

Role of Physiotherapy in Middle-Aged Patient with Calcaneal Spur - A Case Report

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ABSTRACT

Introduction: A calcaneal spur is a bony protrusion that occurs in the bottom section of the calcaneus, the most typical area for calcaneal spurs to grow, it is also known as a heel spur. Calcaneal spurs are frequently connected with plantar fasciitis-related heel pain. The calcaneus is an afoot skeleton component that provides posterior support for the foot's bony arches. The heel prominence is produced by the calcaneum, the largest, strongest, and longest of the seven tarsal bones. An osteophytic protrusion (calcaneal or heel spur or enthesophytes) extends throughout the whole breadth of the calcaneal tuberosity, for around 2-2.5 cm. The spur's peak is trapped by the plantar fascia, which is directly anterior to the spur's origin. Calcaneal spurs are asymptomatic unless they are manually activated and inflamed when they cause localized acute discomfort. A case of a heel spur in a 35-year-old woman is identified in this case study. The calcaneal spur was painful, which was associated with plantar fasciitis and impaired her foot function and the patient was treated conservatively.

Discussion: The woman was diagnosed with a unilateral calcaneal spur in this situation, was middle-aged and had no chronic condition, so she was treated conservatively. This case contradicts the correlation between the duration of the calcaneal spur and the symptoms of plantar fasciitis. The causes that lead to this disorder are being overweight, training sports, straining feet.

Conclusion: Physiotherapy aided by medical aids is the most sustainable process. Not every event, however, gives the expected results. Surgical therapy should be used if non-sustainable techniques are not possible.

Keywords: Heel pain, Plantar fasciitis, Physiotherapy, Calcaneal Spur, Middle-aged Patient.

INTRODUCTION

The most typical location for a bony spur is the calcaneal spur or entophyte, which is an irregular bone protrusion from the fibrocartilaginous attachment site, specifically the plantar fascia ligament. (1) The osseous spurring of the calcaneus plantar portion was originally identified by German doctor Plattner in 1900 when he coined the name Kalkaneussporn (calcaneal

spur). It is divided into two types: dorsal/posterior and plantar/inferior (2). Overweight, micro-trauma, pes planus, aging, and specific sports habits such as running and jumping all contribute to the formation of heel spurs. Heel pain is frequently caused by calcaneal spurs. (3) Kuyucu et al. looked into the link between calcaneal spur length and plantar fasciitis and discovered that the size of the calcaneal

spur has an impact on heel discomfort and function. The goal is to see if severe heel pain can be linked to a calcaneal spur. In middle-aged women, we present a case of a shallow calcaneal spur that is painful and affects their foot function. (1) (4)

Calcaneal spurs are usually asymptomatic, but when they become inflamed, they cause intense local pain. The pain is caused by the irritation and inflammation of the fibers caused by the plantar fascia's insertion at the level of the medial tuberosity of the heel. Painful calcaneal spurs have been linked to plantar fasciitis and, less frequently, inflammatory systemic diseases. (5)

Pain occurs by the spur size, the level of compression of the inferior calcaneal nerve, spur inflammation, thinning and distortion of the fat layer surrounding the heel, and the presence of plantar fasciitis. (6)

Physiotherapy is an option for medication and surgery for persons with calcaneal spurs (CS). (7) Orthoses, kinesiotherapy, corticosteroid therapy, iontophoresis, laser, ultrasound (US), and phonophoresis are some of the physiotherapy therapies for CS.(8)

Electrotherapy's heat in the tissues causes congestion, increased metabolism, increased collagen fiber extensibility, decreased muscle tone, increased enzyme activity, changes in nerve conduction, decreased joint stiffness, and pain relief. (9)

PATIENT INFORMATION

A 36 yr. the old woman who is a housewife lives in Katol, Dist. Nagpur came to the clinic and presented with a history of unilateral heel pain on the left foot which was gradual in onset and had begun two months before the presentation. The discomfort was primarily felt on the medial side of the heel. Pain aggravates performing tasks such as walking, jogging, or in a long standing position and relieves on rest. She characterized the pain she feels when she first gets out of bed in the morning or takes

her first steps after sitting as a stabbing pain or a pin lodged in the bottom of her feet that she can feel for a long time. She denied that she had ever had an injury to her left foot, but she did admit that the pain went away when she rested. She also didn't have any serious medical conditions and wasn't involved in any organized athletic activity. When she was examined, her foot appeared to be normal, with no visible deformities. She walked with a natural stride. On the left foot, deep probing revealed a palpable bony projection from the calcaneus deep in the plantar soft tissue, as well as discomfort at the plantar fascia attachment site. The left ankle and subtalar joints had a typical range of motion, but no new bony prominences were discovered. The first line of treatment was a systemic anti-inflammatory medicine with a heel pad, with daily monitoring. In addition, she was recommended for physiotherapy treatment. The pain improved one month later, being sporadic and presenting only as a dull ache. The woman was able to deal with the pain, and her left foot was able to regain full function without interfering with her daily duties.

CLINICAL FINDINGS

She had a normal foot with no visible deformities when she was examined. She exhibited a natural gait. Deep in the plantar soft tissue on the left foot's heel pad, there was a palpable bony projection from the calcaneus, as well as discomfort with deep probing at the plantar fascia's link to the calcaneus. The left ankle and subtalar joints had a normal range of motion, but there were no extra bony prominences.

The patient's medical history and physical examination findings are used to make a diagnosis. The use of an X-ray to confirm a diagnosis is common, but other diagnostic aids are also used. Radiography can identify the creation of calcaneal spurs or calcification at the insertion of the Achilles tendon or the origin of the plantar fascia. There is seldom an MRI needed.



Fig. 1: At the base of the calcaneus, a simple lateral radiograph showed a well-defined, bony projection, which is recognized as a calcaneal spur.

PHYSIOTHERAPY MANAGEMENT

The primary goal of the treatment of calcaneal spurs is to relieve pain. A professional orthopedic physiotherapist provided regular physiotherapy treatment to the patient for ten days. The purpose of the session was to relieve the patient's suffering, therefore we employed heat therapy to relax tense muscles and boost oxygen and blood flow to the affected area, while cold therapy was used to minimize inflammation and pain. Leg muscles were stretched and reinforced more passively and actively. The goal of the physiotherapy sessions was to reduce inflammation around the spur.

Phase 1 for 2-3 days

The patient was given an ultrasound for 10 minutes along with active and passive stretching of muscles of the leg. The patient was taught and advised to perform contrast baths at home regularly.

Phase 2 for 4-7 days

Along with stretching, the strengthening of the muscles of the leg and resistance exercises were also started. Conservative treatments for bone spurs can help relieve symptoms, but they don't always address the source of your pain. After a week, improvement was seen and the patient scored 6 on VAS as at the beginning of the treatment her pain was 10 on the Visual Analog Scale.

Follow up and outcomes

The patient was able to walk with minimum pain by the end of the session. She was willing to do physiotherapy and was well motivated and did whatever was asked her to do. The home exercises program was also taught to the patient and she did it regularly and also visited the department regularly. The patient was psychologically fit which was a positive factor that helped to treat her properly.

DISCUSSION

Calcaneal spurs are one of the most difficult problems faced by physiotherapists in many parts of the world. There are different physiotherapeutic strategies to relieve heel pain.(2)

In clinical practice, physiotherapists see that plantar fasciitis can be treated by many techniques, such as ultrasound therapy, plantar fascia & calf stretching, taping, and shoe inserts, but these strategies do not respond to much of the calcaneal spur. According to the study, just 10% of people with plantar fasciitis have heel pain. (1) Plantar fasciitis is thought to be linked to the development and presence of calcaneal spurs; however, this is debatable, and there is little data to back up this claim. (5)

A calcaneal spur is a source of heel discomfort that is not a normal part of the bone's development, according to the majority of research, and it is correlated

with plantar fasciitis in 80 percent of instances. In 30 % of the population, the calcaneal spur is sometimes asymptotically presents. (6) Spondylitis, rheumatoid arthritis, psoriatic arthritis, Reiter syndrome, and acromegaly are just a few of the systemic diseases that can be linked to a calcaneal spur. Furthermore, obesity, aging, pes planus, long-standing jobs, and sports aggravate spur formation and foot pain. (10) However, unilateral spurs are generally found in most instances of heel pain and account for 70 percent. The length of the calcaneal spur was found to be a significant factor in the severity of morning rigidity. Furthermore, the length of the spur was proportional to both age and BMI. (8)(11) In addition to anti-inflammatory drugs, heel pads, and orthoses, stretching exercises, conservative treatments include viscous elastic heel pads, heel cuffs, and custom-made orthoses. (7)

CONCLUSION

The calcaneal spur was not found to be the cause of plantar fasciitis in this case. In an active middle-aged adult with no chronic disease who was treated conservatively for a calcaneal spur with plantar fasciitis. Otherwise, with conservative care, this patient's condition might not have improved significantly, demonstrating, at least, in this case, that size does not matter. In this case, the physiotherapy sessions' recovery program resulted in a slow but effective regression, as well as an increase in dorsal and plantar flexion joint mobility. Spurs can be caused by a variety of factors, including increased age and weight, concurrent orthopedic diseases, and heel pain. Gender may influence spur development and plantar heel discomfort. Plantar calcaneal spurs, rather than longitudinal calcaneal entheses strain, are an adaptive response to vertical heel compression, according to these findings. As a result, calcaneal spurs are a cofactor or association for heel pain. Physiotherapy aided by medical aids is the most sustainable process. Not every event,

however, gives the expected results. Surgical therapy should be used if non-sustainable approaches are not appropriate.

There is no question that every patient reclaims every form of care individually.

The proposed treatment is conservative and includes locally applied physiotherapy such as TENS current, ultrasound, and passive/active stretches.

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Informed Consent- The patient gave written informed consent to the publication of this case report.

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REFERENCES

1. Alatassi R, Alajlan A, Almalki T. Bizarre calcaneal spur: A case report. *Int J Surg Case Rep.* 2018 Jun 22;49:37–9.
2. Kullar JS, Randhawa GK, Kullar KK. A study of calcaneal enthesophytes (spurs) in the Indian population. *Int J Appl Basic Med Res.* 2014 Sep 1;4(3):13.
3. Tote D, Rawekar A. Perception Regarding Narrative and Reflective Writing among Fellowship Candidates. *J Clin Diagn Res.* 2020 Feb 1;14.
4. Singh S, Jajoo S, Shukla S, Acharya S. Educating patients of diabetes mellitus for diabetic foot care. *J Fam Med Prim Care.* 2020 Jan;9(1):367–73.
5. Zhou B, Zhou Y, Tao X, Yuan C, Tang K. Classification of Calcaneal Spurs and Their Relationship With Plantar Fasciitis. *J Foot Ankle Surg Off Publ Am Coll Foot Ankle Surg.* 2015 Aug;54(4):594–600.
6. Ahmad J, Karim A, Daniel JN. Relationship and Classification of Plantar Heel Spur in Patients With Plantar Fasciitis. *Foot Ankle Int.* 2016 Sep;37(9):994–1000.

7. Costantino C, Vulpiani MC, Romiti D, Vetrano M, Saraceni VM. Cryoultrasound therapy in the treatment of chronic plantar fasciitis with heel spurs. A randomized controlled clinical study. *Eur J Phys Rehabil Med.* 2014 Feb;50(1):39–47.
 8. Rosenbaum AJ, DiPreta JA, Misener D. Plantar heel pain. *Med Clin North Am.* 2014 Mar;98(2):339–52.
 9. Easing the pain of plantar fasciitis. To relieve heel pain, simple therapies may be all you need. *Harv Womens Health Watch.* 2007 Aug;14(12):4-5. PMID: 17722355.
 10. Tidke PK, Bajpayee N. Keratoglobus after Long-Standing Keratoconus - A Rare Case. *J Evol Med Dent Sci.* 2021 Feb 8;10(6):394–8.
 11. Flicek BF. Heel spurs and plantar fasciitis: an update on therapies. *Adv Nurse Pract.* 2006 Jan;14(1):61–2.
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