

## Case Report Orthopaedics

# TIBIALIS POSTERIOR TENOSINOVITIS WITH NON TUBERCULAR RICE BODY FORMATION DUE TO RETAINED THORN – A RARE CASE REPORT

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### Abstract

**Introduction:** Tibialis posterior tendon dysfunction presents one of the most challenging problems that a foot and ankle specialist faces. This case report represents a very unusual presentation of retained thorn in the tendon of tibialis posterior with its management.

**Case presentation:** A sixteen years old boy presented with H/O thorn prick injury to left ankle joint on medial side 3 months back while playing. He complain of pain and swelling on medial side of left ankle joint. He was treated at local hospital but pain and swelling partially subsided for initial 4 weeks. Then gradually pain and swelling increases over a period of 3 months. Patient was investigated (X-rays, CT Scan, MRI left ankle joint) and diagnosed as Tibialis Posterior Tenosinovitis following retained 1.5cm long thorn piercing the tendon. Surgically retained thorn was removed. Rice bodies removed from the tendon sheath found to be non tuberculous.

**Discussion:** Tibialis posterior tenosinovitis along with rice body formation due to retained thorn following thorn prick injury is a very rare case. Mechanical irritation leading to chronic sinovitis due to thorn was responsible for the tibialis posterior tenosinovitis and non tuberculous rice body formation. In this case, surgically removing the thorn made patient symptom free and no recurrence till 5 years followup.

**Conclusion:** Posterior tibial tendon tenosynovitis is now a recognized

entity no longer confused with chronic ankle sprain or other foot / ankle disorders. Careful examination and investigation is necessary to differentiate these condition and provide appropriate treatment.

**Keywords:** Tibialis Posterior, tenosinovitis, rice body.

## Introduction:

Tibialis posterior tendon dysfunction presents one of the most challenging problems that a foot and ankle specialist faces<sup>1</sup>. Degeneration results from long-standing biomechanical problems, such as excessive pronation (often in obese people) or chronic tenosynovitis<sup>2</sup>. Three possible causes are (1) overuse or age related (mechanical in cause, true stage I disease), (2) seronegative spondyloarthropathies (clinical suspicion, hematologic analysis), and (3) rheumatoid arthritis (deformity may be owing to ligamentous or capsular destruction)<sup>3</sup>.

None of case of tibialis posterior tenosynovitis with non tuberculous rice body formation was reported with thorn prick injury followed by retained thorn piercing the tibialis posterior tendon in the literature. The patient and his father were informed that information regarding this case would be submitted for publication, and consent from father was taken.

## Case Presentation:

A sixteen years old boy presented to orthopedics out patient department after 3 months of thorn prick injury to left ankle joint on his medial side. He complain of pain and swelling on medial side of left ankle joint. He was treated at local hospital but pain and swelling partially subsided for initial 2 weeks. Pain and swelling increases gradually after two weeks. At the time of presentation (3 months after injury) patient was not able to put full weight on his left ankle joint. Swelling of 4cmx3cm present anterior and inferior to left medial malleolus along the course of tibialis posterior tendon (Fig.1 and Fig.2). Tenderness present over swelling.

Radiological evaluation was done

(fig. 3).CT Scan (Fig. 4) shows linear hyperdense foreign body ~ 15x2mm noted in the deep plane on the medial aspect of the ankle joint piercing the tendon of tibialis posterior. Tibialis posterior tenosynovitis was noted along with collection noted on the medial aspect of the ankle joint. Tibialis Posterior tendon was thickened and shows heterogenous densities. Significant free fluid noted within the tendon sheath of the tibialis posterior tendon. Diffuse oedema noted along the medial aspect of the ankle joint.

MRI left ankle joint (Fig.5) shows a linear T2 hypointensity, ~ 2cm in length with surrounding minimal hyperintense signal seen in periarticular soft tissue in the medial ankle region, extending up and piercing the tibialis posterior tendon with complete disruption/separation of the tendon fibres just antero-inferior to the medial malleolus level. Tendon appears to be stretched medially with surrounding small irregular fluid collection of size ~ 1.9cm x 0.6cm. Periarticular soft tissue oedema present in medial ankle region. Marrow odema of cuboid and middle third of the body of calcaneum present. Mild Tibiotalar joint effusion joint present.

Exploration was done through medial approach (Fig. 6). Intraoperatively there was rice body formation in the sheath of tibialis posterior tendon with thorn piercing it (Fig. 7). Tibialis posterior tendon was thickened with heterogenous densities (Fig. 8). Foreign body (thorn) of 1.8cm was removed (Fig. 9).

Wound closed in layers after debridement. Antiseptic dressing was done. Pus C/S was sterile and tissue sent for histopathological examination suggest non tuberculous inflammation. Patient remains asymptomatic after 5 yrs follow up.

## Discussion:

Posteriortibial tendon tenosynovitis is now a recognized entity no longer confused with chronic ankle sprain. Tenosynovitis is inflammation of tendon with the involvement of its synovial sheath. Without treatment, this inflammation causes thickening of peritendinous sheath, leading to subsequent enlargement and tendon fraying that may lead to degeneration and rupture. With improved clinical understanding and radio-graphics technique, diagnosis of PTT dysfunction has become more reliable, leading to better management<sup>3</sup>.

**Rice bodies** are multiple small loose bodies generally located within joints or bursae that resemble polished grains of rice. Rice body formation is generally a rare disorder related to rheumatoid arthritis. It can also be observed in cases of systemic lupus erythematosus, seronegative arthritis, infectious arthritis (tuberculosis, atypical mycobacterial infection<sup>4</sup>), nonspecific arthritis, and osteoarthritis. Multiple rice bodies of tendon sheaths are rarely encountered. Rice body formation may also be encountered without underlying systemic disorders<sup>5</sup>. A case report by Nagasawa et al and Tyllianakis M et al shows rice body formation in the flexor tendon sheath of the fingers without any inflammatory diseases such as tuberculosis or rheumatoid arthritis<sup>6,7</sup>.

This case report demonstrate tibialis posterior tenosynovitis with nontubercular rice body formation due to chronic irritation by penetrating thorn injury. Mechanical irritation due to retained thorn was responsible for tibialis posterior tenosynovitis and formation of rice bodies. Surgically removing the thorn and through debridement makes patient symptom free and no recurrence till 5 years

follow up.

**Conclusion:**

This is a very rare case showing tibialis posterior tenosynovitis along with non tuberculous rice body formation due to retained thorn following thorn prick injury. Mechanical irritation leading to chronic synovitis due to thorn was responsible for the tibialis posterior tenosynovitis and non tuberculous rice body formation. Treating clinician should have high index of suspicion for retained foreign material and the need for further imaging and Surgical exploration.

**Consent:**

The patient and his father were informed that information regarding this case would be submitted for publication, and consent from father was taken.



**Fig. 1**

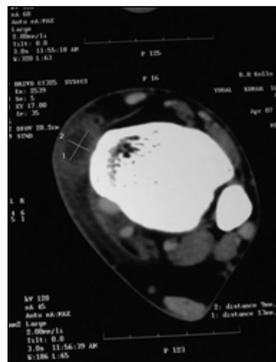


**Fig. 2**

**Fig.1 and Fig.2 Photograph showing swelling over medial side of left ankle joint from front and medial side.**



**Fig. 3 X-ray left ankle joint AP and Lat view showing soft tissue swelling over medial side.**



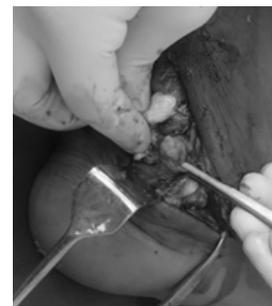
**Fig. 4 CT Scan showing Linear hyperdense foreign body ~ 15x2mm noted in the deep plate on the medial aspect of the ankle joint piercing the tendon of tibialis posterior.**



**Fig. 5 MRI showing A linear T2 hypointensity, ~ 2cm in length with surrounding minimal hyperintense signal seen in periarticular soft tissue in the medial ankle region, extending up and piercing the tibialis posterior tendon.**



**Fig. 6 Exploration of the sheath of tibialis posterior tendon.**



**Fig. 7 Rice body formation in the sheath of tibialis posterior tendon with thorn piercing it.**



**Fig. 8 Tibialis posterior tendon was thickened with heterogenous densities.**



**Fig. 9 Removed thorn**

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