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# Pan-Talar Extrusion Associated with a Bimalleolar Fracture Revealing Müller-Weiss Syndrome: A Case Report and Literature Review

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***Abstract***: *Total pan-talar extrusion is an exceptional and severe injury typically resulting from high-energy trauma, with a high risk of infection and avascular necrosis. Its association with an undiagnosed Müller-Weiss Syndrome (MWS) represents an extremely rare and complex clinical presentation. We report the case of a 60-year-old female patient who sustained an open total talar extrusion associated with a bimalleolar fracture following a fall from height. Radiographic and computed tomography evaluation incidentally revealed structural alterations of the navicular bone consistent with Müller-Weiss Syndrome. Urgent surgical management included thorough debridement, open reduction of the talus, internal fixation of the malleolar fractures, and temporary transarticular stabilization using Kirschner wires. At 6-month follow-up, fracture consolidation was achieved without signs of infection or avascular necrosis, and the patient resumed weight-bearing with minimal pain. This case highlights the diagnostic and therapeutic challenges posed by the coexistence of acute traumatic injury and underlying chronic degenerative foot pathology, emphasizing the importance of careful radiological assessment and staged management strategy.*

**Keywords:** Total Talar Dislocation; Müller-Weiss Syndrome; Bimalleolar Fracture; Foot and Ankle Trauma; Navicular Osteonecrosis

## 1. Introduction

Total dislocation of the talus is a severe and rare injury, defined by the complete loss of the talus's articular relationships with the tibia, navicular, and calcaneus [1]. It is almost exclusively secondary to high-energy trauma. The main complications are infection and avascular necrosis of the talus, which determine the functional prognosis [2, 3]. The concomitant presence of a chronic pathology such as Müller-Weiss Syndrome (MWS)—an idiopathic progressive osteonecrosis of the navicular bone—can complicate the clinical presentation, diagnosis, and therapeutic strategy [4, 5]. We report a case illustrating this rare association.

## 2. Material and Methods

### 2.1. Clinical Findings

A 60-year-old female patient, with no notable medical history, was admitted to the emergency department following a fall from a height of approximately 3 meters. She presented with intense pain and total functional impairment of her right foot.

Clinical examination revealed an obvious deformity of the ankle with an anterolateral open wound, through which the talar cartilage was visible (Figure 1). The distal neurovascular status was intact.

***Figure 1.*** *Clinical appearance showing the anterolateral open wound with talar extrusion.*

Standard radiographic and computed tomography (CT) scans revealed:

1. A total anterior dislocation of the talus (pan-talar), with loss of tibio-talo-calcaneo-navicular contact.
2. A bimalleolar fracture (medial and lateral).
3. Signs suggestive of an underlying Müller-Weiss Syndrome: fragmentation and flattening of the navicular bone, talonavicular collapse, and a characteristic "comma" deformity of the bone.

### 2.2. Surgical Management

Urgent surgical intervention was performed, which included:

4. Surgical debridement and lavage of the wound (classified as a Gustilo-Anderson type IIIA open fracture).
5. Open reduction of the talus, which was held in place only by a thin ligamentous pedicle.
6. Fixation of the malleolar fractures: a screw was used for the medial malleolus and a pin for the lateral malleolus.
7. Temporary stabilization of the tibio-talar, subtalar, and talo-navicular joints using transarticular Kirschner wires (K-wires).

The patient underwent surgery within 4 hours of admission.

Intravenous antibiotic therapy was initiated immediately postoperatively.

The ankle was immobilized in a posterior splint for 6 weeks. Partial weight-bearing was initiated at 10 weeks, progressing to full weight-bearing after removal of the K-wires at 12 weeks.

## 3. Results and Discussion

The postoperative course was uncomplicated, with skin healing achieved without any signs of infection. The K-wires were removed at 12 weeks. At the 6-month follow-up, control radiographs showed consolidation of the malleolar fractures and no signs of avascular necrosis of the talus (Figure 2). The patient was able to resume weight-bearing with minimal pain (Visual Analog Scale score of 1/10).

***Figure 2.*** *Postoperative radiographs showing reduction and fixation. Note also the structural alterations of the navicular bone characteristic of MWS.*

Regarding the Müller-Weiss Syndrome, which was diagnosed incidentally on imaging, it had been asymptomatic before the trauma. A strategy of simple surveillance was decided upon in agreement with the patient, with no specific surgical treatment undertaken immediately.

This case is remarkable for the revelation of a latent MWS by a major acute trauma. This association presents several challenges. The first is diagnostic: it is crucial not to overlook the radiological signs of the chronic pathology behind the obvious acute injuries. The second is therapeutic: priorities must be established. The management of the emergency (reduction, debridement, fixation) takes precedence. The chronic pathology, if asymptomatic, can be addressed in a second stage, in a delayed manner and adapted to its stage [6]. The third challenge is prognostic: the presence of a pre-existing structural abnormality (MWS) could theoretically alter the biomechanics of the ankle and influence the long-term risk of post-traumatic arthritis [7].

Total talar dislocation is a rare orthopedic emergency. Its prognosis is linked to the preservation of the talar vascularity, which is fragile and easily compromised [2]. Modern therapeutic principles favor early reduction and fixation when bone viability is possible, as in our case where a vascular pedicle was preserved. Fusion techniques, such as tibiocalcaneal arthrodesis, remain salvage procedures [3].

Müller-Weiss Syndrome is a rare degenerative disease of adults, preferentially affecting women, characterized by progressive osteonecrosis and fragmentation of the navicular bone [4]. Its pathophysiology is multifactorial, likely involving a combination of vascular factors (precarious blood supply) and biomechanical factors (excessive lateral compression) [5]. The diagnosis is based on imaging (radiography, CT) which shows the characteristic "comma" or "inverted comma" deformity of the navicular, with collapse of the medial arch. Treatment of MWS depends on the evolutionary stage (Maceira classification in 5 stages). In early or asymptomatic stages, observation or conservative treatment (orthoses) is appropriate. In advanced, painful stages, talonavicular-cuneiform arthrodesis is the reference surgical treatment to restore the medial arch and eliminate pain [6].

## 4. Conclusion

Total pan-talar extrusion is a rare orthopedic emergency requiring urgent and meticulous surgical management to preserve talar vascularity and prevent severe complications. The incidental discovery of Müller-Weiss Syndrome in this context adds diagnostic and biomechanical complexity. Careful radiological evaluation and prioritization of acute trauma management are essential. This case contributes to the limited literature on this rare association and may help guide clinicians facing similar complex presentations.

## Compliance with ethical standards

### *Conflict of interest statement*

The authors declare that they have no conflict of interest.

### *Statement of ethical approval*

The present research work does not contain any experimental studies performed on animals or human subjects. It is a retrospective description of a clinical case with anonymized patient data.

### *Statement of informed consent*

Informed consent was obtained from the individual participant included in the study for the publication of this case report and any accompanying images.

## References

[1] Leitner B. The mechanism of total dislocation of the talus. J Bone Joint Surg Am. 1955;37-A(1):89-95.

[2] Weston JT, Liu J, Wandfluh M, Mallee L, Weatherall J, van der Vliet QMJ. A systematic review of total dislocation of the talus. Orthop Surg. 2015;7(2):97-101.

[3] Kenwright J, Taylor RG. Major injuries of the talus. J Bone Joint Surg Br. 1970;52(1):36-48.

[4] Müller W. Ueber eine eigenartige doppelseitige Veraenderung des os naviculare pedis beim Erwachsenen. Dtsch Z Chir. 1927;201:84-89.

[5] Maceira E, Rochera R. Muller-Weiss disease: clinical and biomechanical features. Foot Ankle Clin. 2004;9(1):105-125.

[6] Fernandez de Retana P, Maceira E, Fernandez-Valencia JA. Arthrodesis of the talonavicular-cuneiform joints in Muller-Weiss disease. Foot Ankle Clin. 2004;9(1):65-72.

[7] Hetsroni I, Nyska M, Mann G, Ayalon M. Plantar pressure distribution in patients with Muller-Weiss disease. Foot Ankle Int. 2007;28(2):237-241.