



E-ISSN: 2395-1958  
P-ISSN: 2706-6630  
IJOS 2023; 9(3): 440-442  
© 2023 IJOS  
<https://www.orthopaper.com>  
Received: 01-06-2023  
Accepted: 05-07-2023

**Dr. Raviteja Karumuri**  
Apollo Hospitals, Film Nagar,  
Hyderabad, Telangana, India

## Management of a rare case of un-displaced steida process fracture in a young adult male

**Dr. Raviteja Karumuri**

**DOI:** <https://doi.org/10.22271/ortho.2023.v9.i3f.3456>

### Abstract

**Background:** Data on the diagnosis and management of posterior talus fractures in India is limited. Here, we present a rare case report describing the diagnosis and management of a young adult male who presented with posterior process fracture.

**Case Description:** A 21-year male adult presented with complaints of ankle pain for 10 days after a history of twisting injury while playing football. Since the patient refused to undergo any imaging, he was conservatively managed with cold fomentation and painkillers. Nearly three months after the first visit, the patient agreed to undergo a magnetic resonance imaging, which confirmed a linear un-displaced steida process fracture. The patient was finally managed with a below-knee cast for a month and advised to resume brisk walking after another month of the cast removal.

**Clinical significance:** Fractures of the posterior talar may frequently be missed on plain radiography and must be suspected for early diagnosis using detailed clinical examination. Early recognition by computed tomography scan or magnetic resonance imaging can achieve timely management for restoring functional status, reducing disability and improving patient outcomes.

**Keywords:** Foot injury, posterior process fracture, steida process, talus, trauma

### Introduction

#### Background

Subtle fractures, with a clinical presentation similar to that of ankle sprains, are often missed on preliminary examination [1]. Common incidental findings include accessory anatomical variants in the ankle and hindfoot, challenging the differential diagnosis [2]. Since this injury is rare, fractures of the posterior process of the talus, these are frequently unnoticed, and result in chronic pain and pseudo-arthritis [3].

Steida process among the primary risk factors for impingement of the ankle [4]. Talar fractures comprise about 0.32% of all fractures and 3.4% of foot and ankle fractures and typically include the talar head and neck [5]. Since steida process fractures are rarely encountered, most evidence is available from case reports. Only a recent study found that the prevalence of steida process fractures was 16.7% in Turkey, which was significantly higher in men compared to women [4]. Moreover, there is a lack of evidence on the epidemiology, diagnosis and management of this type of fracture globally as well as in the Indian population. Here, we present a rare case report describing the diagnosis and management of a young adult male who presented with posterior process fracture. A written informed consent to publish this data was obtained from the patient.

#### Case Description

A young adult male aged 21 years presented with complaints of ankle pain for 10 days after a history of twisting injury while playing football. Physical examination revealed tenderness over medial malleolus and posteromedial ankle. The patient was able to dorsiflex, plantarflex, Evert and invert the ankle and forefoot. There was no swelling or tenderness either over the lateral malleolus or at the insertion of Achilles tendon. The patient was advised to undergo a plain radiograph to which he refused. Physical examination led to a differential diagnosis of medial malleolus fracture, deltoid ligament injury or steida process fracture. The patient also refused the advised temporary splint (Slab application with Plaster of Paris [POP]) below the

**Corresponding Author:**  
**Dr. Raviteja Karumuri**  
Apollo Hospitals, Film Nagar,  
Hyderabad, Telangana, India

knee, and was hence prescribed treatment only with non-steroidal anti-inflammatory drugs (NSAIDs) and cold fomentation with ice packs.

The patient returned after one month with mild relief of initial complaints. The patient achieved symptomatic relief from pain from the NSAIDs, but recurred once he resumed sporting activities. Examination on his second visit showed tenderness at the postero medial region of the ankle. The patient reported pain on full plantar flexion, while his pain subsided at medial malleolus. Moreover, there was no pain at the tip of medial

malleolus and eversion of foot, which helped us to rule out the diagnosis of deltoid ligament injury. On this visit, the patient agreed to undergo the radiograph (Figure 1A), which showed no obvious bony lesion. Medial malleolus fracture was therefore ruled out. The patient was then advised to undertake a magnetic resonance imaging (MRI) to rule out any other soft tissue injury, and a below knee POP slab for 4 weeks; he refused both. It was doubtful if the patient ever rested the injured limb.



**Fig 1:** Radiographs at (A) second visit; and (B) final follow-up.

On the third visit, the patient returned with the same complaint of pain after another 2 months. His MRI revealed a prominent steida process with linear undisplaced fracture and marrow edema (Figure 2). In addition, marked tibiotalar joint fluid was prominently seen along the posterior aspect. Since there was no scope for operative fixation in this rare fracture, the patient agreed to the recommended below knee POP cast this time. Additionally, the patient was started on calcium and vitamin D supplements.

The cast was removed after one month, and the patient was able to walk without any pain. There was no tenderness over the posteromedial region and full plantar flexion was possible without any pain. A repeat radiograph (Figure 1B) demonstrated haziness over the steida process region, which were likely signs of callus formation and union. The patient was advised to resume brisk walking for 1 month and gradually progress to jogging.



**Fig 2:** MRI scan showing the linear un-displaced steida process fracture

## Discussion

A similar case was reported by Komur B, *et al.*, of a talar fracture which occurred during a sports activity. Similar to our patient, he was unable to bear weight and had mildly edematous ankle joint. Positive signs included tenderness at

the posterior part of medial malleolus, associated with restricted ankle movements [6]. A recently published systematic review evaluated seven original studies on posterior talar fractures. Of the 66 patients evaluated, <25 patients suffered from a (sub) Talar joint dislocation (37.9%)

and more than half had associated leg fractures (n=34, 51.5%). It is worthwhile to mention that there was a late diagnosis in >36 patients (n=24) highlighting the importance of sensitizing healthcare professionals, orthopedic surgeons and trauma care specialists about physical examination and early imaging studies after ankle injuries. Furthermore, >40% patients had functional impairment, which was more commonly seen in the non-operative group (64.7%) vs the open reduction and internal fixation (ORIF) group (33.3%), and 30.8% (n=4) in the fragment excision group ( $p<0.001$ ). More than one-third of patients developed complications, majority of whom were treated conservatively (73.7%, n=14) compared to ORIF (25.0%, n=8,  $p<0.001$ )<sup>[3]</sup>.

An important clinical sign observed with lateral talar process fractures is the point tenderness at the site of fracture, while posterior talar process fractures are commonly tender on deep palpation anterior to the Achilles tendon, which increases on plantar flexion<sup>[1]</sup>. It is essential to understand that fractures of the Steida process should not be confused with that of an os trigonum injury due to the proximity<sup>[7]</sup>. Hyperplantar flexion of the ankle joint may result in fractures of the Os Trigonum, although they are less commonly observed in clinical practice<sup>[4]</sup>. Further evaluations may require computerized tomography (CT) scan of the ankle joint for confirmation of posterior talar fractures<sup>[8]</sup>.

There are many treatment options for posterior talus fractures. The selection of a treatment modality has to be individualized and is dependent on multiple factors such as the dimensions and location of the fracture, as well as the subtalar joint stability<sup>[9]</sup>. Conservative management is preferred for tubercle fractures with undisplaced fragments; 4-6 weeks treatment with cast along with the use of analgesics and corticosteroid injections is the standard course of action. Invasive management in the form of ORIF may be required for large, displaced, intraarticular fractures<sup>[5]</sup>. A case study of a long-distance runner who suffered from posterior talar fracture was successfully managed with a minimal invasive procedure including osteosynthesis with screw fixation, which was accessed through a dual-port hind foot endoscopy. Thus, invasive operative procedures may be avoided in a select group of patients with talar fractures<sup>[9]</sup>. Delays in treatment can result in long-term complications such as malunion, nonunion, disability and the need for surgery<sup>[1,5]</sup>.

### Clinical significance

Plain radiography may frequently miss the diagnosis of posterior talar fractures and a high degree of suspicion is warranted to detect them early after traumatic injuries. Detailed clinical examination, early recognition by CT scan or MRI and timely management should achieve the objective of restoring functional status, reducing disability and improving patient outcomes.

### Acknowledgement

I would like to thank Dr. Aafreen Saiyed for providing editorial services for this manuscript.

### Conflict of Interest

Not available

### Financial Support

Not available

### References

1. Judd D, Kim D. Foot fractures that are frequently

misdiagnosed as ankle sprains. *American Family Physician*. 2002 Sep 1;66(5):785.

2. Aparisi Gómez MP, Aparisi F, Bartoloni A, Ferrando Fons MA, Battista G, Guglielmi G, *et al*. Anatomical variation in the ankle and foot: from incidental finding to inductor of pathology. Part I: ankle and hindfoot. *Insights Into Imaging*. 2019 Dec;10(1):1-3.
3. Engelmann EW, Wijers O, Posthuma JJ, Schepers T. Systematic review: Diagnostics, management and outcome of fractures of the posterior process of the talus. *Injury*. 2020 Nov 1;51(11):2414-2420.
4. Cicek DE, Bankaoglu M. Prevalence of Elongated Posterior Talar Process (Stieda Process) Detected by Radiography. *International Journal of Morphology*. 2020 Aug 1;38(4):894-898.
5. Majeed H, McBride DJ. Talar process fractures: An overview and update of the literature. *EFORT Open Reviews*. 2018 Mar;3(3):85-92.
6. Komur B, Yilmaz B, Kati YA, Turan A, Faruk O. Fracture of the entire posterior process of the talus: A case report and review of the literature. *International Journal of Orthopaedics Sciences*. 2017;3:640-644.
7. Moore III WL, Harger BL. Isolated Stieda Process Fracture of Talus: A Case Study. *Journal of Chiropractic Medicine*. 2018 Mar 1;17(1):68-71.
8. Kose O, Okan AN, Durakbasa MO, Emrem K, Islam NC. Fracture of the Os Trigonum: A case report. *Journal of Orthopaedic Surgery and Research*. 2006 Dec;14(3):354-356.
9. Kubo M, Yasui Y, Miki S, Kawano H, Miyamoto W. Stress fracture of the posterior talar process in a female long-distance runner treated by osteosynthesis with screw fixation via two-portal hindfoot endoscopy: A case report. *BMC Musculoskelet Disord*. 2019 Dec;20(1):1-5.

#### How to Cite This Article

Karumuri R. Management of a rare case of un-displaced steida process fracture in a young adult male. *International Journal of Orthopaedics Sciences*. 2023;9(3):440-442.

#### Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.