

Muller Weiss's Disease: A Case ReportAbdelhafid El Marfi^{1,2*}, Ali Krite¹, Hachem Chafik¹, Mohamed Lahsika¹, Mohamed El Idrissi¹, Abdelhalim El Ibrahim¹, George Saad², Abdelmajid El Mrini¹¹Department of Osteo-Articular Surgery B4, CHU Hassan II, University Sidi Mohammed Ben Abdellah, 30000 FES, Morocco²Department of Osteo-Articular Surgery, Sud Essonne Hospital Center (Dourdan-Etampes), 91150 Etampes, France***Corresponding author**

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Article History

Received: 13.06.2018

Accepted: 27.06.2018

Published: 30.06.2018

DOI:

10.36347/sjmcr.2018.v06i06.017

**Abstract:** Muller Weiss disease (MMW) is a rare entity that corresponds to aseptic necrosis of the navicular bone of the adult. It usually affects the woman, bilaterally or unilaterally, and is of unknown origin [1-4]. MMW was suspected in a 21-year-old woman with spontaneous pain in her right foot (middle region). Radiological investigations demonstrated deformed comma-shaped navicular bone, severe talonavicular necrosis and peripheral sclerosis. The surgical treatment was based on the excision of the necrotic navicular bone, associated with an allograft of the iliac crest with talo-navicular arthrodesis. A good clinical and radiological evolution has been observed.**Keyword:** Muller Weiss, Disease, bone necrosis, arthrodesis.**INTRODUCTION**

Muller Weiss disease is a rare disease that characterized by osteonecrosis of the navicular bone. It can be uni or bilateral, of unknown etiology. This pathology mainly affects the young women. We report a case of a patient who had a primary osteonecrosis of the tarsal navicular, treated with talonocline arthrodesis.

CASE REPORT

It was a 21 years old patient, with no significant pathological history, who has spontaneous pain on the dorsal surface of the right foot, which intensifies with activity, evolving for 6 months. The clinical examination showed a flat foot with painful palpation of the talo-navicular joint, without redness or swelling.

The radiological assessment made of a standard radiography and a magnetic resonance imaging objectified a talo-navicular osteoarthritis with flattening of the navicular bone which is in the form of deformed comma Figure 1, 2.

After having retained the diagnosis of MMW; surgery was performed; by medial incision centered on the navicular bone; resection of the navicular bone was

performed with filling by a spongy cortical graft taken from the ipsilateral iliac crest modeled to have the same shape and dimensions as the resected bone fixed by two staples performing a double talonavicular and naviculocunean arthrodesis figure 3. After 3 months of immobilization in a plastered boot followed by reeducation, the pain disappeared and the radiological assessment at 12 months showed a good consolidation with disappearing signs of progressive bone necrosis.



Fig1: Standard X-ray of the foot demonstrating talo-navicular osteoarthritis with flattening of the navicular bone in the form of a distorted comma

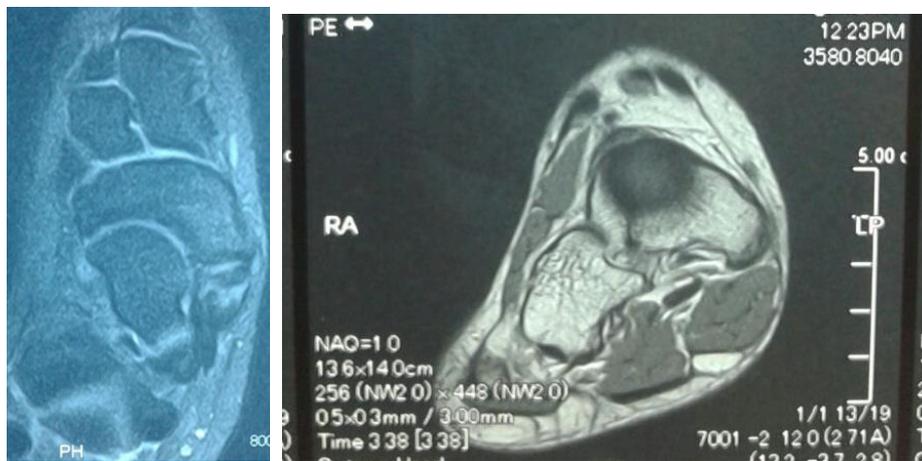


Fig-2: A magnetic resonance imaging demonstrating talo-navicular osteoarthritis with flattening of the navicular bone in the form of a distorted comma



Fig-3: postoperative radiological aspect after performing a doublé talonavicular and naviculocuneal arthrodesis

DISCUSSION

Muller-Weiss disease is aseptic necrosis of the adult naval bone that usually affects the woman

bilaterally [1]. It requires careful clinical and radiological analysis and should not be confused with Koehler's disease. [2,3]. The middle third of the

scaphoide has precarious vascularization [4,5]. There is also the delayed ossification of the navicular bone and overweight. All these factors accelerate the process of necrosis of the tarsal scaphoid [6,7]. Osteonecrosis of the tarsal navicular bone can be spontaneous or secondary to systemic diseases (rheumatoid arthritis, SLE, renal failure) or trauma [8]. The most frequently encountered functional symptomatology in the mediopod is pains in walking, and progressive limitation of mobility. In the advanced stage settles permanent disability due to osteoarthritis of the foot. MullerWeiss disease is responsible for flattening associated with osteocondensation of navicular bone which gradually subluxes in a medial situation evolving towards osteoarthritis of talonaviculocuneus [9] The inflammatory balance is normal. The differential diagnosis with secondary forms is based on interrogation: former foot trauma, renal failure, systemic disease, rheumatoid arthritis, talonavicular osteoarthritis and diabetes. Bilaterality favors spontaneity of the disease

The radiological exploration initially uses standard radiographs, in face and profile incidence, realizing a fairly characteristic aspect of the navicular anomalies: a "comma" configuration, resulting from an internal rotation of the medial half of the navicular bone, with compression of the lateral half. Other navicular anomalies can be found: decrease in size, increase in density, fragmentation, medial or mediodorsal protrusion [11,12]. A change in the cuboid-calcaneus ratio and hypertrophy of the second metatarsal can be demonstrated [13]. Magnetic Resonance Imaging is useful for eliminating other differential diagnoses. It has a better resolution in contrast, with great sensitivity in the detection of bone and peri-navicular edema, as well as the evaluation of tendon-ligament insertions [14]. Computed tomography plays an important role in the preoperative assessment through the evaluation of bone structures and their mineralization. Technetium-99m bone scintigraphy is more sensitive but less specific and is not indicated in case of diagnostic doubt. The goal of treating Muller-Weiss disease is to reconstruct the length of the medial arch of the foot and restore the angle of Meary. Fernandez de Retana *et al.* [6] described a medial first talonaviculocuneal arthrodesis, medial osteoperiosteal flap detachment, posterior tibial muscle tendon insertion, excision of a talonaviculocuneal dorsal wedge, interposition of an iliac or tibial graft, and transosseous suture of the periosteal flap [15].

CONCLUSION

The MMW is an under diagnosed pathology, it must always be evoked in front of unexplained midfoot pain. The talonaviculocuneal arthrodesis is the solution of choice provided that the length of the medial arch of the foot is maintained.

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