

APOA Foot & Ankle Council Presents..

Case of the Fortnight

1st March 2023



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Presented by:



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Learning Points:

- © Muller-Weiss disease (MWD) is an idiopathic midfoot condition involving the progressive fragmentation of the tarsal navicular which leads to the arthritis and collapse of the midtarsal joints.
- © The diagnosis is based on clinical presentations and the radiographic findings. The hallmark deformity of MWD is "pes planovalgus" but is usually seen in the late stage of the disease with navicular collapse. The common radiographic appearance includes comma-shaped or ground grass appearance of the navicular.
- © The first line treatment for MWD is conservative treatment which focuses on mechanical offloading to reduce pain with a success rate of about 56%. The factors relating to failure of conservative treatment are excessive midfoot abduction and the presence of radiographic talonavicular arthritis.
- © The surgical treatment is indicated in the patient with persistent pain despite effective conservative treatment. Goal of the surgical treatment is creating a plantigrade well-aligned foot with restoration of medial column height. The main procedure is arthrodesis involving the peri-navicular joints with satisfactory outcomes.
- © The main consideration for the extension of arthrodesis is based on the arthritic change, the degree of navicular fragmentation and the remaining bone stock. The joint sparing procedures could be selected in early stage MWD with non-collapsed navicular.

Title:

**Muller-Weiss Disease:
Key Concepts and Overview**

*Upcoming Case of the Fortnight
on 1st April 2023*

Presented by:

Dr. Yeung Wai Lok, Charlix

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Title:

**Surgical Management of
a Talar Body Nonunion**

Want to present a case? Write to...



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Muller-Weiss Disease: Key Concepts and Overview

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Clinical presentation

A 49 year-old woman presented with progressive pain on the medial side of the midfoot for 1 year. Pain could be aggravated by prolonged walking and relieved by a period of resting. She had previous underlying foot condition as MWD on her right foot and was surgically treated with talonavicular arthrodesis 2 years ago. She had no other underlying disease. Her ambulatory status was outdoor independent without gait aid.

The clinical examination of left foot revealed tenderness over the midfoot at the talonavicular region without the sign of infection (**Figure 1a**). There was decrease of medial longitudinal arch. The hindfoot alignment was still normal (**Figure 1b**). The passive range of motion of talonavicular joint provoked the joint pain.



(Fig. 1a)

The foot appearance revealed decrease of medial longitudinal arch and normal hindfoot alignment



(Fig. 1b)

The clinical findings of the patient which had the tenderness over the talonavicular joint

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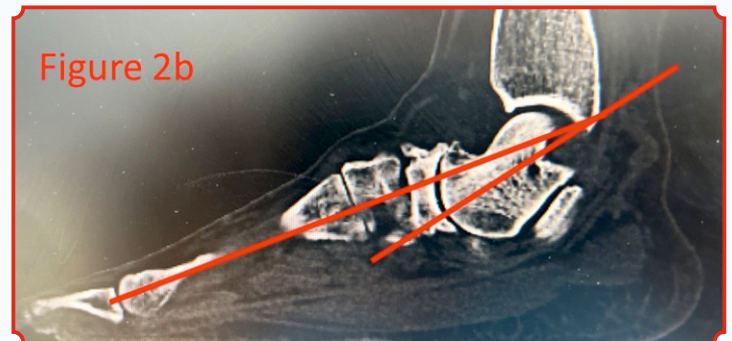
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(Fig. 2a)

The weight-bearing plain foot radiographs demonstrated comma shape with sclerotic change over the lateral aspect of navicular

The weight-bearing plain radiographs demonstrated the comma-shaped navicular with minimal joint space narrowing over the talonavicular joint. The lateral column of the navicular also had sclerotic change (**Figure 2a**). The weight-bearing computed tomography (CT) was sent for in-depth evaluation of the extent of pathology. The CT showed



(Fig. 2b)

The weight-bearing CT showed the plantarflexion of the lateral Meary's angle



(Fig. 2c)

The fragmentation of the navicular



(Fig. 2d)

The arthritis involved mainly at the lateral aspect of the talonavicular joint

plantarflexion of the lateral Meary's angle (**Figure 2b**). There was a fragmentation of the navicular over the lateral aspect (**Figure 2c**). The arthritic change was remarkable at the lateral talonavicular joint. While, the joint space of medial aspect of the joint was still congruence (**Figure 2d**).

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Regarding the information above, her diagnosis was symptomatic MWD of left foot. According to the Maceira classification, this could be categorized as stage IV due to the presence of plantar intersection of lateral Meary angle. No midfoot abduction was shown in the radiograph. The conservative treatment was initiated for her. After a period of follow-up, her painful symptom did not improve as expected and the patient also had poor compliance to undergo mechanical offloading. At that point, the surgical treatment was considered to be her definite option.

The talonavicular arthrodesis was performed via a dorsomedial approach that was used to expose the joint. Articular cartilage was denuded and removed to prepare for the fusion surface. The fragmented navicular and bony surface were debrided until the bleeding subchondral bone was seen. The fusion surface was drilled with 2.0 smooth K-wire to augment healing of the fusion site via bone marrow bleeding. The talonavicular joint was realigned and temporarily fixed with K-wires in order to correct the deformity.

Largely bony gap at the lateral aspect of the navicular was assessed and filled with autogenous cancellous bone graft which was harvested from the proximal tibia. After the fluoroscopic confirmation of the acceptable foot alignment, the definite fixation of the talonavicular joint was done using a 3.5-mm locking plate combined with 3.5-mm cortical screws (**Figure 3**).



(Fig. 3)

*The talonavicular arthrodesis was performed.
The fixation was done using locking plate combined with screw*

Post-operative management

The patient was immobilized with a posterior short leg slab. At 2-week of follow up, incision stitches were removed and the slab was replaced with a controlled-ankle motion walker (protective boot). At this point, the ankle range of motion exercised was encouraged and the patient was able to bear weight partially at her

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heel. And, at 6-week of follow up, the full weight-bearing was permitted in the boot. The full weight-bearing without support was allowed after the clinical and radiographic signs of union were seen which was at 12 weeks following an operation (**Figure 4**).

Discussion

MWD's conservative treatment was challenging. The success rate was reported at 56%. According to the study of Harnroongroj et al, they reported the patient's factor of failure conservative treatment eg. the presence of radiographic talonavicular arthritis. Regarding the actual practice, patient's compliance was additionally an important consideration regarding the effective conservative treatment. For this patient, she was unable to comply with the mechanical offloading protocol which resulted in a failed outcome following conservative treatment.



(Fig. 4)

The 3-month follow up radiographs of this patient which revealed the radiographic signs of union of the arthrodesis

conservative treatment eg. the presence of radiographic talonavicular arthritis. Regarding the actual practice, patient's compliance was additionally an important consideration regarding the effective conservative treatment. For this patient, she was unable to comply with the mechanical offloading protocol which resulted in a failed outcome following conservative treatment.

Several factors contributed to the successful surgery for MWD. Due to the presence of arthritic change markedly at the lateral aspect of the talonavicular joint and the collapsing of lateral navicular, the joint sacrificing as talonavicular arthrodesis was chosen. The arthrodesis was solely limited to one joint when the painful symptoms were only related to this joint. The spanning fixation across nearby joint was not performed as the bone stock especially over the medial aspect of the talonavicular joint was still sufficient. However, the evaluation of the arthritic sign via the foot radiographs might not be adequately effective to completely delineate the arthritic extension or involvement. The weight-bearing CT scanning would provide more information in details regarding the mentioned issue. This investigation was highly recommended at this point. It also had the benefit to evaluate the bone stock at this area for the pre-operative planning. The arthrodesis of the nearby joint was considered in case of the presence of symptomatic arthritis of that joint or the severe diminish of bone stock which required spanning fixation. Any bone graft type could be used to enhance the fusion potential due to the poorly vascular nature of the remaining navicular and the bone resorption, especially the lateral aspect of the navicular. Cancellous bone graft with no cortical bone attachment could be used with satisfactory outcomes provided that the fusion was firm fixation of the fusion was achieved.

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References

- Ahmed AA, Kandil MI, Tabl EA, Elgazzar AS. Muller-Weiss Disease: A Topical Review. Foot Ankle Int. 2019;40(12):1447-1457.
- Harnroongroj T, Tharmviboonsri T, Chuckpaiwong B. Muller-Weiss Disease: The Descriptive Factors of Failure Conservative Treatment. Foot Ankle Int. 2021;42(8):1022-1030.

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