

# Plantar Fibroma

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**Abstract:** *A plantar fibroma is a benign nodule, characterized by progressive nodular fibrosis of the superficial plantar aponeurosis due to proliferation of fibroblasts, and usually appears in the second through sixth decade of life. It is a cause of heel pain with a high risk of recurrence with local recurrence and the risk of altering the mechanics of the foot. multi-planar fibromas, more invasive and rapid-growing, are considered plantar fibromatosis. We report a case of plantar fibroma in a 46-year-old woman, followed for gonalgia, low back pain and talalgia on heel spurs, admitted for a nodule of the sole of the foot, presenting the clinical and radiological features of this condition.*

## **Resumé:**

Le fibrome plantaire est un nodule bénin, caractérisé par une fibrose nodulaire progressive de l'aponévrose plantaire superficielle due à la prolifération de fibroblastes, qui apparaît généralement entre la deuxième et la sixième décennie de la vie. Il s'agit d'une cause de douleur au talon avec un risque élevé de récurrence locale et le risque d'altérer la mécanique du pied. Les fibromes multiplanaires, plus invasifs et à croissance rapide, sont considérés comme des fibromatoses plantaires

Nous rapportons ici un cas d'un fibrome plantaire survenue chez une femme de 46 ans, suivie pour gonalgies, lombalgies et talalgies sur épines calcanéennes, admise pour un nodule de la plante du pied, présentant les caractéristiques cliniques et radiologiques de cette affection.

## **Introduction :**

Plantar fibromatosis is an uncommon cause of plantar pain in the feet. The estimated prevalence is not precisely known but is estimated to affect less than one in 20000 in the general population [1].

It is a benign disorder of a unknown etiology, characterized by neoplastic proliferation of immature fibroblasts within the plantar fascia or aponeurosis. Also known as Ledderhose disease, it may present as a single fusiform or exophytic nodule (fibroma), multiple nodular thickenings (multiple fibromas), or an infiltrating mass (fibromatosis) extending along the plantar and/or dorsal aspects of the foot.

## **Patient and observation**

Patient aged 46, treated for bilateral calcaneal spurs, who consulted for gonalgia, low back pain and mixed talalgia for 10 years, in a context of apyrexia and conservation of general condition.

Clinical examination revealed a firm, painful nodule in the soft tissue opposite the head of the left 5<sup>th</sup> metatarsal. Biological assessment: SV 45, HR 15, ACPA < 7, CRP 6 and a correct CBC. On Ultrasound (Figure 1): a well-limited, evenly-contoured, hypoechoic, homogeneous, posteriorly enhanced subcutaneous soft tissue lesion that does not pick up color-doppler and measures 2.5 cm in long axis. On MRI (figure 2): Presence of a plantar lesion, opposite the 5th metatarsal, described as T1 hyposignal, T2 hypersignal, and T1 FS enhanced after injection of PDC, associated with plantar fasciitis opposite the calcaneal spine.

The diagnosis of plantar fibroma was done, and the patient was put under clinical and radiological surveillance, with rehabilitation.

## **Discussion:**

A plantar fibroma is a hyperproliferative disease of the plantar aponeurosis, with unknown aetiology, characterised by multiple slowly growing nodules on the medial longitudinal arch of the foot. Also known by its eponym of Ledderhose disease [2], it is associated with hyper-proliferative conditions such as adhesive capsulitis, Duiyoutren's disease (palmar fibromatosis) and Peyronie's disease (penile fibromatosis). Histological changes include multiple modules of plumb spindle cells with normal surrounding fibrous tissues in the proliferative phase, fibrous collagen Type III proliferation with fibroblasts cells in the active phase and a maturation phase in which contracture of the aponeurosis may occur [1].

The superficial location of the lesions lend themselves to ultrasonographic imaging. The lesions typically appear homogenous, hypoechoic and well circumscribed, and coalescence of lesions can cause thickening of the plantar aponeurosis. Hyperaemia may also be present on Doppler Mode [3].

Differential diagnoses for plantar fascial pain include calcaneum stress fracture, tarsal tunnel syndrome, and plantar fasciitis. Further imaging and biopsy might be considered to exclude other causes of lumps such as epithelioid sarcoma, leiomyoma, rhabdomyosarcoma and liposarcoma [4,5].

Treatment is directed at alleviating the symptoms and restoring normal gait. In view of the low morbidity of the condition, first line treatment is often non-surgical in nature. Repeated intra-lesion injections of steroids might be necessary to achieve adequate reduction in size of the lesions at the risk of causing fascial rupture. Verapamil has been shown to inhibit collagen production and increase collagenase activity and intra-lesion injections of Verapamil has been reported with indeterminate efficacy [6].

Surgical excision can be considered for locally aggressive cases or those that are refractory to conservative treatment. However, high rates of local recurrence have been reported, with local excision although better results are reported with wide excision and partial fasciectomy [2,7].

**Conclusion:**

Plantar fibroma is an uncommon disease characterized by progressive nodular fibrosis of the superficial plantar fascia due to a proliferation of fibroblasts of unknown etiology. Diagnosis is often clinico-radiological, and treatment is often symptomatic, rarely surgical.

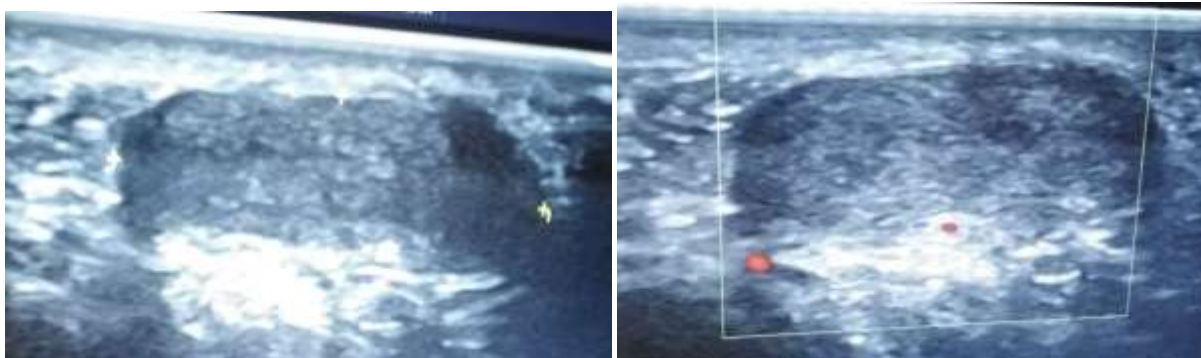


Figure 1: Plantar ultrasound image in B mode (A) and color mode (B) showing the presence of a subfascial tissue lesion, hypoechoic, homogeneous, showing posterior enhancement of echoes, not picking up color Doppler.



**Figure 2 :**

MRI images in axial and sagittal sections in T1-wighted images (A), T2 wighted images(B) and T1 FS C+(C and D), showing the presence of a plantar lesion, opposite the 5th metatarsal, described in hyposignal T1, hypersignal T2, and T1 FS enhanced after injection, associated with plantar fasciitis opposite the calcaneal spine.

**Conflicts of interests**

The authors declare no conflict of interests.

**Authors' contributions:**

All authors read and approved the final manuscript

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