



## Endoscopic management of patients with Haglund's disease – A Prospective study.

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### Abstract :

**INTRODUCTION:** Conventional surgical management of Haglund's disease (Retrocalcaneal bursitis) consists of an open excision of the inflamed bursa, resection of the posterosuperior calcaneal tuberosity . Endoscopic management has shown better outcomes with decreased morbidity and rehabilitation time.

**METHODS:** 25 patients (30 heels) who had retrocalcaneal bony spur and bursitis unrelieved by initial conservative treatment for a minimum of 6 months were managed by endoscopic resection. One lateral and one medial endoscopic portals were created, around the posterosuperior portion of the calcaneum to access the retrocalcaneal space. The inflamed bursal tissue was identified and debrided and the prominent bone was resected using endoscopic shavers. American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Scale was used for the evaluation of the patients before and after the surgeries.

**RESULTS:** The mean followup was of 12 months. 22 patients (27 heels) were available for followup. The AOFAS scores averaged 67 preoperatively and 95 postoperatively. There were 22 excellent results, four good results and one average result. No major and only two minor complications occurred.

**CONCLUSIONS:** The endoscopic debridement for the management of Haglund's deformity and associated retrocalcaneal bursitis is a recommended surgical procedure having low patient morbidity, early recovery and high patient satisfaction.

**Key words:** Haglund's disease, endoscopy, retrocalcaneal bursitis

**Introduction:** Patrick Haglund in 1927 described a deformity of the calcaneum at the Achilles tendon insertion.<sup>1</sup> It is also known as retrocalcaneal exostosis, Mulholland deformity, and 'pump bump.' It is not an uncommon clinical condition, but requires treatment only in clinically symptomatic patients.

Clinical evaluation and lateral radiographs of the ankle are mostly enough to make a diagnosis of Haglund's disease. The pain could be due to associated Achilles tendonitis and retrocalcaneal bursitis.<sup>2</sup> This condition can mimic other causes of hind foot pain like isolated retrocalcaneal bursitis, plantar fasciitis, and seronegative spondyloarthropathies.<sup>3</sup> It is mostly an idiopathic condition, but several contributory factors like over-practice in runners, tight or poorly fitting shoes, or altered biomechanics of foot joints because of the dealigned subtalar joint may play a role.<sup>4</sup> The lifetime cumulative incidence of Achilles tendinopathy can be up to 52% in elite athletes.<sup>5</sup> Surgeries around the Achilles tendon can lead to catastrophic complications in wound healing, dehiscence, and infection—especially in the open treatment of Achilles tendon rupture.<sup>6,7</sup> Endoscopy has been successfully applied to the treatment of non-insertional Achilles tendinopathy, Haglund's syndrome, Achilles tendon rupture, and gastrocnemius tendon contracture. With some familiarity with soft tissue endoscopy, we found the results of the described conditions rewarding with earlier recovery and minimal complications.

It is often treated conservatively by altering the heel height in shoe wear, orthosis, physiotherapy, local steroid injections and anti-inflammatory drugs. Surgical excision of the bony exostoses of the calcaneum is only required in cases where conservative treatment fails. The present study is conducted to evaluate the endoscopic treatment outcomes of symptomatic Haglund's disease on the basis of parameters such as Function, Pain and Alignment.

**Material and Methods:** Twenty five patients amongst which 20 were unilateral and 5 were bilateral (30 heels) confirmed by lateral radiographs and had retrocalcaneal bursitis unrelieved by initial conservative treatment for a minimum of 6 months were included in the study after taking written informed consent.

**Surgical technique:** The patients were placed prone on the operating table after giving regional or general anaesthesia. A thigh tourniquet is placed and inflated. The patient was pulled down to the lower end of the table such that the foot and lower leg is about 2 inches hanging off the table which allows the free ankle dorsiflexion and better accessibility of the field of surgery.

One lateral and one medial endoscopic portal were created, around the posterosuperior portion of the calcaneum to access the retrocalcaneal space. First, the lateral portal is established about 1cm proximal and lateral to Tendoachilles(TA) insertion. After that the medial portal is established using inside-out technique which is about 1cm supero-Medial to TA insertion (Fig 1). For better identification of TA a hypodermic needle of 22 gauge was inserted into the Tendon from outside which can be easily visualized through scope intraoperatively (Fig 2).

The inflamed retrocalcaneal bursa, which is present between calcaneum and TA, was identified and debrided and the prominent bone was resected using the endoscopic shavers (Fig 3). Radiographs showing lateral views of the ankles before and after endoscopic debridement were done (Fig 4, 5). The patients were then discharged on oral antibiotics on post-operative day one itself. The sutures were removed on day 14. On follow up of minimum 1 year, patients had excellent pain relief and full range of motion.

American Orthopaedic Foot and Ankle Society (AOFAS) Ankle-Hindfoot Scale was used for the evaluation of the patients before and after the surgeries.

## **Results**

Out of 25 patients (30 heels), 3 patients (unilateral) did not turn up after 3 months of followup and were regarded as dropouts, hence were not considered for final statistical analysis. Twenty two patients (27 heels) were available for follow-up.

Patients who were assessed for Pain were falling into 2 categories either No pain (24heels) or occasional Pain (3heels) according to AOFAS hind foot scale, and mean score value was 38.8.

Few patients had difficulties in recreational activities and/or walking on uneven terrains. Calculation of function showed variation in results in the range of 40 to 48 with the mean value of 44.

All patients could achieve a plantigrade foot with a score of 15 each.

The AOFAS scores averaged 67 preoperatively and 92 postoperatively and the difference was statistically significant ( $p < 0.05$ ). There were 22 excellent results, four good results and one average result. No major and only two minor complications occurred in the form of superficial skin infections that were managed with I/V antibiotics.

## DISCUSSION

Haglund's disease is a condition where the retrocalcaneal bony spur called as Haglund's deformity leads to constant irritation of adjoining tendoachilles causing a painful retrocalcaneal bursitis. Most commonly affected are middle age group patients with female predilection and the occurrence is often bilateral. A clinical feature of this condition is pain in the back of the heel, which is more after rest. Non-operative measures alone may be insufficient to treat effectively the chronic retrocalcaneal bursitis due to Hugland's deformity. It originally was described as a prominence of the posterior superolateral calcaneus affecting the superoanterior bursa and the Achilles tendon.<sup>8</sup> The various surgical options available for patients with Haglund's deformity who do not respond adequately to nonoperative therapy, include calcaneal ostectomy with or without Achilles tendon debridement, excision of the retrocalcaneal bursa, and calcaneal osteotomy.<sup>9-12</sup> Unfortunately, none of these procedures have yielded a consistent outcome.<sup>13-15</sup> Inconsistent surgical approaches and methods of evaluation are the two main reasons for the poor results in patients with Haglund's deformity undergoing calcaneal ostectomies.<sup>16</sup> In this study, we followed endoscopic bursectomy and bony spur decompression, which is a minimally invasive procedure with lesser risk for post-operative wound complications.<sup>17</sup> The present study is in accordance with the study done by Ortmann FW et al. which showed AOFAS score improvement from an avg of 62 to 97.<sup>18</sup> Van Dijk reported the first series of endoscopic calcaneoplasty in 2001 through medial and lateral portals in prone position.<sup>19</sup> Many methods have been proposed to measure the prominence of the bursal projection of the calcaneus, such as the Fowler angle and the parallel pitch lines.<sup>20</sup> But in our study we included only the clinically symptomatic patients irrespective of the deformity size.

## CONCLUSION

In our study, two portal posterior endoscopic ankle portals with patient being in prone position and foot and ankle hanging by the lower end of the table was used to perform the surgeries. This technique offered an excellent access to the posterior aspect of the ankle joint, also allowing free space for passive dorsiflexion at ankle joint to facilitate during surgical maneuvers. We conclude that, when done by an experienced arthroscopic surgeon it serves as an excellent alternative to the open approach for Chronic retrocalcanealbursitis (Haglund's disease).

## **References**

1. MRI of heel pain. Lawrence DA, Rolan MF, Morshed KA, et al. *Am J Roentgenol.* 2013;200:845–855.
2. Haglund's syndrome. Two case reports. [Article in English, Spanish] Jiménez Martín F, Alonso Valdazo MD, Díaz Peña G, Fernández Leroy J, Hernández Herrero D, Díaz García F. *Rheumatol Clin.* 2016:0–6.
3. Haglund syndrome with pump bump. Kucuksen S, Karahan AY, Erol K. *Med Arch.* 2012;66:425–427.
4. Spatial orientation of the subtalar joint axis is different in subjects with and without Achilles tendon disorders. Reule CA, Alt WW, Lohrer H, et al. *Br J Sports Med.* 2011;45:1029–1034.
5. Kujala UM, Sarna S, Kaprio J. Cumulative incidence of achilles tendon rupture and tendinopathy in male former elite athletes. *Clin J Sport Med.* 2005;15(3):133–5. doi: 10.1097/01.jsm.0000165347.55638.23.
6. Lim J, Dalal R, Waseem M. Percutaneous vs. open repair of the ruptured Achilles tendon—a prospective randomized controlled study. *Foot Ankle Int.* 2001;22(7):559–68.
7. Haji A, Sahai A, Symes A, Vyas JK. Percutaneous versus open tendo achillis repair. *Foot Ankle Int.* 2004;25(4):215–8
8. Haglund P. Beitrag zur Klinik der Achillessehne. *Z Orthop Chir.* 1928;49:49-58.
9. Angermann P. Chronic retrocalcaneal bursitis treated by resection of the calcaneus. *Foot Ankle* 1990;10(5):285-7.
10. Brunner J, Anderson J, O'Malley M, Bohne W, Deland J, Kennedy. Physician and patient based outcomes following surgical resection of Haglund's deformity. *Acta Orthop Belg* 2005;71(6):718-23.
11. Jones DC, James SL. Partial calcaneal osteotomy for retrocalcaneal bursitis. *Am J Sports Med* 1984;12:72-73.
12. Pauker M, Katz K, Yosipovitch Z. Calcaneal ostectomy for Haglund disease. *J Foot Surg* 992; 31:588-589.
13. Huber HM. Prominence of the calcaneus: late results of bone resection. *J Bone Joint Surg Br* 1992;74:315-316.

14. Nesse E, Finsen V. Poor results after resection for Haglund's heel: analysis of 35 heels in 23 patients after 3 years. *Acta Orthop Scand* 1994;65:107-109.
15. Taylor GJ. Prominence of the calcaneus: is operation justified? *J Bone Joint Surg Br* 1986;68:467-470.
16. Schneider W, Niehaus W, Knahr K. Haglund's syndrome: disappointing results following surgery: a clinical and radiographic analysis. *Foot Ankle Int* 2000;21:26-30.
17. Calder JD, Sexton SA, Pearce CJ. Return to training and playing after posterior ankle arthroscopy for posterior impingement in elite professional soccer. *Am J Sports Med* 2010;38:120-4.
18. Ortmann FW, McBryde AM. Endoscopic bony and soft-tissue decompression of the retrocalcaneal space for the treatment of Haglund deformity and retrocalcaneal bursitis. *Foot Ankle Int*. 2007 Feb;28(2):149-53.
19. Dijk CN, Dyk GE, Scholten PE, Kort NP. Endoscopic calcaneoplasty. *Am J Sports Med*. 2001;29(2):185-9.
20. LU ET AL. *Foot & Ankle International*/Vol. 28, No. 2/February 2007. DOI: 10.3113/FAI.2007.0181

Figure 1: 2nd Portal made using inside out technique



Figure 2: needle can be visualized marked with an Arrow



Figure 3: Debridement of Bursa using Endoscopic shavers

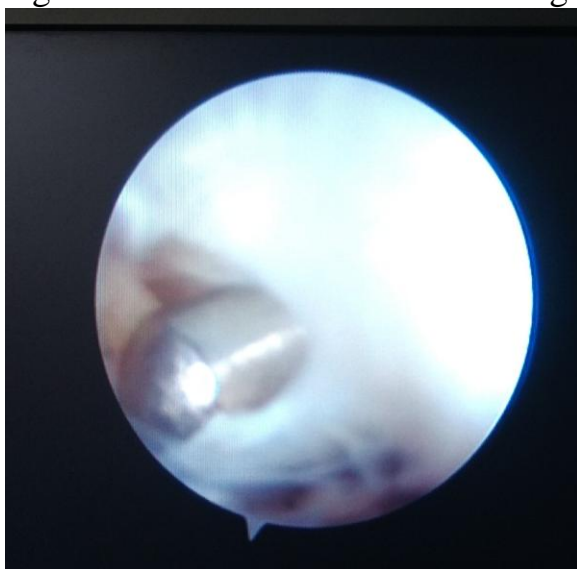


Figure 4: Patient 1 pre op -Xray



Figure 5: Patient 1 post op –Xray

