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CASE REPORT

Traumatic dislocation of posterior tibial tendon by avulsion of flexor retinacular release. Reconstruction with suture anchors[☆]



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KEYWORDS

Tendon;
Tibial;
Posterior;
Dislocation;
Avulsion;
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Abstract

Introduction: Traumatic dislocation of the posterior tibial tendon (PTT) has a very low prevalence. It presents with pain and recurrent snapping on the posterior side of the medial malleolus after an ankle sprain while practicing sports. The diagnosis is based on clinical examination, supported by imaging techniques. The treatment must be always surgical.

Case report: A 28-year-old man sprained his ankle while jogging. He was treated in an emergency department with an elastic bandage. Once he recovered, he went back to running, noticing a projection with ankle pain. In the physical examination the PTT was reproduced with inversion maneuvers and forced dorsiflexion. Ultrasound and MRI were performed on the ankle. The patient was operated on, leaving a stable ankle with no projection. Three months later he had no pain and restarted his physical activities.

Conclusion: Surgical treatment of PTT dislocation by re-anchoring the flexor retinacula provides an excellent functional outcome.

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PALABRAS CLAVE

Tendón;
Tibial;
Posterior;
Luxación;
Avulsión;
Tratamiento
quirúrgico

Luxación traumática del tendón tibial posterior por avulsión del retináculo flexor. Reconstrucción con suturas con anclajes

Resumen

Introducción: La luxación traumática del tendón tibial posterior (TTP) es una entidad con muy baja prevalencia. Debuta con dolor y resalte retromaleolar medial tras un traumatismo en inversión del tobillo con la práctica deportiva. El diagnóstico se basa en la exploración clínica, apoyado en pruebas de imagen. El tratamiento debe ser quirúrgico.

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Caso clínico: Varón de 28 años que presenta giro forzado del tobillo en inversión del pie y dorsiflexión del tobillo, mientras realizaba una carrera. Es atendido en urgencias donde se trata como esguince de tobillo con vendaje elástico. Una vez recuperado comienza la práctica deportiva notando un resalte con dolor en el tobillo. En la exploración física se reproduce el resalte del TTP con maniobras de inversión y dorsiflexión forzada. Se completa el estudio con ecografía y RMN. El paciente se interviene quirúrgicamente mediante reinserción del retináculo flexor, quedando un tobillo estable y sin resalte. A los 3 meses postoperatorios el paciente reinicia su práctica deportiva.

Conclusión: Tras el diagnóstico clínico de luxación del TTP, el tratamiento quirúrgico mediante reinserción del retináculo flexor consiguió un excelente resultado funcional.

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Introduction

Traumatic dislocation of the posterior tibial tendon (PTT) is a very rare entity. Very few cases have been described in the literature, starting with the first case reported by Martins in 1874.¹ Its onset presents pain and snapping sensation following trauma with ankle inversion, usually during sports practice.^{2,3} The diagnosis is based on a clinical exploration with pain, swelling and ecchymosis in the ankle, and is completed by simple radiographs and magnetic resonance imaging (MRI) scans of the ankle.⁴ This lesion can sometimes go unnoticed and its treatment should be surgical.⁵

This work presents a case of acute and traumatic ankle instability due to a dislocation of the PTT whilst running.

Case report

The patient was a 28-year-old male with no relevant history who, during the course of an athletics race, suffered a trauma with forced inversion of the right ankle. The clinical exploration found ecchymosis and swelling, with pain upon mobilization of the ankle. We obtained simple anteroposterior and lateral radiographs of the right ankle and treated the lesion by immobilization through a functional bandage and progressive load during 3 weeks. Upon restarting sports practice, the patient reported pain and a snapping sensation in the ankle. Exploration observed the snapping upon forced inversion and dorsiflexion maneuvers. An ultrasound study showed dislocation of the PTT in dorsiflexion and its reduction in plantar flexion. The MRI study revealed bone avulsion of the flexor retinaculum, with no damage to the PTT (Fig. 1).

The patient underwent surgery 4 months after the lesion, as it had gone unnoticed at the emergency service. The small bone fragment was resected and the retinaculum was reinserted by means of 2 Stryker® titanium wedge anchors of 3 mm (Kalamazoo, Michigan, USA), as well as reinforcement with non-absorbable suture. The ankle was immobilized for 4 weeks with a plaster cast. After its removal, physiotherapy was started for a period of 2 months (Figs. 2 and 3).

Full ankle function had been regained 3 months after discharge, with full and asymptomatic plantar flexion, dorsal

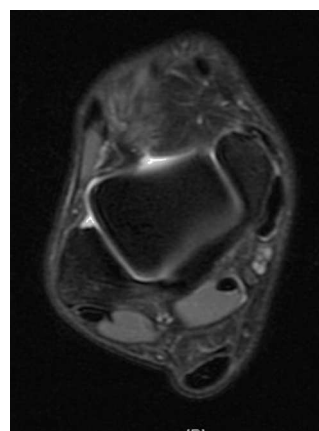


Figure 1 Axial T2 MRI image showing bone avulsion in the tibial malleolus.

flexion, inversion and eversion. The ankle presented normal strength. Two years after the lesion, the patient has not suffered a new dislocation, is currently asymptomatic and continues to practice sports with normality (Fig. 4).

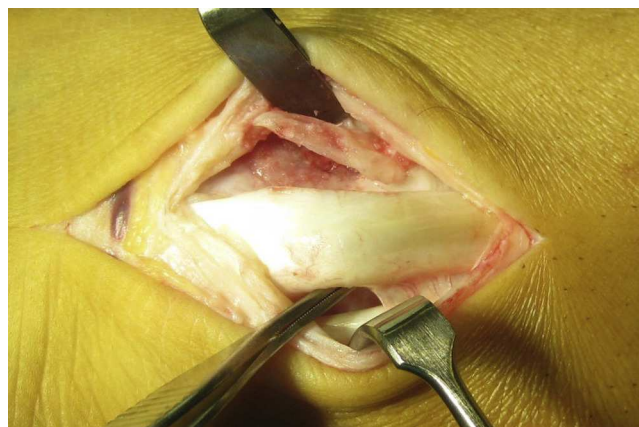


Figure 2 Avulsion fracture of the retinaculum, with release of the bone fragment in the flexor retinaculum.

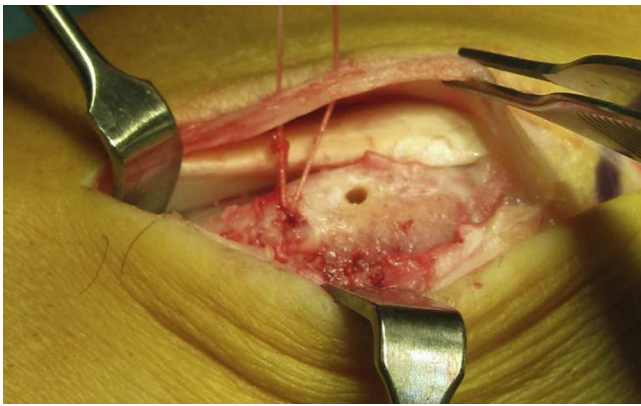


Figure 3 Reinsertion of the retinaculum with non-absorbable suture supported by 3 mm titanium anchors.



Figure 4 Image of the ankle in dorsal and inversion 2 years after the operation. The image shows the integrity of the flexor retinaculum.

Discussion

Dislocation of the PTT is a highly unusual lesion. In 2010, Lohrer and Nauck⁶ published a literature review about this entity including 61 cases obtained from the literature until that moment. Only 14% of the patients (8 cases) presented an avulsion fracture, as in the present case. The largest series, with seven cases, was published in 1992 by Ouzounian and Myerson.⁷

The PTT is essential as a dynamic stabilizer of the foot, so loss of its function causes a flat-footed deformity. The mechanism of the lesion has not been fully defined but in most cases it has been associated to forced dorsiflexion and internal tibial rotation of the ankle.

In anatomopathological terms, there have been three types of lesions described:

- Type 1: subcutaneous dislocation due to tear of the anterior flexor retinaculum.⁸
- Type 2: subperiosteal dislocation due to disinsertion of the anterior retinaculum, with a periosteal flap remaining where the PTT is displaced.^{9,10}

- Type 3: avulsion fracture of the flexor retinaculum, as in the present case.⁶

The diagnosis is mainly clinical. Following an ankle inversion trauma, a considerable swelling appears in the area of the medial malleolus, hindering an acute diagnosis. Once the swelling in the tibial perimalleolar region is resolved, the patient has to be reexamined. Occasionally, due to the rarity of the case, patients are not diagnosed and a chronic instability of the PTT remains.

Simple radiographs do not usually provide information except when there is an associated fracture, whereas ultrasound can show tendon dislocation when performing ankle flexion-extension with a slight foot inversion. The MRI scan identifies associated lesions, such as collection of peritendinous fluid, avulsion fracture and lesions of the retinaculum.⁴

Once the diagnosis has been obtained, the indication is surgical treatment^{5,6,9,11} with reconstruction of the retinaculum through an Achilles tendon flap or else reinsertion and periosteal flap, among other techniques.¹⁰ In the present case, we decided to excise the bone fragment as it was too small for an osteosynthesis with a screw and reinsertion of the retinaculum. Once the PTT was reduced we used non-absorbable sutures supported by two titanium anchors of 3 mm in the tibial malleolus, as this is a simple technique which provides a solid support.

Level of evidence

Level of evidence V.

Ethical responsibilities

Protection of people and animals. The authors declare that this investigation did not require experiments on humans or animals.

Confidentiality of data. The authors declare that they have followed the protocols of their workplace on the publication of patient data.

Right to privacy and informed consent. The authors declare having obtained written informed consent from patients and/or subjects referred to in the work. This document is held by the corresponding author.

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