

Bilateral Paired Calcaneal Spur: A Rare Entity

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Learning Point of the Article:

A bilateral paired calcaneal spur is a rare radiological entity and has not been reported yet in the literature.

Abstract

Introduction: Heel pain is one of the most common painful conditions of the foot. There are many causes of heel pain, which are usually associated with calcaneal spurs. Hence, it becomes imperative to diagnose and treat them effectively. The development of calcaneal spur is somewhat not well known but is often said to be developed from inflamed plantar fascia. Heel being weight-bearing part of the body, it is very painful something and adversely affects the activity of daily living. Calcaneal spurs are fibrocartilaginous triangular projections from an insertional area of the plantar fascia. Calcaneal spurs are usually single in number but can vary in size. Paired or double calcaneal spurs are not yet reported in the literature and further, the occurrence of bilateral paired calcaneal spurs is extremely rare too. The aim of this case report is to report the occurrence of bilateral paired or double calcaneal spurs.

Case Report: A 56-year-old man presented himself at the orthopedics outpatient department with spontaneous onset bilateral heel pain for the past few months. The pain was more in the morning as soon as he gets up from bed and persisted throughout the day with variable intensity.

Conclusion: The presence of calcaneal spur is usually symptomatic and may be asymptomatic sometimes. The presence of symptomatic bilateral paired calcaneal spur is rare and the present case report may be helpful for further study.

Keywords: Paired calcaneal spur, calcaneal spur, heel pain, plantar fasciitis.

Introduction

Plettner [1] in 1990 described exostoses of the heel bone. Calcaneal spurs are fibro-cartilaginous triangular projections arising from an insertional area from the calcaneus (calcaneal tuberosity) and with variable sizes described by Kuyucu et al. [2]. Şahin and Sabri Balik [3] have studied the correlation of heel pain with various slope and length of the calcaneal spur and found that slope of $<30^\circ$ and length of <10 mm do not create much pain. Two types of calcaneal spur have been reported depending on their location, dorsal calcaneal spur on dorsum of calcaneus, and

plantar calcaneal spur on the plantar surface [4]. Further Zhou et al. [5] described another two types of calcaneal spurs, Type A calcaneal spurs which are present superior to the plantar fascial insertion, and Type B calcaneal spurs present within the plantar fascia.

Plantar calcaneal spurs may arise from medial or lateral calcaneal tuberosity. Calcaneal tuberosity is related to the plantar fascia, which is a dense connective tissue rich in fibrocytes. Plantar fascia is attached to the medial aspect of the calcaneal tuberosity and extends to the digits of the foot. The latter is supposed to

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Author's Photo Gallery



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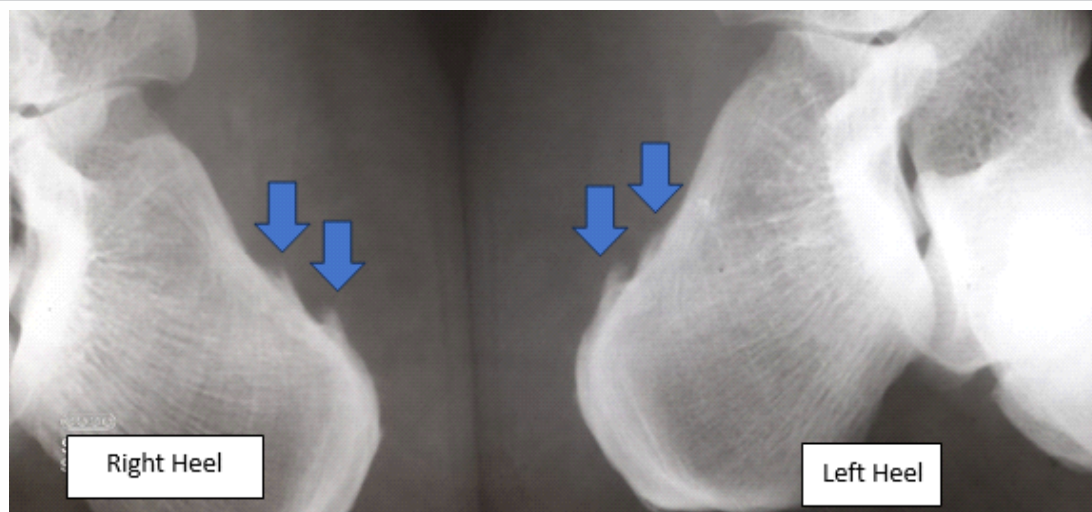


Figure 1: X-ray of both heels shows paired bilateral calcaneal spur. Arrowhead indicate paired calcaneal spur in both heels.

maintain the medial foot arch and act as a shock absorber during weight bearing [4].

Case Report

A 56-year-old man presented himself at orthopedics outpatient department with spontaneous onset bilateral heel pain for the past few months. The pain was more in the morning as soon as he gets up from bed

and persisted throughout the day with variable intensity. He has no medical comorbidities such as obesity, diabetes, hypertension, autoimmune disease, and rheumatic disorder. He was a sedentary office worker with no history of smoking; however, he was a social drinker.

His both heel's physical examination revealed point tenderness over the medial aspect of both heels on the plantar aspect with mild swelling. His medial plantar arch was well maintained and no neurological disturbance over the foot was detected.

Based on clinical presentation, diagnosis of plantar fasciitis was made and he was advised for a plain X-ray of both heel axial and lateral view which revealed a bilateral paired calcaneal spur (proximal spur was about 4 mm long and distal spur 3 mm long in both heel), as shown in Figure 1. Ultrasonography of both heels showed thickened plantar fascia. Other hematological and rheumatological investigations were unremarkable, as shown in Table 1.

There are various pharmacological and non-pharmacological treatment modalities available. Still, patients are usually suffering from heel pain due to the lack of standardized treatment modalities used clinically. Non-pharmacological treatment modalities include ultrasound, radiofrequency, extracorporeal shock wave therapy, laser therapy, silicon medial arch support, modified shoes, splints, physiotherapy, stretching, and taping. Pharmacological therapy includes non-steroidal anti-inflammatory drugs, local steroids infiltration, and local infiltration of steroids combined with a long-acting local anesthetic agent. Our patient received combined pharmacological therapy (non-steroidal anti-inflammatory drugs, Naproxen 500 mg twice a day for 7 days and non-

Characteristics	Values
Age	56
Sex	male
Hemoglobin (G%)	12.3
Erythrocyte sedimentation rate	08 mm/h
C-reactive protein	<1.2
RA factor	<5 IU/mL
HLAb27	Negative
Hb1Ac (mean standard deviation)	5.0±1.14
Serum uric acid (mg/dL)	4.6
Body mass index (kg/m ²)	21.8
Serum cholesterol (mg/dL)	214
Serum cal (mg/dL)	9.21
Serum Vitamin D(ng/mL)	49.32
Serum alk phos (mg/dL)	81.21
Serum creatinine (mg/dL)	0.67
Serum phosphorus (mg/dL)	2.5
Bone mineral density t score	-1.3 ±1.23
Z score	-0.99 ±1.10

Table 1: Demographical data and hematological parameters.

pharmacological treatment modalities, ultrasound therapy with the dose at 0.5 w/cm², 3 MHz, pulsed 1:4, for 8 min, for 7 days, with this combined therapy, he has improved as far as in pain intensity is concerned.

Discussion

Calcaneal spur arises from the calcaneal tuberosity, situated at the posterior plantar surface of the calcaneus. However, usually, calcaneal spurs arise from the medial aspect of calcaneal tuberosity, but they can also arise from the lateral processes and the sulcus [6, 7, 8]. Many authors recorded the variable anatomical appearance of calcaneal spurs as simple or irregular [9, 10]. Duvries [11] and Brody [12] recorded that the simple calcaneal spurs are triangular with a sharp point and with a wider base. Rubin and Witten [8] and Resnick et al. [10] have described calcaneal spurs as smooth sclerotic cortical borders and well-developed trabeculae.

Conventionally, plantar fasciitis was considered an inflammatory condition; however, recent studies have shown a degenerative process [13]. Repeated biomechanical stress and microtrauma by prolonged running, standing jumping, or parade, thus causing microtears at the calcaneal fascia's and are responsible for the degeneration of the plantar fascia [14].

Many studies reported the presence of calcaneal spur in 75.9–89% of the cases with plantar fasciitis [2, 3, 15]. However, the presence of calcaneal spurs in asymptomatic patients was

reported in 16–46% in various studies [2, 15, 16]. Vaish and Vaishya also reported painful non-union of broken calcaneal spur [17]. Later on, Aliessa [18] reported a fracture of the calcaneal spur following the fall.

The presence of calcaneal spur is usually symptomatic and may be asymptomatic sometimes. Various types of calcaneal spur have been described in the literature such as its length, slop, location, types, and fractured spur may affect the intensity of pain and management protocol. However, the presence of symptomatic bilateral paired calcaneal spur has not yet been reported in the literature so far.

Conclusion

The presence of calcaneal spur is usually symptomatic and may be asymptomatic sometimes. The presence of symptomatic bilateral paired calcaneal spur is rare and the present case report may be helpful for further study.

Clinical Message

Various types of calcaneal spur have been described in the literature such as short, long, sloped, and fractured; however, bilateral paired calcaneal spur has not been reported so far in the literature.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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