved through traction and internal rotation of the affected limb using the postless technique. (D and E) Immediate postoperative fluoroscopic images showing fixation with a short cephalomedullary nail. (F and G) Anteroposterior and lateral radiographs obtained 30 days postoperatively, demonstrating maintained fracture reduction and proper implant positioning.

Fig 3. Anteroposterior view of the pelvis. Observe the unstable intertrochanteric fracture.

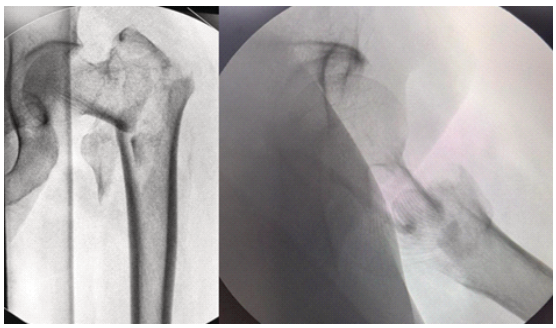

Fig 4. Preoperative fluoroscopic images in anteroposterior and lateral views illustrating the displaced intertrochanteric fracture prior to the application of traction.

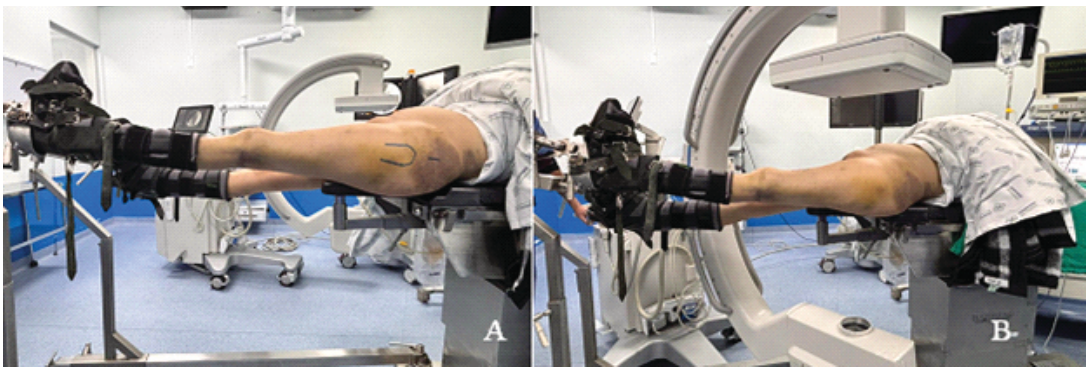

Fig 5. (A) and (B): Preoperative photographs of patient positioning using the postless technique. Observe the limbs in scissors and the torso in a banana-shaped position. Padded protective boots are applied to minimize the risk of traction-related skin injury, particularly in patients with fragile soft tissues.

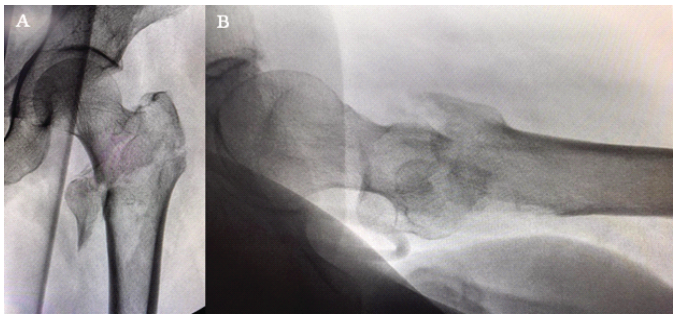

Fig 6. Preoperative fluoroscopic images in anteroposterior (A) and lateral (B) views demonstrating fracture reduction achieved using the postless positioning technique.

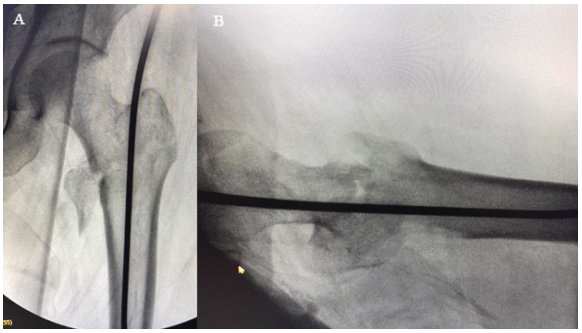

Fig 7. Intraoperative fluoroscopic images demonstrating the entry point and guidewire positioning in anteroposterior (A) and lateral (B) views.

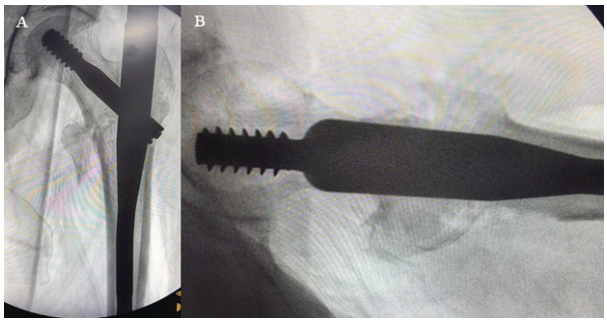

Fig 8. Immediate postoperative imaging of the left hip in anteroposterior (A) and lateral (B) views showing satisfactory fracture alignment and internal fixation using a cephalomedullary nail.

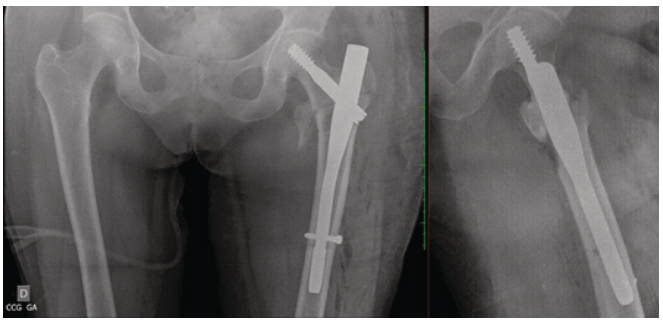

Fig 9. Postoperative radiographs showing fracture reduction and fixation.

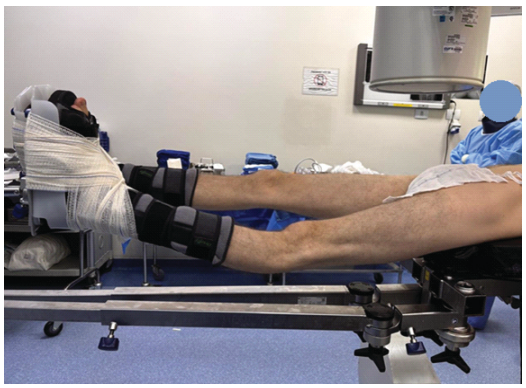

Fig 10. Figure 10 illustrates the case of a patient with ligamentous laxity who, when positioned on the traction table with countertraction applied to the left lower limb and traction on the right using the postless technique, developed a recurvatum deformity.

Pearls and pitfalls

- Ensure careful padding of pressure points to prevent pressure sores.
- Adequately stabilize the contralateral limb to maximize natural countertraction.
- Avoid over-adduction of the torso, which may alter pelvic orientation.
- Consider preoperative team briefing to coordinate leg positioning, C-arm access, and draping.
- Monitor for intraoperative shifting due to absence of fixed pelvic anchor.
- Apply a thoracic strap to secure the patient and prevent accidental falls from the traction table.

- Adopting the postless technique, the patient should be positioned on the traction table in the same manner as if the perineal post were used. This standardized positioning helps prevent artifacts that may interfere with the quality of intraoperative fluoroscopic imaging. In patients with cutaneous fragility, the use of a padded boot is recommended to reduce the risk of skin injury caused by the traction forces applied to the fractured limb.

Indications, contraindications and potential advantages of the postless technique

We advocate that any native intertrochanteric fracture pattern is eligible for this technique, regardless of displacement. However, we do not recommend its use in patients with lower limb contractures that may hinder proper positioning in the scissor configuration. Caution is also advised when applying this technique in patients with joint laxity or genu recurvatum. The presence of knee hyperextension may represent a relative contraindication, and the risk of exacerbating the deformity or causing associated injuries should be carefully evaluated (Fig. 10).

Although this situation occurred in a hip arthroscopy case rather than in a fracture, it is recommended to change the technique by using the perineal post and removing the countertraction on the limb presenting the deformity.

The potential benefits of this technique include reducing the risk of complications associated with the perineal post and improving the quality of lateral fluoroscopic imaging. Furthermore, if an anterior hip approach is required to perform an open reduction of the fracture, the absence of the post may facilitate the procedure compared to when a post is present.

Results

In all cases in which the postless technique was employed, satisfactory reduction of the fracture was achieved. No intraoperative repositioning of the post was required in any patient. All fractures progressed to radiographic union within a maximum of 3 months, without secondary displacement, loss of reduction, or technique-related complications. Notably, no cases of nonunion, infection, nerve palsy, skin injuries, or hardware failure were observed throughout the follow-up period of 6 months.

Discussion

The incidence of neurologic and soft tissue complications associated with the use of a perineal post has been documented extensively. Pudendal nerve neuropraxia is the most frequently reported complication, with incidences ranging from 1.8% to 27% in various series. [24-29] Symptoms include perineal numbness, dysesthesia, and urinary or sexual dysfunction, which can be transient or permanent. Other complications include scrotal or labial skin ulceration, pressure sores, and even vascular compromise. [10, 21] The duration of traction, the amount of force applied, the patient's body mass index, and inadequate padding have all been identified as contributing risk factors. [1, 7, 9]

As the understanding of post-induced neuropathies has evolved, the need for safer positioning strategies has become increasingly apparent. Various strategies were developed, including the Trendelenburg positioning, padded post alternatives, and more recently, postless setups utilizing specialized tables or positioning frames. [1, 25-29]

Postless techniques were first explored in hip arthroscopy, where traction-related complications were commonly encountered. By eliminating the perineal post, surgeons aimed to reduce neurologic palsies and soft tissue compromise. Aprato et al.]23] introduced a significant contribution by adapting postless principles to orthopaedic trauma surgery, particularly for femoral shaft fractures. Their technique involved the contralateral limb positioned in lithotomy. The postless technique presented herein offers a novel solution to an existing gap in the surgical management of intertrochanteric femur fractures. While conventional methods utilizing a perineal post usually offer adequate reduction control, they are not without risk. Differing from the technique described by Aprato et al. [23], which utilized the contralateral limb in the lithotomy position, we advocate positioning both lower limbs in the scissor configuration. The scissors-leg configuration is intuitive and reproducible, and the banana-style torso adjustment offers natural pelvic stabilization. The contralateral limb functions as a counterforce during traction of the fractured limb. Moreover, the lithotomy position, particularly when maintained for extended periods, may be associated with complications such as common peroneal nerve neuropraxia and compartment syndrome. [24]

This study presents certain limitations that must be acknowledged. Although the primary objective of this technical note is to describe a promising alternative to mitigate the risks associated with the use of a perineal post on traction tables, the study design does not allow us to draw definitive conclusions regarding the reproducibility, safety, or overall effectiveness of the technique in all clinical scenarios. Our sample size is limited to five patients. We recognize that the absence of prospective or comparative data limits the generalizability of the findings.

We are currently conducting a multicenter case series to provide a more comprehensive assessment of the clinical and radiographic outcomes associated with the systematic use of this technique. Preliminary findings have been encouraging and support the dissemination of this approach as a viable alternative for the management of intertrochanteric femoral fractures. Notably, all five participating institutions were able to implement the postless technique successfully, underscoring its feasibility and reproducibility across different surgical settings.

Conclusion

In this case series, the modified postless technique for cephalomedullary nailing of intertrochanteric fractures offered all the advantages of using a traction table while eliminating the risks associated with the perineal post. Nonetheless, further validation through prospective studies is warranted to confirm its safety, efficacy, and reproducibility.

Conflict of Interest

The authors of this study declare that they have no conflict of interest related to this manuscript.

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Availability of Data and Materials

Not applicable

Authors Contribution

REP: Conceptualization, investigation, patient management, supervision, writing, editing, reviewing

CSU, AW, GTS: Conceptualization, Investigation, patient management, editing

GW, PJCO, RGGA, MAAAF: Investigation, ethical approval management, reviewing

All authors approved the final version of the manuscript.

Ethical Consideration

Ethical approval was obtained for publication of the article under CAAE 92498125.0.0000.5125, opinion number 7.908.322

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