A Rare Cause of Heel Pain

A Calcaneal Spur Fracture

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Heel pain is a complaint frequently encountered in orthopedic clinics that has peculiar symptoms and may have various etiologic causes. Calcaneal spur fracture is an extremely rare cause of heel pain, and only four cases had previously been reported in the English language literature. We present a 45-year-old woman who had heel pain on her right foot after falling from a height onto the heel. Radiographic examination of her right foot showed a fractured calcaneal spur, which was successfully treated with conservative methods. Calcaneal heel pain is a complaint that may be attributable to many different etiologic causes, which often have specific symptoms, and we frequently encounter them in the orthopedic clinic. Calcaneal spur fracture after trauma should be remembered in the differential diagnosis of heel pain as a rare cause. Our case is the fifth reported case in the English language literature of this extremely rare condition. (J Am Podiatr Med Assoc 109(2): 172-173, 2019)

The heel is a frequent area of pathology. Pain in the heel may be the result of arthritic, neurologic, traumatic, or other systemic conditions, although the overwhelming cause is mechanical in origin. Acute trauma to the calcaneus is the most common osseous cause of heel pain.[1] In nearly all cases, the mechanism of injury is a fall from a height onto the heel. In less severe injuries, more focal symptoms are found that correspond to the anatomical area of the fracture. These include isolated injuries to the sustentaculum tali or the plantar calcaneal tubercles, avulsion of the posterior aspect of the tuber, or even fracture of the inferior calcaneal spur.[2] A literature search and exhaustive online search using various search engines indicated only four reported cases of a plantar calcaneal spur fracture. Our case is only the fifth reported case in the English language literature of this extremely rare condition.

Case Report

A 45-year-old woman was admitted to our Department of Orthopedics and Traumatology with right foot heel pain after falling from a height onto the heel in July 2015. She was unable to bear weight on her right foot. There was no medical history. On physical examination, there was no swelling or atrophy of the heel pad, or any limitation of range of motion of the foot and ankle. The calcaneal spur area was acutely painful to palpation, but no other associated area of tenderness was identified. There were no signs for inflamation (eg, erythrocyte sedimentation rate, C-reactive protein), and serum electrolyte values were normal.

Following physical evaluation, appropriate radiographs (weightbearing views) indicated a fracture of the inferior calcaneal spur on the right foot (Fig. 1). Conservative treatment consisting of a short leg cast, oral anti-inflammatory drugs, home cryotherapy, and limitation of extended (high-impact) physical activities were given to the patient. The patient was followed up for 2 years, and there was no pain on the heel pad. Written informed consent was obtained from the patient involved.

Discussion

Plantar calcaneal spur originates from the calcaneal tuberosity, located on the posterior plantar surface of the calcaneus. The majority of plantar calcaneal spurs arise from the medial process of the tuberosity.[3] Plantar heel pain is the most prevalent complaint causing patients to present to foot and

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Figure 1. Lateral foot radiograph showing a fracture of the inferior calcaneal spur on the right foot.

ankle specialists. In nearly all cases in the literature, the mechanism of injury was a fall down stairs, an injury while swimming at a local pool, attack by a monkey, and accidentally slipping.[4-7]

Treatment is directed toward the causative factors. Initial treatment options for plantar heel spur may include padding and strapping of the foot, therapeutic orthotic insoles, oral anti-inflammatory drugs, extracorporal shockwave therapy, and surgical excision (eg, plantar fasciotomy and heel spur resection).[1]

However, there is limited experience with the management of calcaneal spur fractures. There are four previous reports of similar fractures in the literature. In the case of Subaşi et al[4], the patient was treated surgically; however, in cases of Burks and Buk,[5] Nawghare et al,[6] and Esmadi et al,[7] the patients were treated with a conservative approach. The patient in our case was also treated successfully by means of a conservative approach.

In conclusion, calcaneal heel pain is a complaint that may be attributable to many different etiologic causes, which often have specific symptoms, and we frequently encounter them in the orthopedic clinic. Treatments that are adminstered without determining the exact cause of the pain do not provide any benefit and can make the injury more painful. Calcaneal spur fracture after trauma should be remembered in the differential diagnosis of heel pain as a rare cause.

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References

1. Thomas JL, Christensen JC, Kravitz SR, et al: The diagnosis and treatment of heel pain: a clinical practice guideline-revision 2010. J Foot Ankle Surg **49**(suppl)**:** 1, 2010.
2. Ozdemir H, Ozdemir A, Soyucu Y, et al: The role of bone scintigraphy in determining the etiology of heel pain. Ann Nucl Med **16:** 395, 2002.
3. Kirkpatrick J, Yassaie O, Mirjalili AO, et al: The plantar calcaneal spur: a review of anatomy, histology, etiology and key associations. J Anat **230:** 743, 2017.
4. Subaşi M, Kapukaya A, Kesemenli C, et al: Rarely seen fractures [in Turkish]. Ulus Travma Derg **7:** 282, 2001.
5. Burks JB, Buk A: Bilateral fractures of the infracalcaneal exostosis. J Foot Ankle Surg **42:** 43, 2003.
6. Nawghare SP, Kolwadkar YV, Singh PK: Non-union of a plantar calcaneal spur fracture: a case report. Foot Ankle Int **1:** 2, 2008.
7. Esmadi M, Ahsan H, Ahmad DS: Fracture of calcaneal spur. Hong Kong J Radiol **15:** 244, 2012.