



Haglund Syndrome or Pump-Bump: A Confusing Diagnosis of a Swelling Painful Hind Foot

Andour H^{1*}; Zaizi A²; Abide Z¹; En-Nafa A¹; Fenni J¹; Lahkim M¹

¹Department of Radiology, Mohamed V Military Hospital, Faculty of Medicine and Pharmacy, Mohamed V University, Morocco

²Department of Orthopaedic Surgery & Traumatology II, Mohamed V Military Hospital, Faculty of Medicine and Pharmacy, Mohamed V University, Morocco.

*Corresponding Author(s): Andour Hajar

Department of Radiology, Mohamed V Military Hospital,
Faculty of Medicine and Pharmacy, Mohamed V University,
Morocco.

Email: hajarandour1@gmail.com

Abstract

Haglund syndrome is one of the variable causes of heel pain, of which diagnosis could be suspected clinically and confirmed on X-Ray when evident. However, MRI with its contrast resolution allows better identification of tendinosis and bursitis which are necessary with the Haglund's deformity to set the diagnosis as well as to rule-out other differential diagnoses. We report the case of a 35-year-old man with heel pain in whom a Haglund syndrome was attested through MRI and who has been treated surgically by a bursectomy and an excision of the deformity. We recall through this patient the adequate radiological tools to identify this syndrome and to confirm it.

Received: Jan 02, 2023

Accepted: Feb 20, 2023

Published Online: Feb 27, 2023

Journal: Journal of Radiology and Medical Imaging

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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Keywords: Haglund syndrome; Deformity; Diagnosis-MRI.

Introduction

The Haglund syndrome is an association of bone and soft tissue abnormalities at the origin of a common problem of hind-foot pain generally caused by low-cut shoes. This syndrome regroups a prominent posterior bursal projection of the calcaneum defined as a Haglund deformity, Achilles tendinosis, retrocalcaneal and retro Achilles bursitis. The diagnosis can be set on X-Ray images; however, MRI provides by a superior soft-tissue contrast resolution the extent and the exact location that are very helpful if an operative management is planned.

Case presentation

A 45-year-old man, with no medical history presented with a painful swelling of the posterior heel for 6 months (**Figure 1**). Clinical examination found a soft tissue swelling at the insertion of tendon Achilles with a negative Thompson-test refuting the possibility of Achilles tendon tear. MRI of the homolateral heel was then performed and showed radiographical findings compatible with Haglund syndrome (**Figure 2**). This patient was managed conservatively at the beginning, but in front of the absence of improvement, surgery was decided and consisted in an excision of the retro-Achillean bursae followed by that of the deformity (**Figure 3**).



Cite this article: Andour H, Zaizi A, Abide Z, En-Nafa A, Fenni J. Haglund Syndrome or Pump-Bump: A Confusing Diagnosis of a Swelling Painful Hind Foot. J Radiol Med Imaging. 2023; 6(1): 1083.



Figure 1: The clinical image of the swelling at the level of the hindfoot.

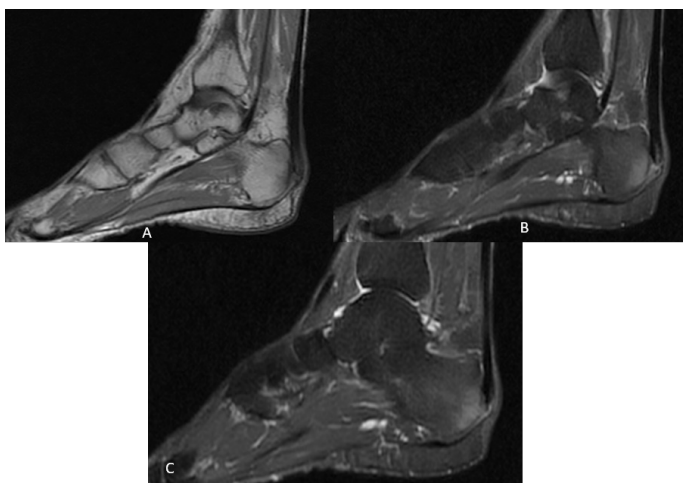


Figure 2: MRI of posterior heel according to sagittal T1-weighted images (a), and sagittal STIR images (b, c) showing a prominent bursal projection (a; asterisk), a thickened Achilles tendon (arrow). STIR sequences show an hypersignal of bone marrow at the insertion of Achilles tendon, sit too of an hypersignal signing bone marrow edema (asterisk) and tendinopathy (arrow) with a swelling of soft tissues at this level compatible with the “pump-bump” (circle). There is also a retrocalcaneal bursitis as a discreet hypersignal and a loss of lucent aspect of retrocalcaneal bursae at this level (head arrow).



Figure 3: The perioperative appearance of the Haglund deformity.

Discussion

The hindfoot and the ankle are complex anatomic structures consisting in bones, tendons, bursae and ligaments of which each's injury can lead to posterior heel pain. Firstly, described by Patrick Haglund in 1928, the Haglund syndrome is characterized clinically by what is called a “pump-bump” in reference to the painful soft tissue swelling at the posterior heel occurring while starting walk after rest [1]. There is no age range for this condition concerning both men and women, occasioned by chronic stress leading to an inflammation of Achilles tendon as well as superficial and retrocalcaneal bursae. This inflammation is induced by a mechanical stress, in which the prominent bony projection of the calcaneus- Haglund deformity- along with low-cut shoes cause the symptomatology. This explains its higher prevalence in the sportive community particularly professional athletes, runners, football players and tennismen. Hindfoot varus and pes cavus, as well as repetitive trauma and obesity are also predisposing factors [2].

Lateral foot radiographs in a standing position are generally enough to set diagnosis. Different criteria are suggested to this aim, including the upper parallel pitch line to objective the prominence of the bursal projection, the Fowler angle or the posterior calcaneal angle with a threshold of 75° and the pitch angle to determine the calcaneus orientation. Among these measures, the most accurate and reproducible to consider is the upper parallel pitch line. Other radiographical findings include the loss of the retrocalcaneal lucence as a sign of retrocalcaneal bursitis. A thickening of Achilles tendon over 9 mm measured 2 cm above its insertion associated to the loss of the sharp interface between the insertion and the pre-Achilles fat pad defining the tendinopathy. The convexity of the posterior soft tissues at the level of Achilles insertion indicates its bursitis [3].

Even if plain radiographs together with the symptomatology are usually enough to set diagnosis, it remains unreliable highlighting the importance of MRI for ambiguous and dubious cases. It shows a higher sensitivity to establish all soft tissue-abnormalities with the cardinal signs of retrocalcaneal and retro Achilles bursitis, its tendinopathy apparent as an area of increased signal in T2-weighted images. Bone marrow edema and the enlargement of bursal projection are more evident using the same diagnosis parameter than radiography (UPL) [4,5].

Moreover, MRI allows differential diagnosis with some systemic inflammatory diseases mainly Reiter's syndrome and rheumatoid arthritis. In these diseases, the “pump-bump” is more extended over the Achilles tendon insertion and the cortical bursal projection is eroded whereas it's intact in Haglund syndrome [6].

The management of the pathology starts usually as medical. Steroid injection under ultrasound guidance has been also reported to have satisfactory results with a controversial risk of tendon's tear. Endoscopic or open surgery can be considered by the resection of the prominent bursal projection and bursectomy if the conservative management failed [7].

Conclusion

Painful hindfoot is a common problem with variable causes. Haglund syndrome is one of its etiologies that should not be omitted. MRI is more sensitive and informative with some diagnosis keys including: highly clinical and radiological suspicion, evaluation of the bursal projection with the ability to use the

upper pitch line and detecting soft-tissue abnormalities.

Declarations

Ethical Approval

Informed consent was obtained from the patient.

Competing interests

Authors declare no conflict of interest.

Authors' contributions

All authors participated actively to elaboration of this scientific document:

- The first and the last authors: set the diagnosis and wrote the text.

- Other authors: confirmed the diagnosis, reviewed the manuscript and approved it.

Funding: No funding to report.

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