

## New Technique for the Treatment of Freiberg Disease - One Case

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### Abstract

Avascular necrosis of the metatarsal head described by Freiberg [1,2] is a pathology that causes pain as principal symptom, it specially affects the second metatarsal and progressively destroys the metatarsophalangeal articulation compromised [3]. There is no clear evidence of superiority between one or other thechnique of treatment although there are several descriptions of these [2]. In the present article we describe a non reported previously technique used in one patient who got excelent results and recovery, excising the metatarsal head and replacing it with a tendón graft.

### Introducción

Freiberg disease was first described by the named author in 1914, as a pattern of infarction on the second metatarsal head [1]. At present time is considered as one of the four most common osteochondrosis of the foot and it's etiology is still in discussion [1]. The most comun symptoms are pain under the second metatarsal head but it can be present in other metatarsal, is frecuently encounter in females with a relation of 5:1 cases and in patients with inversión on the metatarsal formula, where the second metatarsal is larger than the first, there is no described difference in preference of presentation in one or the other foot and can be bilateral in as far as 10% of cases [2].

In adolescents and initial fases of the disease orthopaedic treatment must be indicated, in cases of failure of treatment patient must go to a operative management [2,3].

In operative tratment multiples techniques have been described, none with relevant evidence of superiority over others [2,4].

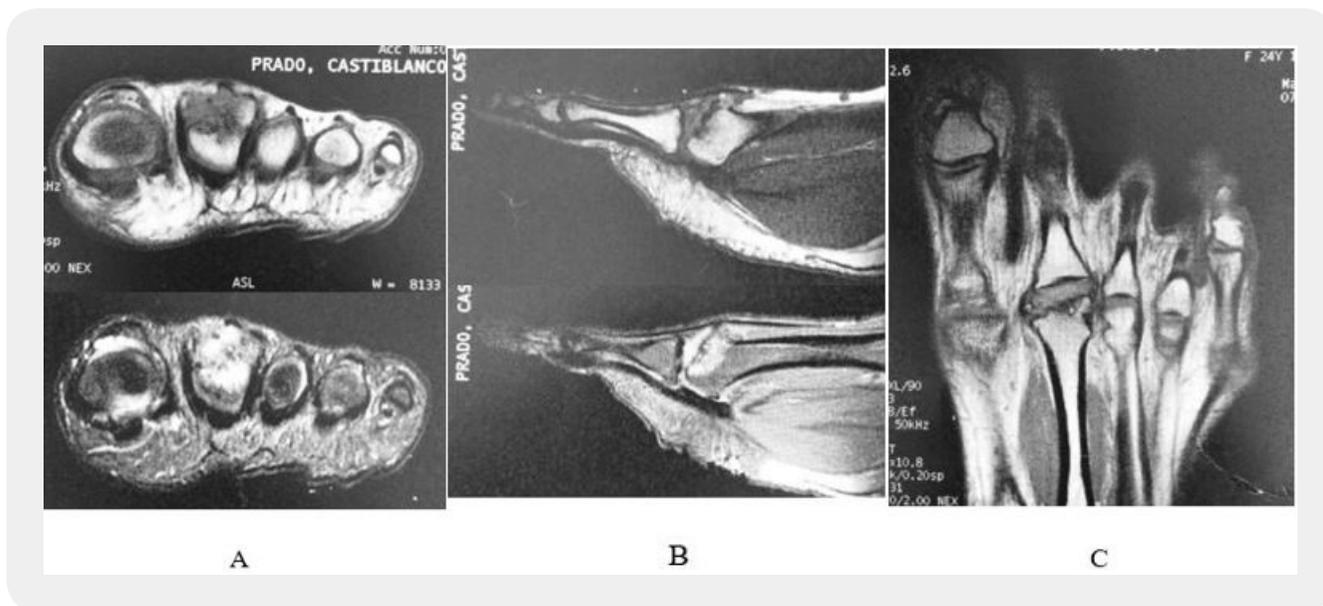
### **Clinical Case**

25 year female patient with a complain of 3 months of pain in second metatarsal head of the right foot that limits her daily activities as a dancer.

She presents the radiographic and magnetic resonance findings in (Figure 1 and 2), with changes that sugest necrosis of the head of second metatarsal wich take us to the diagnosis. She had orthopaedic treatmet with no improvement.



*Figure 1: Changes in the head of the Second metatarsal*



*Figure 2: MRI A, B, C*

### Operative Technique

With the patient in the operative room, was made a dorsal incision over the metatarsal head, we protected and dissected tissues to reach the metatarsal head, which was resected with an osteotomy at the neck level and then the space was covered with a tendon graft of extensor hallucis longus from bank which was molded in a shell shape before positioning it, (Figure 3), then fixed to the volar plate in relation to the flexor, ensuring the fixation by repair of the capsule, additionally fixed with a k wire of 1.0, we closed with a regular technique. Final radiographic results are in (Figure 4).



*Figure 3: FHL graft - Shell shape*



*Figure 4: Final XR results*

During follow up of clinical results, the patient was seen in the clinic after 2 weeks where the initial dressing was removed, then checked at six weeks of surgery to removed the k wire and started physical therapy to gain adequate movement and strength, at 3 monts pain was control and patient initiaded regular activities with progressive evolution to reach previous level of activity, al six months presented without any pain and completely rehabilitated to realized her daily activities.

## **Discussion**

The different treatments described for Friegberg disease haven't shown any superiority that allows a clear recommendation of management, [2] Acording to the stage of the disease some protocols have been proposed, Stage I consist of subchondral fracture, II central colapse, III flattening of the articular surface IV separation of free fragments and V destruction of the articular surface [2,4-6].

According to the previous description of staged is consider that adolescents and early stages need orthopaedic treatment [4,7]. In the cases this fail or patients that present in late stage must go to operative treatment [4]. Among the techniques described are: osteotomy of the metatarsal head, resection of the proximal third of the phalanx, elevation of the depression, articular debridment, arthroplasty and shortening osteotomies [1,2,7,8].

In this study was realized a search in data bases on the actual literatura, we did not found a clear recommendation. In this article we present a new technique for the treatment of this condition and it's results in the first 6 months of follow up.

## **Conclusión**

Freigerng disease is the avascular necrosis of the metatarsal heads, typically the Second one, generates pain and limitations for certain activities. There are descriptions of several treatment options but no evidencie of

superiority of any of them, in the present article we present a not typical technique used in a young patient with good results in short time.

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