

## Müller-Weiss Syndrome: A Case Report

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### Abstract

Müller-Weiss syndrome is a rare adult osteonecrosis of the tarsal navicular and an uncommon cause of chronic midfoot pain. We report a 39-year-old patient with progressive mechanical midfoot pain without prior trauma. Weight-bearing radiographs and computed tomography showed lateral navicular collapse, fragmentation, sclerosis, and articular surface disorganization, consistent with Müller-Weiss syndrome. Imaging was essential for diagnosis and exclusion of differential conditions. Early recognition is important to guide management and prevent progressive deformity and secondary osteoarthritis.

**Keywords:** Müller-Weiss Syndrome; Osteonecrosis; Tarsal Navicular; Osteoarthritis

### Introduction

Müller-Weiss syndrome is a rare and often underrecognized disorder characterized by spontaneous adult-onset osteonecrosis of the tarsal navicular. It typically presents with chronic mechanical midfoot pain and progressive deformity, most commonly affecting adults in the fourth to sixth decades of life. Because of its insidious onset and nonspecific clinical presentation, diagnosis is frequently delayed. Imaging plays a pivotal role in identifying the characteristic morphological changes of the navicular bone and in differentiating this entity from traumatic, inflammatory, or secondary causes of osteonecrosis. We report a case of Müller-Weiss syndrome in a young adult patient, highlighting the radiologic features that establish the diagnosis.

### Case Report

A 39-year-old patient presented with chronic midfoot pain of progressive onset, exacerbated by walking and weight-bearing. There was no history of trauma, inflammatory disease, or associated systemic disorder.

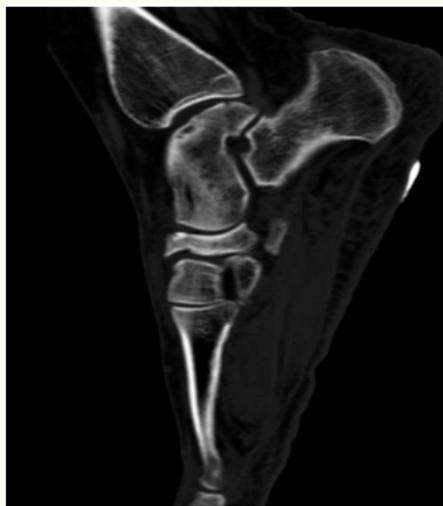
Clinical examination revealed localized tenderness over the dorso-medial aspect of the foot, without swelling or cutaneous abnormalities.

Weight-bearing plain radiographs of the foot demonstrated deformity of the tarsal navicular characterized by flattening, reduced height, and irregular cortical contours, predominantly affecting the lateral portion, producing the characteristic comma-shaped appearance (Figure 1).



**Figure 1:** X-ray of the foot (anteroposterior view) showing a comma-shaped deformity of the navicular bone.

Computed tomography confirmed fragmentation of the navicular with lateral collapse, heterogeneous osseous sclerosis, and disorganization of the talonavicular and naviculocuneiform articular surfaces. There was no evidence of recent fracture or associated inflammatory involvement (Figure 2 and 3).



**Figure 2:** Sagittal reconstruction of the foot scan showing flattening with condensation of the navicular bone.



**Figure 3:** Coronal reconstruction CT scan of the foot showing fragmentation of the navicular bone with lateral collapse creating a comma-shaped appearance.

In the setting of chronic mechanical midfoot pain in an adult patient, the absence of prior trauma or systemic disease, together with the characteristic morphological navicular abnormalities observed on imaging, allowed the diagnosis of Müller-Weiss syndrome to be established. Lateral collapse and bony fragmentation of the navicular constitute major radiological features that help exclude differential diagnoses, including post-traumatic sequelae, inflammatory arthropathies, and secondary osteonecrosis.

## Discussion

Müller-Weiss syndrome is currently regarded as an idiopathic aseptic osteonecrosis of the adult tarsal navicular, representing a rare and frequently overlooked cause of chronic midfoot pain and progressive deformity [1].

The pathophysiology appears to involve the combination of intrinsically precarious vascular supply to the navicular bone and excessive biomechanical stress applied to the midfoot. This association explains the preferential lateral collapse typically observed on imaging studies [2]. The lateral portion of the navicular is subjected to increased compressive forces, leading to progressive structural failure and deformity.

Imaging plays a central role in diagnosis. Weight-bearing radiographs are fundamental for identifying typical deformities, including lateral collapse, sclerosis, fragmentation, and the characteristic comma-shaped configuration. Computed tomography provides superior assessment of bony fragmentation and articular surface involvement, facilitating evaluation of talonavicular and naviculocuneiform degeneration. Magnetic resonance imaging may detect early bone marrow abnormalities before advanced structural remodeling becomes evident [3].

Management depends on the stage of disease progression. Initial treatment is generally conservative, including activity modification, analgesics, and custom orthotic support aimed at unloading the medial column. In advanced stages with significant deformity or secondary osteoarthritis, surgical intervention may be required to prevent progressive collapse of the medial arch and degenerative midfoot arthropathy. Surgical options include talonavicular arthrodesis, talonavicular-cuneiform fusion, or triple arthrodesis depending on the extent of joint involvement [4]. Early diagnosis is therefore essential to optimize therapeutic strategy and functional outcome.

### Conclusion

Müller-Weiss syndrome is an uncommon but important cause of chronic mechanical midfoot pain in adults. Recognition of the characteristic radiographic and CT findings-particularly lateral navicular collapse, fragmentation, sclerosis, and articular disorganization-is crucial for establishing the diagnosis and excluding alternative etiologies. Imaging not only confirms the condition but also guides therapeutic decision-making. Early identification may help prevent progressive deformity and secondary osteoarthritis, thereby improving long-term functional outcomes.

### Bibliography

1. López-Ben R., *et al.* "Mueller-Weiss disease: imaging features and clinical correlation". *Radiographics* (2008).
2. Maceira E and Rochera R. "Mueller-Weiss disease: clinical and biomechanical features". *Foot and Ankle Clinics* 9.1 (2004): 105-125.
3. Fernández de Retana P., *et al.* "Imaging findings of Müller-Weiss syndrome". *American Journal of Roentgenology* (2020).
4. Cao HH., *et al.* "Management and outcomes of Müller-Weiss disease". *Foot and Ankle Surgery* (2019).

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