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Case report
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Os trigonum syndrome with clinical and radiological findings

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Abstract

Os trigonum is a rare accessory bone located posterior to the os talus. This bone develops as a secondary ossification center in the posterior of the talus between the ages of 7-13 years and fuses with the talus via synchondrosis within the following year. If this union does not occur, an accessory bone called the os trigonum is formed, which is usually asymptomatic. Os trigonum syndrome (OTS) refers to a clinical condition characterized by posterior foot pain during forced plantar flexion of the ankle due to compression between the posterior malleolus of the tibia and the tuber calcaneus. Diagnosis is based on the patient's clinical history, examination, and radiological findings. We present the case of an 18-year-old male with a history of an ankle sprain sustained during strenuous sports activity. Clinical evaluation revealed pain, swelling, and ecchymosis on the posterior foot. Magnetic resonance imaging (MRI) demonstrated an accessory os trigonum with medullary edema in the posterior talus, fluid accumulation, and flexor hallucis longus tenosynovitis. Conservative treatment involving a three-week break from sports and medical management was prescribed. This case highlights the importance of considering OTS in the differential diagnosis of posterior foot pain aggravated by plantar flexion.

Keywords: os trigonum syndrome, os trigonum, magnetic resonance

Introduction

The os trigonum is a triangular or oval-shaped accessory bone located posterior to the talus, first described as an anatomical variant by Rosenmüller in 1824 [1-3]. It is present in approximately 7-25% of the population. This bone develops as a secondary ossification center in the posterior talus between the ages of 7-13 years. If this center fails to fuse with the talus, it remains as an independent accessory bone known as the os trigonum [1, 2].

Os trigonum syndrome (OTS) refers to posterior foot pain resulting from compression of the os trigonum between the posterior malleolus of the tibia and the tuber calcaneus during forced plantar flexion—a phenomenon described as the "nutcracker mechanism" [3-5]. Also known as talar compression or posterior ankle impingement syndrome, OTS can be triggered by repetitive microtrauma or acute injury, particularly in sports-related activities [2, 4].

This report presents a case of OTS diagnosed following an ankle sprain, emphasizing clinical and radiological findings, which underline the diagnostic challenges and therapeutic considerations.

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
No conflict of interest was declared by the authors.

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Case presentation

An 18-year-old male presented to the orthopedic outpatient clinic with complaints of right ankle pain and swelling after a sports-related injury. Clinical examination revealed pain, edema, and ecchymosis localized to the posterior foot. Radiological imaging was conducted using a GE Signa Explorer 1.5 Tesla MRI, obtaining multiplanar T1, T2, and fat-suppressed sequences (Figure 1-4).

MRI findings revealed:

- An accessory bone consistent with the os trigonum.
- Medullary edema in the posterior talus.
- Increased fluid in the surrounding area.
- Signal changes indicative of flexor hallucis longus tenosynovitis.
- Edema and hyperintensity in the posterior subcutaneous tissue.

These findings confirmed the diagnosis of OTS. Conservative treatment, including a three-week break from sports and the administration of anti-inflammatory medication, was prescribed.

Figure 1. Sagittal T1-Weighted MR examination; accessory bone tissue compatible with the os trigonum in the posterior of the talus.

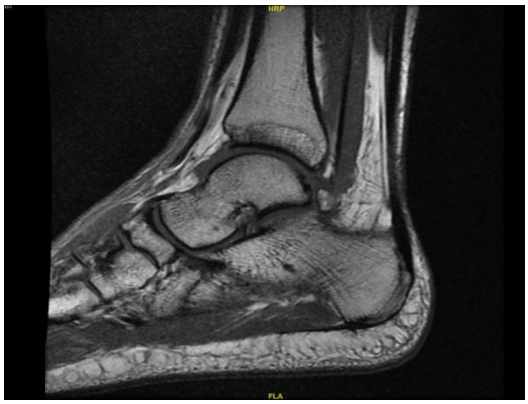


Figure 2. In T2-Weighted MR examination with sagittal fat suppression; increased fluid around the os trigonum.

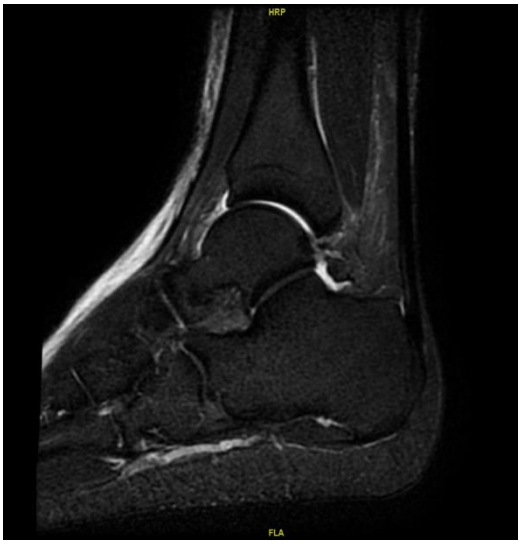


Figure 3. In T2-Weighted MR examination with sagittal fat suppression; increased edematous signal in the talus and calcaneus posterolateral

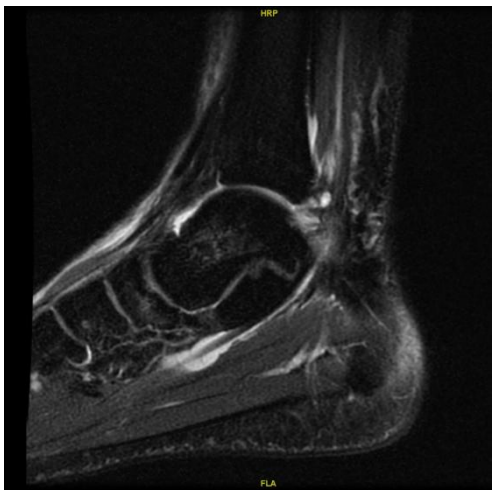
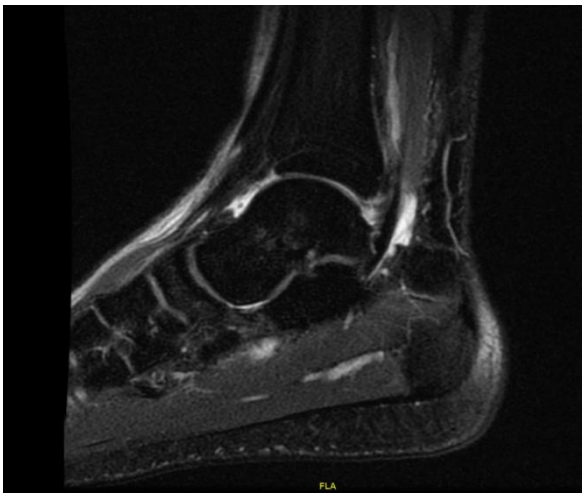


Figure 4. In the fat-suppressed T2-A MR examination; Increased signal in the flexor hallucis longus tendon consistent with tenosynovitis



Discussion

Os trigonum syndrome commonly presents as posterior ankle pain due to repetitive plantar flexion during high-impact activities. Diagnosis is typically based on patient history, clinical examination, and imaging findings [1, 4].

In this case, clinical examination revealed tenderness over the posterior talus and increased pain with forced plantar flexion. Radiological findings, including the presence of an os trigonum and associated inflammation, supported the diagnosis.

Primary treatment for OTS is typically conservative, involving rest, nonsteroidal anti-inflammatory drugs, and physical therapy [1, 6]. Advanced interventions, such as ultrasound or fluoroscopy-guided injections, are considered for refractory cases. Surgical excision may be indicated for athletes who experience persistent symptoms despite conservative management, with favorable outcomes reported in ballet dancers and football players [7, 8].

Recent studies highlight the role of endoscopic techniques for os trigonum excision, offering reduced complication rates and faster recovery compared to open surgery. MRI plays a crucial role in preoperative planning by identifying tendon pathologies, osteochondral lesions, and associated soft tissue inflammation [9, 10].

Conclusion

In conclusion, OTS should be considered in the differential diagnosis of posterior foot pain, particularly in individuals engaged in activities requiring forced plantar flexion.

References

1. Lee JC, Calder JD, Healy JC. Posterior impingement syndromes of the ankle. Semin Musculoskelet Radiol. 2008;12:154-69.
2. Terzi R, Duygulu G, Özer T. Os trigonum syndrome: A rare cause of foot pain. Turk J Osteoporos. 2015;21:145-8.
3. Akpınar F, Tosun N, Aydınlıoğlu A, Alış T, İslam C. Painful bilateral posteromedial os trigonum: A case report. Acta Orthop Traumatol Turc. 1996;30:437-40.
4. Karasick D, Schweitzer ME. The Os trigonum syndrome: Imaging features. AJR Am J Roentgenol. 1996;166:125-9.
5. Reddy VK. Os trigonum syndrome. Int J Biomed Adv Res. 2015;6:60-3.
6. McAlister JE, Urooj U. Os Trigonum Syndrome. Clin Podiatr Med Surg. 2021;38(2):279-90.
7. Robinson P, Bollen SR. Posterior ankle impingement in professional soccer players: effectiveness of sonographically guided therapy. AJR Am J Roentgenol. 2006;187:53-8.
8. Heyer JH, Dai AZ, Rose DJ. Excision of os trigonum in dancers via an open posteromedial approach. JBJS Essential Surgical Techniques. 2018;8(4):e31.
9. Cooper MT, Park JS. Posterior Ankle and Hindfoot Endoscopy. In MRI-Arthroscopy Correlations: A Case-Based Atlas. Cham: Springer; 2022:541-53.
10. Maffulli N, Aicale R, Migliorini F, Wagner E, Saxena A, Oliva F. The double posteromedial portal endoscopy for posterior ankle impingement syndrome in athletes. J Orthop Traumatol. 2022;23(1):28.