

Functional Outcome of Endoscopic Decompression of Retrocalcaneal Bursitis: A Retrospective Study

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ABSTRACT

Introduction:

Retrocalcaneal bursitis is the inflammation of the bursa present between posterior aspect of heel bone and anterior surface of achilles tendon. The aim of this study to evaluate the functional outcome of endoscopic decompression of retrocalcaneal bursitis. Patients who doesn't show any improvement through conservative management such as change of footwear, moist heat, heelpads etc may require surgical intervention.

Materials and Methods

This study includes 25 patients of both sexes of posterior heel pain which doesn't respond to conservative management and may require surgical intervention retrospectively between February 2023 to October 2023 with a follow up period of around 1 year. The functional outcome was assessed by comparing the preop and postop American Orthopedic Foot and Ankle Society (AOFAS) scores. The Maryland score was used postoperatively to visualize patients' satisfaction at follow up.

Results:

A retrospective study was conducted in our institution in 25 patients of age range around 20-70 years with radiological as well as clinically shows signs of retrocalcaneal bursitis. There was no patient loss to follow up. The mean Maryland score at postop was 92 which indicates that 15 patients show excellent result, 6 patients shows good result, 4 patients shows fair result and no patient shows poor result, the patient also assessed for AOFAS score which also shows significant improvement from preoperative score of 45 to postoperative score of 88 with a follow up period of around 1 year.

Conclusions:

In retrocalcaneal bursitis patients, arthroscopic(endoscopic) decompression is a safe, effective, and simple procedure. Within the first four months, the majority of patients experienced pain relief and a dramatic improvement in function, cosmetically better with fewer complications.

Keywords: endoscopic decompression, Maryland score, retrocalcaneal bursitis, AOFAS score, retrospective

INTRODUCTION

Retrocalcaneal bursitis is an inflammation of the bursa present between the posterior aspect of the calcaneus and the anterior surface of the Achilles tendon{1}.The retrocalcaneal bursa is the horse shoe shaped bursa present above and behind the calcaneum bone{2}.Inflammation of this bursa is frequently associated with prominence of the posterosuperior aspect of the calcaneum which impinges on the tendoachilles which can be coined by Haglund{3}.This condition is most commonly associated with gout, rheumatoid arthritis, other

spondyloarthropathies, high heels, tight fitted shoes, repetitive trauma. Retrocalcaneal bursitis usually results in degeneration of distal 2cm of achilles tendon. On clinical examination, it shows painful dorsiflexion of ankle on anterior as well as both sides of achilles tendon. It usually seen on lateral view of calcaneal xray as posterosuperior bony prominence as well as neurotendinous calcification which is usually confirmed by USG and MRI{3,4}. Various treatment modalities were applied such as footwear modification, heel pads, moist heat, stretching exercises, NSAIDS, local steroid injections, and extracorporeal shock wave therapy as well as surgical techniques such as open or endoscopic decompression of retrocalcaneal bursa. When compared to open techniques, endoscopic decompression is better procedure as it may have shorter recovery postoperative period, less complications and less postoperative pain{5-9}.

The aim of this study to evaluate the functional outcome of endoscopic decompression of retrocalcaneal bursitis. Patients who doesn't show any improvement through conservative management such as change of footwear, moist heat, heelpads etc may require surgical intervention.

MATERIALS AND METHODS

This was the retrospective cohort study done in our institution in department of orthopaedics at GMC kota between February 2023 to October 2023 with a follow up period of around 1 year which includes 25 patients of both sexes that is 16 females and 9 males. The mean age of patients was 45 years (20–70 years).

Inclusion Criteria: Patients having retrocalcaneal bursitis not responding to conservative management

Exclusion Criteria: 1. Patients having history of hindfoot surgeries.

2. Patients having history of retrocalcaneal steroid injections.

3. Patients having anatomical foot deformity such as varus, valgus

4. Patients having infective retrocalcaneal bursa

5. Patients having gout, rheumatoid and other spondyloarthropathies.

Retrocalcaneal bursitis was usually suspected mainly on basis of clinical evaluation which revealed painful dorsiflexion of ankle as well as tenderness on either sides as well as anterior surface of achilles tendon which is usually confirmed by lateral view of calcaneum Xray, USG and MR. Functional outcomes was assessed by American Orthopaedic Foot and Ankle Society (AOFAS) score as well as Maryland score which was used postoperatively to assess patients' satisfaction. A lateral view of calcaneum taken for assessing the posterosuperior bony spur {10} and to calculate the resection of prominent bony spur. The parallel pitch lines (PPLs) determine the prominence of the bony projection on preoperative lateral view of X-ray. The lower PPL is the baseline which is drawn from the anterior tubercle to the medial posterior tubercle and the upper PPL is drawn parallel to the baseline starting from the talar articular surface anteriorly to the posterior tuberosity. A bony projection touching or below upper PPL is normal and not prominent (PPL-negative) and a bony projection above upper PPL is considered prominent (PPL-positive) which needs surgical excision. The extend of resection were compared with both preop as well as postop xrays.

Operative technique:

The patient was kept in a prone position with one foot hanging over the edge of the operating table. Utilizing a pneumatic tourniquet with a pressure setting of 300 mm of mercury for period of 90 minutes, the bleeding was controlled. Antibiotic were administered 30 minutes prior to surgery as a precautionary dose. A stab incision was made just above the line drawn from the tip of the lateral malleolus to the Achilles tendon insertion to create the lateral portal. A trocar was gently inserted into the retrocalcaneal space. The 4mm 30° arthroscope was developed. A medial portal was created in front of the Achilles tendon medial edge. A hemostat was introduced to the arthroscope, and a space was created for the introduction of an arthroscopic shaver. From the medial side, arthroscopic shaver was introduced. The retrocalcaneal bursa was observed which was resected using a razor. The opposite side of the calcaneum from the Achilles tendon was abraded and to prevent tendon

injury, the hooded side of the instruments was kept towards the tendon. For the resection of the posterosuperior surface of the calcaneum, a burr was introduced through which the bone was resected from the posterior side to the anterior side, the resection was upto level of achilles tendon. The margins were smoothed with a curette. Under arthroscopic observation, hyperplanterflexion and dorsiflexion of the foot were performed to rule out impingement. The fragments were irrigated with normal saline and then vacuumed. The portal sites were sutured with 2-0 sutures and a below-knee slab was given. Postoperatively, the foot was splinted in relaxed equines position, and then the patient was advised for non-weight bearing for ten to fourteen days. The sutures were removed after twelve days. The splint was then removed. After 1-month, normal walking was resumed with normal shoes.

In the second week, ankle range of motion and Achilles tendon stretching exercises were started. The patient was then follow up at 2 weeks, 6 weeks, 6 months and 12 month . At each follow-up, range of motion, AOFAS Score, and any recurrence or persistence of pain or deformity were evaluated. Each visit involved lateral

X-rays. All of the 25 patients was monitored. There was no subsequent loss to follow up.

RESULTS

The postoperative xrays were done in all patients which shows the resection of bony spur. The follow up period is of around 1 year. The average preoperative AOFAS was around 45(ranging from 40 to 50) and average immediate postoperative score was around 80(ranging from 75 to 85) to 88 (range 86-90) at follow up period of 1 year which shows significant improvement in score. Maryland score at postop averaged as 92(range 88-96) at 1 year follow up , Maryland score usually categorized as excellent(score 90-100), good(score 80-89),fair(score 70-79) and poor (score<70).In our study, we observed that 15 patients shows excellent result , 6 patients shows good result, 4 patients shows fair result and no patient shows poor result as shown in figure 1.

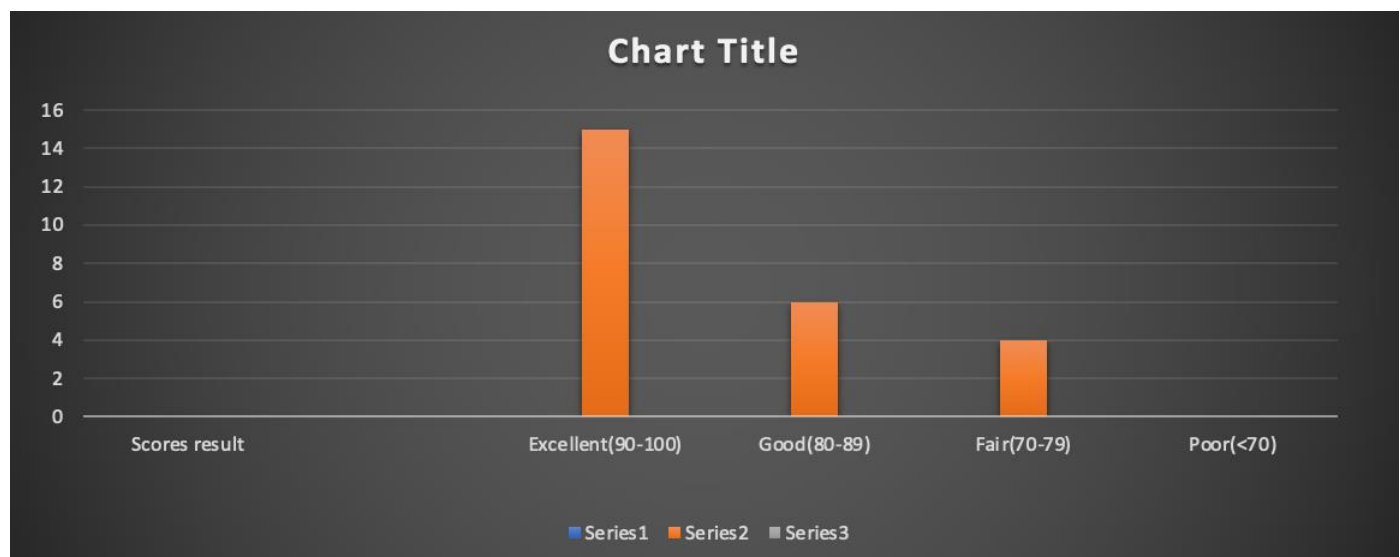


Fig 1 : Shows maryland score results

At the one-year followup, correlation for preoperative USG assessment of degeneration of achilles tendon versus a postoperative Maryland score (Spearman correlation) was done which has shown a strong negative correlation, as the USG grade of degeneration (grade 2) increased, the postoperative maryland score decreased and the association was found significant. There were no intraoperative complications, no signs of surgical site infections, Achilles tendon ruptures, or any sign of neurovascular deficits. Using the Kolmogorov-Smirnov test (KS test), the normality of

the data was examined for our study. Using the Wilcoxon signed rank test, quantitative variables (preop and postop AOFAS scores) were compared with each other. Mann Whitney test was used to compare the association between outcome and side. A p value of less than 0.05 was statistically significant.

DISCUSSION

Achilles tendinopathy is a degenerative process which occurs within tendon substance causing microtears and fibrotic scar formation which causes mechanical irritation of the surrounding tissues that is followed by inflammatory reaction and attenuated repair{11}. Our study demonstrates that endoscopic decompression and debridement of the retrocalcaneal space is a very effective procedure with minimal complication-prone management of patients with retrocalcaneal bursitis who have failed conservative treatment. The first line of management {12} includes the use of analgesics, hot fomentation, gastrocnemius and soleus stretching exercises, and the avoidance of tight shoes. If initial conservative treatment fails, steroid injections have been used, but they cause Achilles tendon rupture {13,14} but in our study, no steroid injections were administered. Retrocalcaneal

bursitis and Haglund deformity patients who do not respond to non-operative treatment have various open surgical options, that is calcaneal osteotomy with or without Achilles tendon debridement and retrocalcaneal bursectomy. Nonetheless, these extensive open surgical techniques have various complications such as breakdown of skin, Achilles tendon avulsion, scars mutilation, altered sensation, and joint stiffness {15}. The problems with open surgery may lead to the rise of minimally invasive surgeries {5}. Ortmann F.W. et al. performed endoscopic debridement and found that the average postop AOFAS score have significantly increased 97 from preop score of 62. There were no intraoperative complications found. Similarly, Van Dijk et al. have performed 21 Endoscopic Calcaneoplasty procedures on 20 patients who had failed to respond to conservative treatment for at least six months. The mean duration of follow-up was around 3.9 years. On the basis of Ogilvie-Harris score, the study shows 15 excellent results, 4 good results, and 1 fair result. There were no surgical complications found {6}. Jerosch J. performed endoscopic calcaneoplasty and discovered excellent results in 84 patients, good results in 71 patients, and fair and poor results in 5 and 4 patients, based on Ogilvie-Harris score. The study found that more than 90% of patients had excellent or good results without any complications that is associated with open procedures, such as wound dehiscence, lesions in the Achilles tendon, scar irritation, transformation to keloid, pain persistence and hypesthesia of the skin overlying the scar {16}. Similar to these literature, we found that endoscopic decompression is an effective procedure for retrocalcaneal bursitis in patients. Our study also showed similar results with respect to patient satisfaction on basis of Maryland score at the one-year followup. A limitation of our study was that the sample size taken was very small.

CONCLUSION

In retrocalcaneal bursitis patients, arthroscopic(endoscopic) decompression is a safe, effective, and simple procedure. Within the first four months, the majority of patients experienced pain relief and a dramatic improvement in function, cosmetically better with fewer complications. This procedure benefits such as minimal blood loss, direct visualization of the structures, improved functional recovery with very low complication rate. Preoperative USG is very useful for identification of the ideal patient for endoscopic procedure which helps to predict the prognostic outcome following endoscopic decompression procedure to a certain extent.

ACKNOWLEDGEMENTS

Dear Sir,

We intend to publish an article entitled “FUNCTIONAL OUTCOME OF ENDOSCOPIC DECOMPRESSION OF RETROCALCANEAL BURSITIS” in your esteemed journal as a retrospective cohort study. On behalf of all the contributors I will act as guarantor and will correspond with the journal from this point onward. We hereby transfer, assign, or otherwise convey all copyright ownership, including any and all rights incidental thereto, exclusively to the journal, in the event that such work is published by the journal.

Thanking you,

Yours' sincerely,

Dr Aakash Bansal, 3rd year junior resident, department of Orthopaedics, GMC kota

DECLARATIONS

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Fig 2 : Intraoperative photo



Fig 3 : Preop Clinical Photo

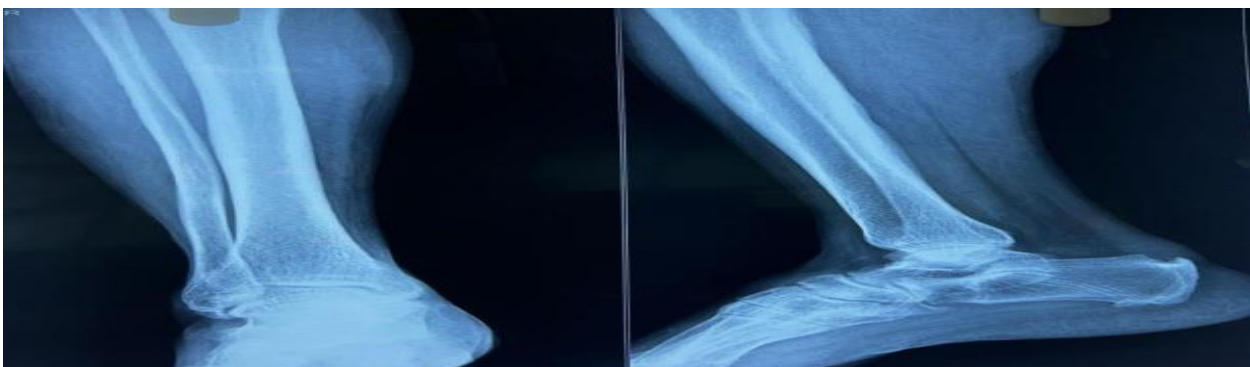


Fig 4 : Preop Xray



Fig 5 : Intraop