Tuberculosis of the Calcaneum Masquerading as Haglund’s Deformity

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The eponymous Haglund’s Deformity, first described in 1928 by Patrick Haglund, a Swedish Orthopaedic Surgeon, is a chronic enlargement of the posterior-superior prominence of the calcaneum.

It is a normal anatomical variant often referred to as the “pump bump” as the prominence can become irritated especially by footwear with rigid backs such as pumps leading to insertional Achilles tendinitis. Achilles tendinitis described by Clain & Baxter as an overuse phenomenon, occurs when the bursa between the calcaneum and the Achilles tendon (formed by the union of the tendon of the soleus and gastrocnemius muscles) becomes inflamed causing heel pain, degeneration of the Achilles tendon insertion and tenderness on palpation.

Achilles tendinitis is common with a reported incidence in the USA somewhere in the region of 6.5-18% in runners, though the actual incidence is unknown. Presence of a Haglund’s deformity is not pathognomonic of insertional Achilles Tendinitis as illustrated by a retrospective study by Kang et al who found Haglund’s deformity was equally present in asymptomatic patients.

Tuberculosis (TB) is caused by bacteria (Mycobacterium tuberculosis) and despite being both curable and preventable is second only to Human Immunodeficiency Virus (HIV)/AIDS as the single greatest infectious agent leading to death. Though it most commonly affects the lungs, it can also be found extrapulmonary. The World Health Organisation declared TB a global emergency in 1993.

The United Kingdom (UK) has an estimated 13/100,000 cases per population with most cases occurring in major cities, particularly London equating to around 9,000 cases and approximately 40% of them reportedly diagnosed in London.

These figures appear quite low when compared to the African, Western Pacific and South East Asian Populations but have resulted in Britain being the only nation in Western Europe with rising levels.

Case Report

A 66 year old Asian gentleman was presented to the Foot & Ankle Clinic with a 5 month history of right ankle pain of gradual onset. He had had no prior events. He was able to bear weight but experienced pain behind the ankle on mobilisation.

He reports that he had a calcium injection in the recent past in India that had given him 3 weeks of relief. At first presentation to our UK orthopaedic department, he had swelling around his Achilles tendon insertion with a palpable lump which was tender on palpation. Radiography demonstrated Haglund’s deformity and also possible calcification at the attachment of the Achilles Tendon.
The patient was offered but declined surgery, and an injection of corticosteroid given at his request. He had symptomatically improved at this clinic review 1 month later, and was therefore discharged. He presented to orthopaedic outpatients with recurring ankle pain and again declined surgery, instead requesting a repeat corticosteroid injection. He was counselled for risks and unsuitability of continuing with steroid injections as the mainstay of treatment but as he was persistent in his request, it was reluctantly given. By his 3 month follow up, he had deteriorated rather than improved and this time opted to add his name to the waiting list for surgery.

Over the subsequent 2 weeks, his general health declined, prompting admission under the physicians with acute anorexia, abdominal distension secondary to ascites and groin lymphadenopathy. He was given a differential diagnosis of lymphoma and proceeded to lymph node biopsy and an ascitic tap.

The.histology results of the lymph node biopsy revealed granulomatous lymphadenitis consistent with TB but no culture had been obtained. The physicians therefore commenced him on quadruple agent anti-TB treatment with the aim of converting to dual agent anti-TB treatment at the 8 weeks mark and complete the course by 6 months.

Unfortunately, he developed hepatotoxicity after 1 month and was therefore readmitted to hospital under the physicians to re-introduce anti-TB treatment due to hepatotoxicity. At this time, his groin lymph node biopsy site was noted to be constantly oozing.

They also noted he had swelling and fluctuation around the Achilles tendon and heel and investigated this with plain radiographs and an MRI. (Figure 2).

A subsequent image guided needle biopsy showed thick pus. The aspirate was sent to the laboratory where it stained positive for auramine indicating TB calcaneum with subsequent culture for AFB (Acid Fast Bacilli) confirming the diagnosis of TB calcaneum. He was recommenced on an anti-TB medication.

Considering the complexity of the situation, and presence of a cold abscess at the heel (of unknown duration), we advised against surgical intervention at that time, but instead advised immobilisation in an Aircast™ boot and continuation of medical treatment. He continued to improve.

Two months after completion of the 6-month course of treatment, a follow-up MRI demonstrated calcaneal involvement with abscess tracking from the calcaneum pointing superficial to the Achilles tendon and little sign of improvement.
Our patient has completed a total course of 18 months of anti-tuberculous chemotherapy (6 months then 12 months). It is our belief his heel pain was secondary to early developing Tuberculosis, and that the Haglund’s Deformity is incidental. We therefore have no plans to surgically resect the prominence and should heel pain recur, we plan to repeat an MRI to ensure no re-emergence of the mycobacterium.

At orthopaedic review in May, the abscess had self-drained and formed an ulcer, confirmed by ultrasound and in the meantime, the physicians recommenced his anti-TB treatment for a predicted duration of 12 months.

Six months later, he had occasional pain approximately at tendo-Achilles region, but no ankle pain. He could walk without much discomfort. There was no tenderness over the calcaneum or tendo-Achilles and he had good range of movements at the ankle. Clinically the ulcer was improving but still not healed. There was no distal neurovascular deficit. Radiographs demonstrated some resolution of calcaneal lesion in comparison to earlier films.

After 8 months of anti-TB treatment, the wound over Achilles tendon had almost completely healed and an ultrasound revealed the tendon to be “absolutely normal.” New bone formation was noted over calcaneum. The latest MRI revealed complete resolution and healing with no residual abscess.

Literature Review

There have been no other cases of TB Abscess of the calcaneum/Achilles tendon insertion masquerading as Haglund’s Deformity reported in the literature.

Routine surgical resection of the deformity is an acceptable treatment favoured by many surgeons including the senior author.4,8,9 Treatment of Achilles Tendinitis with local injection of steroid is an acceptable modality, though there is a lack of high level evidence to support it.10,11

Extrapulmonary tuberculosis is reported to account for 1-3% of all tuberculosis.12–15 Tuberculosis of the foot and ankle is rare16–18 and in the absence of HIV, its frequency decreases further.

Calcaneal TB is rare and cases in the literature are scarce with reports seldom originating from the UK. In a retrospective series by Chen et al19 ankle TB accounted for 0.24% of all cases of TB during a 20-year study period.

Dhillon,16,17 a prolific commentator on skeletal tuberculosis, observed that tuberculosis of the foot and ankle, leads to diagnostic and therapeutic delays, due to the site being an uncommon focus, coupled with a lack of awareness, and the ability of TB to mimic other disorders both clinically and on radiographs. He also recommends medical treatment of such infections, advising surgical treatment to be reserved for those cases of “intractable disease or as a salvage procedure for patients with deformed hindfoot joints”.

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Discussion

The patient was offered surgery to resect the Haglund’s Deformity, but on two occasions requested and received steroid injection before considering operative treatment. This is the first case to our knowledge, of Tuberculosis Abscess of the Achilles Tendon Insertion heralding the disease. It is not known whether the patient had dormant TB that was activated by the corticosteroid injection, though the locus of infection developed six months after the injection of [KENOLOG™]. We believe that his symptoms of heel pain and tenderness on initial presentation to the department were in fact the first manifestation of his extrapulmonary tuberculosis.

Medical management of a tuberculous cold is an acceptable strategy in the first instance, with formal I&D being reserved for complicated, non-responsive or specific sites of abscess. On this occasion, the lesion healed without surgical intervention. The calcaneum is notoriously difficult to heal and frequently succumbs to delayed healing or secondary infections.

Tuberculosis cases globally are decreasing, but in the UK, the rates are once again increasing and the rise of Human Immunodeficiency Virus (HIV) and the development of multi-drug resistant strains of Mycobacterium tuberculosis are postulated as causative factors.20

Globally in 2011, there were an estimated 8.7 million new cases (of which 13% represent co-infections with HIV) and 1.4 million deaths from tuberculosis with approximately 1 million deaths among HIV-negative individuals.

Cooper et al20 also identify the rise of increasingly atypical presentations. Mittel et al13 suggests that TB should be suspected in all cases of long-standing foot pain while Dhillon et al16 warn that it should be suspected in high risk groups, such as Asian immigrants.

Conclusion

Extrapulmonary TB is more common in HIV positive patients, but our patient was not HIV positive and had not been diagnosed with tuberculosis in the past. We believe that his symptoms of heel pain and tenderness on initial presentation to the department were in fact the first manifestation of his extrapulmonary tuberculosis. Calcaneal TB is rare and cases in the literature are scarce with reports seldom originating from the UK. Furthermore, this case serves as an aide-mémoire to clinicians of all specialties, that the initial clues to the diagnosis of tuberculosis infection may be extrapulmonary manifestations.

Given the rising rates of tuberculosis and the multifactorial propensity for the increased incidence in cities, this case highlights an important differential in the diagnosis of a multitude of seemingly common presentations, including Haglund’s deformity and associated insertional Achilles tendinitis. As observed by other authors, “a high index of suspicion has to be maintained in high risk groups like Asian immigrants”18 and the clinician should be mindful that unlike our patient, concomitant extraskeletal lesions may not always be present.

Multidrug antituberculous chemotherapy (for 12 to 18 months) is the mainstay of treatment.22 As illustrated by our case, the calcaneal lesion fully resolved without surgical intervention after an appropriate duration of medical treatment. In all cases, medical treatment should be the first line of treatment, and should continue for a prolonged period.

References:

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