

Imaging Techniques in the Diagnosis of Haglund's Syndrome: A Case Report and Review of the Literature

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Abstract

Haglund's syndrome is a mechanical disorder characterized by inflammation of the retrocalcaneal bursa, supra-calcaneal bursa, and Achilles' tendon due to friction between the prominent posterosuperior tuberosity of the calcaneus and footwear. Diagnosis usually relies on clinical assessment and lateral ankle radiography. This article presents a case study of a 52-year-old female patient with Haglund's syndrome, accompanied by illustrative images and a review of existing literature.

Keywords: Haglund's syndrome, retrocalcaneal bursa, posterosuperior tuberosity, diagnostic methods

1. Introduction

Haglund's syndrome, also known as retrocalcaneal exostosis, Mulholland deformity, or 'pump bump,' is a prevalent cause of posterior heel pain characterized by painful swelling of the soft tissues at the Achilles tendon insertion (Jiménez Martín, F., et al., 2016). Clinical diagnosis is common, and imaging is utilized to confirm the prominence of the calcaneal bursal projection and increased density in the pre-Achilles bursae on a standing lateral radiograph (Kucuksen, S., Karahan, A. Y., & Erol, K, 2012).

2. Case Presentation

This report describes the case of a 47-year-old male patient who experienced soreness and pain in the left foot's Achilles region for four months, worsened by activity and footwear. Physical examination revealed visible swelling and tenderness at the insertion of the right heel's Achilles tendon, accompanied by palpation-induced pain. Ankle stability and foot joint integrity were preserved, with negative results on the Thompson test. A lateral ankle radiograph indicated minor soft tissue swelling, ossifications in the thickened Achilles tendon suggestive of tendinosis, and a prominent posterosuperior calcaneal tuberosity (Figure1). Sonographic assessment of the left Achilles tendon displayed fusiform enlargement and inhomogeneity, consistent with insertional tendinosis. The deep retrocalcaneal bursa exhibited complex hypoechoic fluid and a nodular echogenic soft tissue component, indicative of retrocalcaneal bursitis. A left ankle CT scan confirmed the prominence of the posterosuperior calcaneal tuberosity and calcification of the Achilles tendon (Figure 2). The patient received a conservative treatment plan involving anti-inflammatory and analgesic agents.



Figure 1. Lateral radiograph of the left foot displaying a noticeable posterosuperior osseous calcaneal protrusion



Figure 2. Left ankle CT scan in sagittal view showing prominent posterosuperior osseous calcaneal tuberosity and calcification of Achilles tendon

3. Discussion

Haglund's syndrome, initially described as retrocalcaneal bursitis in 1928, is associated with an abnormal protrusion of the posterosuperior border of the calcaneus, often exacerbated by footwear with a rigid posterior contour (Haglund, p. 1927). Its precise pathogenesis remains unclear, with theories suggesting ongoing sural triceps contraction that pinches the Achilles tendon and retrocalcaneal bursa against the posterior-superior calcaneal exostosis (Kucuksen, S., Karahan, A. Y., & Erol, K, 2012). Another hypothesis proposes external compression of the heel, leading to pressure on the retrocalcaneal bursa and lateral part of the calcaneus, resulting in chronic irritation and subsequent enlargement of the calcaneal tuberosity, which compresses the bursa and Achilles' tendon. Prominent calcaneal posterosuperior protrusions are often observed clinically, typically on the lateral side, accompanied by swelling and regional inflammation (Pavlov, H., et al., 1982). Conditions such as hindfoot varus or noticeable plantar osseous projections can contribute to Haglund's deformity and retrocalcaneal bursitis (Pavlov, H., et al., 1982; van Dijk, C. N., et al., 2011; Lee, J. C., et al., 2008; Alami, R. E., et al, 2020). Differential diagnosis can be challenging, as other causes of hindfoot pain share similar symptoms, including Reiter's disease, rheumatoid arthritis, or local conditions like superficial Achilles tendon bursitis due to ill-fitting shoes. Accurate differentiation of the precise cause of posterior hindfoot pain is essential for appropriate treatment (Sella, E. J., et al., 1998; Martín, F. J., et al., 2017; Chauveaux, D., et al., 1991). Radiographic assessment, including measurement techniques like the parallel pitch line, assists in confirming the presence of a prominent bursal projection and the Haglund's complex (Haglund, p. 1927; van Dijk, C. N., et al., 2011). In cases where the posterior calcaneal border's prominence is subtle, objective

radiographic measurement aids in distinguishing Haglund's syndrome from isolated retrocalcaneal bursitis, superficial Achilles tendon bursitis, or Achilles tendinosis. Systemic conditions such as Reiter's syndrome or rheumatoid arthritis often exhibit more widespread retrocalcaneal bursitis, frequently accompanied by erosive changes of the calcaneal bursal projection (Chauveaux, D., et al., 1991; Delagoutte, J. P., & Gervaise, A., 2010; Ahn, J. H., et al., 2015). Conservative treatment approaches involve avoiding tight or high-heeled shoes, oral anti-inflammatory drugs, local corticosteroid injections, and physiotherapy. Surgical intervention, such as retrocalcaneal bursectomy combined with osteotomy of the Haglund deformity, is considered if conservative measures fail to provide relief (Chauveaux, D., et al., 1991).

4. Conclusion

Haglund's syndrome is one of several causes of hindfoot pain. It is diagnosed clinically and confirmed through radiological findings, underscoring the importance of imaging for verifying the diagnosis, ruling out alternative diagnoses, and guiding surgical interventions.

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