Os Trigonum Syndrome or Posterior Ankle Impingement (PAI)

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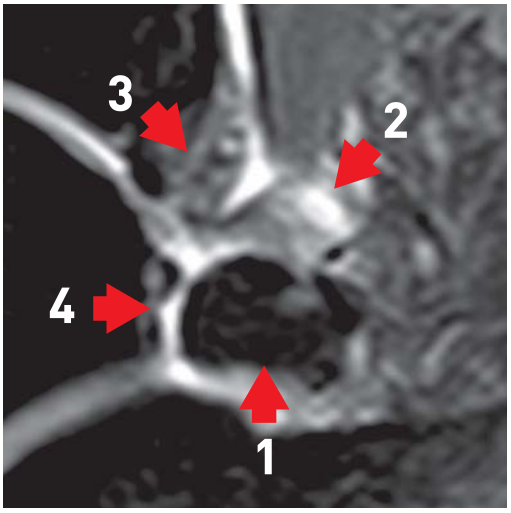
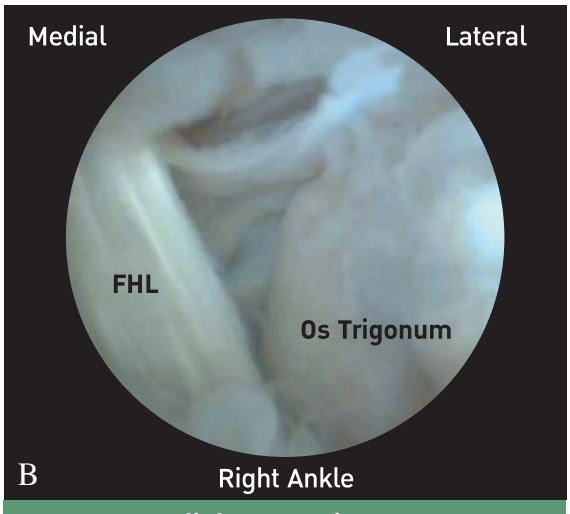
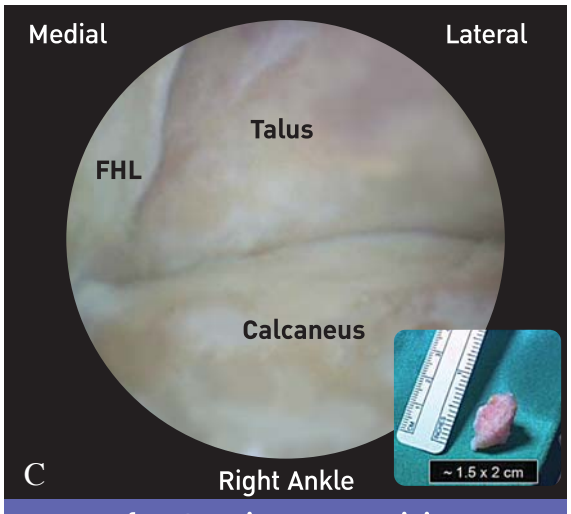


1 = Os trigonum
2 = Surrounding soft tissue edema
3 = Bone marrow edema of posterior tibia
4 = Synchondrosis edema



Medial to Os Trigonum
(Posterolateral Portal)



After Os Trigonum Excision
(Posterolateral Portal)

Os trigonum is an normal variant of an accessory bone found posterior to the talus. The os trigonum is present in around 5-15% of normal feet. Usually it is asymptomatic, until there is a minor to blunt injury on the anterior aspect of the foot. The injury becomes painful on the hyperplantarflexion test. The pain is located at posterolateral aspect of the ankle associated with swelling known as the 'os trigonum syndrome'[1,2] or posterior ankle impingement (PAI).

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A 26-year-old man presented with painful posterolateral aspect of the right ankle joint after sustaining a blunt injury on the anterior aspect of the right foot. Physical examination revealed tenderness on the posterolateral aspect of the right ankle. The hyperplantarflexion test was positive.

An MRI was performed for the right ankle, using the PDFS technique (Figure A). This showed the size of os trigonum to be 9x13mm (arrow 1), and with surrounding soft tissue edema (arrow 2), bone marrow edema at the posterior tibia (arrow 3) and synchondrosis edema at the posterior of the talus (arrow 4).

Os trigonum syndrome or PAI was diagnosed preoperatively. An operative arthroscopy showed os trigonum impingement at the posterior border of the tibia on the plantarflexion position. An os trigonum excision was then performed (Figure B-C).

Discussion

Os trigonum syndrome or posterior ankle impingement (PAI) results from sustained blunt foot trauma associated with pain and tenderness at the posterolateral aspect of the ankle joint. The MRI shows the lesion with bone marrow edema and surrounding soft tissue edema. Arthroscopy shows os trigonum impingement at the posterior border of the tibia on the plantarflexion position. This condition commonly occurs with ballet dancers. This is because the os trigonum affects the posterior tibia in the hyperextension position. This condition can also affect soccer players and other athletes.[3,4]

A different diagnosis is posterior tibia tendon dysfunction which is the most common complaint. It occurs after trauma, when the tendon becomes inflamed or torn and this may cause instability, resulting in flat foot.[5] Pain develops along the medial aspect of the foot and ankle. In contrast PAI pain develops on the posterolateral aspect.

Conclusion

Os trigonum syndrome or PAI is a condition with painful posterolateral aspect of the foot and/or hyperplantarflexion test after a blunt injury. The diagnosis is confirmed by an MRI scan. A conservative approach is the treatment of choice. The excision of os trigonum is indicated only when the patient does not improve with conservative treatment.

References

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