

# Peroneal Split Syndrome

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## History

Teenage athlete with "ankle sprain".

## Diagnosis

Peroneus Brevis Tendon Rupture

## Discussion

Longitudinal tears of the peroneus brevis tendon is often referred to as peroneal split syndrome. Deficient peroneal retinaculum and crowded retromalleolar groove (low lying peroneal muscle belly, irregular retromalleolar groove and calcaneofibular ligament thickening) predispose to peroneus brevis tendon tears. During dorsiflexion of the foot, the peroneus brevis tendon is compressed between the peroneus longus tendon and the lateral malleolus, predisposing to a tear. Once a peroneus brevis tendon tear is initiated, the peroneus longus tendon migrates forward into the peroneus brevis tendon tear, thereby preventing healing.

On axial MR images, the torn peroneus brevis tendon has a characteristic C-shaped configuration, with formation of medial and lateral subtendons that partially envelop the peroneus longus tendon. Clefts, fragmentation, irregularity of tendon contour, and increased signal intensity on T1- and T2-weighted images are other common secondary findings in peroneus brevis tendon tear. Anterior displacement of the peroneus longus tendon leads to concomitant tear in up to one-third of cases. Two normal variants should be considered: 1) The tendon of the accessory peroneus quartus muscle can insert onto the peroneus brevis tendon and simulate a tear. 2) Occasionally the peroneus brevis tendon can be bifurcated and mistaken for a tear.

Treatment of peroneus brevis tendon tears is initially conservative. In refractory cases and in patients with associated chronic ankle instability, surgical intervention including debridement, resuturing, and attachment to the peroneus longus tendon (tenodesis) may be performed. Associated conditions such as peroneal retinaculum deficiency and etiologies of retromalleolar groove crowding can also be corrected surgically.

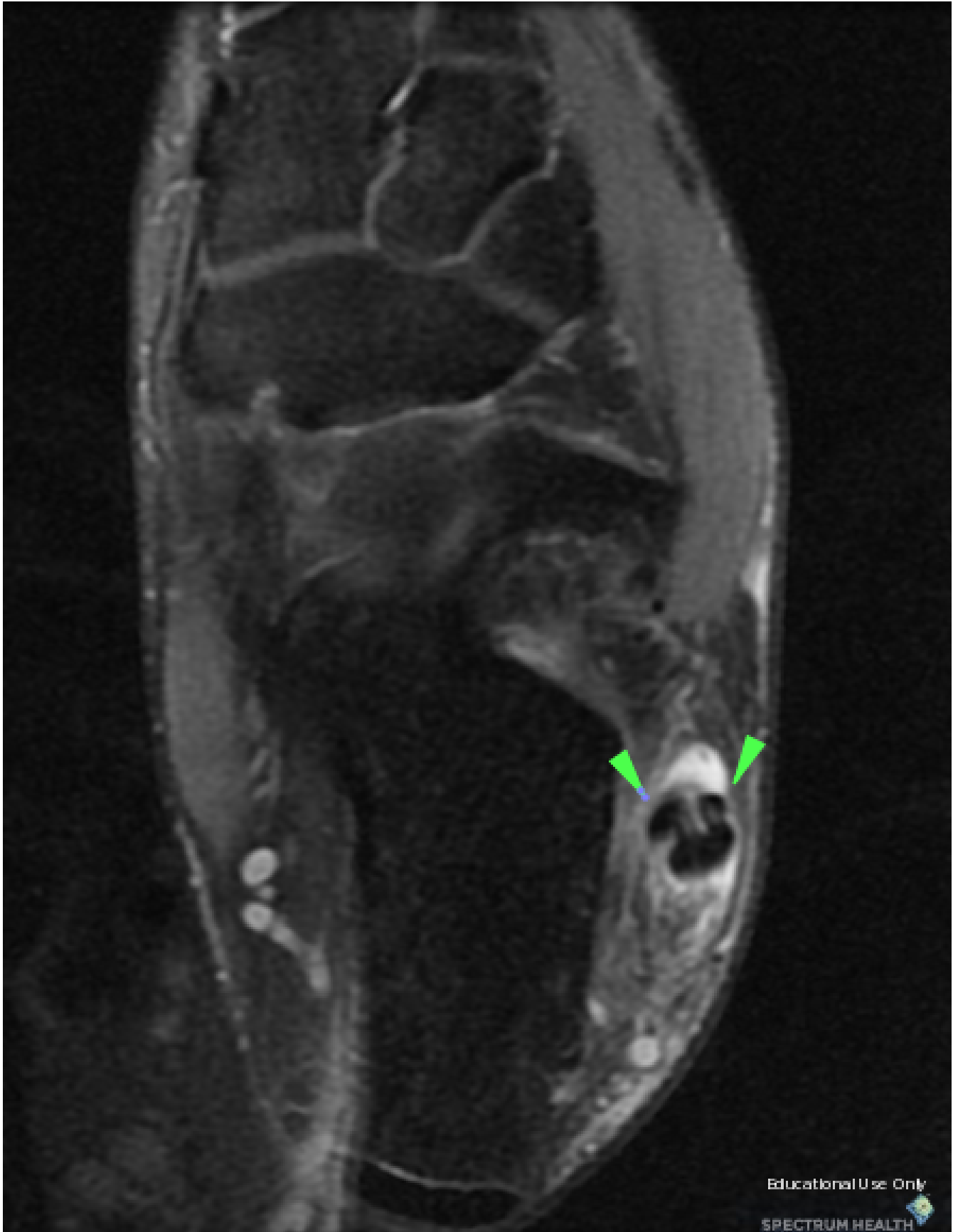
## Findings

MR-Axial T1 and T2 images show two subtendons (arrows on the T2 image) of the peroneus brevis with moderate peritendonous fluid in the retrofibular groove.

## Reference

Wang XT, Rosenberg ZS, Mechlin MB, et al. Normal Variants and Diseases of the Peroneal Tendons and Superior Peroneal Retinaculum: MR Imaging Features. *Radiographics* (2005); 25:587-602.





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