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A retrospective study of analysis of incidence of calcaneal spur in a tertiary care hospital in South India

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Abstract
Introduction: Heel pain is a problem frequently seen in orthopaedic practice. [1] Many patients with heel pain have been often diagnosed with 'heel spurs'.
Materials and methods: Retrospective study consisting of 150 patients was conducted at Sri devi Institute of medical sciences and research hospital, Tumkur from January 2019 to December 2019.
Results: Out of the 150 X-rays included in the present study, 108 patients (72%) had calcaneal spurs at Achilles insertion, plantar or both. Among 108 patients with calcaneal spur, 67(62%) were female patients. Most common age group affected was 40-50 years age group and the incidence of spurs both in plantar and the site of insertion of Achilles is 25% of total calcaneal spurs.
Conclusion: Incidence of calcaneal spur in present study is 72%.

Keywords: heel pain, calcaneal spur, X-ray

Introduction
Heel pain is a problem frequently seen in orthopaedic practice. [1] Many patients with heel pain have been often diagnosed with ''heel spurs ''. Such a diagnosis resulted from an X-ray that revealed some extra bone where the plantar fascia attaches to the calcaneus. This extra bone is called spur. [2]
Osseus spurring of the plantar aspect was first documented in 1900 by a German physician Plettner, who coined the term Kalkaneussporn (calcaneal spur) [3]
Calcaneal spur is also known as heel spur. It is of two types based on its location at the calcaneus. It is said to be dorsal heel spur or Achilles spur if outgrowth is located at the back of the heel and as a plantar spur or calcaneal spur if the outgrowth is located under the sole. [4]

Materials and methods
This retrospective study consisting of 150 patients was conducted at Shri devi Institute of medical sciences and research hospital, Tumkur from January 2019 to December 2019.
All patients presenting with heel pain at for least three months and pain scores as per Wong Bakers criteria more than 4, attending the outpatient department of orthopaedics were included in the present study.
Patients with history of previous ankle fracture or surgery, inflammatory joint disease, foot deformities, and patients who had undergone surgical correction for plantar fascitis were excluded in the present study.
Consent was not taken from patients because the present study is a observational study.
A total of 150 X-rays of ankle lateral view were taken for diagnosis of the spur. All the X-rays were reviewed by a senior radiologist.
In patients who presented with bilateral heel pain, only one side was randomly chosen.

Results
Out of the 150 X-rays included in the present study, 108 patients (72%) had calcaneal spurs at insertion of Achilles, plantar or both.
Out of 108 patients with calcaneal spur, 67 (62%) were female patients.
Most common age group affected was 40-50 years age group.

The incidence of spurs both in plantar and at the site of insertion of Achilles is 25% of total total calcaneal spurs.

Table 1 gives the calcaneal spur in patients with posterior heel pain.
Table 2 gives the calcaneal spur in patients as per age group and site.

Table 1: Calcaneal spur in patients with posterior heel pain

Gender	With spur	Without spur	Total patients
Male	41	67	108
Female	34	08	42
Total	75	75	150

Table 2: Calcaneal spur in patients as per age group and site

Age group years	Plantar spur		Achilles spur		Combined spur	
	Male	Female	Male	Female	Male	Female
20-30	00	02	00	00	00	00
30-40	02	07	00	02	02	04
40-50	07	20	03	05	02	03
50-60	06	12	02	03	04	02
60-70	02	04	02	01	02	02
70-80	02	02	00	01	01	01

Discussion

The human foot has to subserve two important functions: (a) to provide propulsive force during latter part of the stance phase and propulsive force during later part of stance phase and (b) to absorb the impact of the body weight during the early part. [5]

Heel pain is one of the most commonest complaints with which a person presents to the out-patient department. [6] The reasons for heel pain include plantar fascitis, retrocalcaneal bursitis, atropy of heel pad, achilles tendinitis, posttraumatic, (eg, calcaneal fracture) haglud's deformity, enlarged calcaneal spur, degeneration of achilles tendon insertion. The other causes may be due to neurological conditions such as tarsal tunnel syndrome or entrapment of nerve to abductor digiti quinti, degenerative disc disease radiation toward heel, systemic disease (eg, reiter's syndrome, psoriartic arthritis, acute tear of plantar fascia, and calcaneal apophysitis). [7]

In present study, incidence of calcaneal spurs in patients with posterior heel pain presenting to outpatient orthopaedic department is 72%, which is slightly higher compared to a study by Lourdes RK *et al*. [8]

In the study by Lourdes RK *et al*, [8] incidence of calcaneal spur was 59%

In present study, incidence of spurs both in plantar site and at the site of insertion of Achilles was found to be 25% of total calcaneal spurs as compared to the study by Lourdes RK *et al*. [8]

In the study by Lourdes RK *et al*, [8] incidence of spurs both in plantar and Achilles insertion was 24%.

In the present study, incidence of only plantar spur was found to be more as compared to Achilles spur or both combined as compared to the study by Lourdes RK *et al*. [8]

In present study, incidence of calcaneal spurs among women is 62% which is comparable to study by Lourdes RK *et al*. [8]

In the study by Lourdes RK *et al* (ref no) incidence of calcaneal spur among women was 60%. Lourdes RK *et al* (ref no).

Prevalence of calcaneal spur among women could be correlated with foot wear, obesity, pregnancy resulting in excessive compressive forces acting on calcaneum over a period of time. [8]

In present study, calcaneal spur was seen in 47 female patients and the most common age group affected was between 40-50 years as compared to the study by Lourdes RK *et al*. [8]

In the study by Lourdes RK *et al*, [8] calcaneal spur was commonly present in 40-50 years age group.

Plantar and Achilles spurs are highly prevalent in older people and the development of spur differs between men and women. In individuals less than 50 years of age, spur (Achilles and plantar) formation is strikingly more common in women than men. [2]

In present study, only two patients under 30 years showed calcaneal spurs where as in the study by Lourdes RK *et al*, [8] patients under 30 years of age do not show presence of calcaneal spurs which could explain that the spur formation to be part of degenerative process resulting in osteophyte formation appearing in the form of bony growth. The low incidence of spur in the age group less than 30 years suggested that spurs do take a long time to build up. This is because the enthesis organ dissipates the stress away from the bony insertion, this can explain why the pathological changes take place adjacent to the enthesis as well as at them. [9]

According to studies by Prichasuk, [3] and Luh *et al*, [10] the chances of finding a calcaneal spur in a normal population to be 15.5% and there is no clear cut relationship between the heel pain, shape and direction of calcaneal spur. [3, 10]

In present study, only two patients under 20 years presented with calcaneal spur.

The absence of spurs in people below 20 years of age correlates with the common clinical observations that are rarely a feature of degenerative joint disease in young individuals. [11]

So the change of lifestyle and footwear that can be brought about during early years of symptom could significantly alter the course of the disease preventing it from reaching degenerative stages as it is known to progress with age. [8]

Conclusion

Incidence of calcaneal spur in present study is 72%.

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