



FUNCTIONAL OUTCOME OF CALCANEAL OSTEOTOMY FOR RETROCALCANEAL BURSTITIS

Orthopaedics

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ABSTRACT

INTRODUCTION: Retrocalcaneal bursitis also known as Haglund's syndrome, a common cause of pain in the posterior heel consists of a painful swelling of the local soft tissues and prominence of the posterosuperior calcaneal projection. Conservative treatment of retrocalcaneal bursitis doesn't give complete relief of symptoms in most of the cases. Patients resistant to such conservative treatment are considered for excision of the posterosuperior portion (Calcaneal osteotomy) of the calcaneus. Hence the present study is under taken to assess the outcome of calcaneal osteotomy.

MATERIALS AND METHODS: Twenty patients with retrocalcaneal bursitis treated surgically by calcaneal osteotomy from April 2016 to September 2018 were included in this study. In 26 patients resection of bursal projection (Calcaneal osteotomy) was done through medial approach and 14 patients through lateral approach, as the prominent posterosuperior portion of the calcaneus was located more to the lateral side.

RESULTS: Among 40 patients 34(85%) patients had good results, 4 (10%) patients had fair results and 2 (5%) patients had poor result. Poor result was due to inadequate excision of the bursal projection. Four patients had superficial infection.

CONCLUSION: In this study females were predominantly affected and right side affection was more common. Wearing tight shoe contour is not mandatory to produce retrocalcaneal bursitis. Pre-operative radiological assessment of the superior calcaneal angle varied from 72° to 80°. Patients were mobilized on second post operative day with full weight bearing. Pre-operative planning and intra operative examination was necessary in order to remove an adequate amount of bone which was the key for a successful result.

KEYWORDS

Retrocalcaneal bursitis; Calcaneal Osteotomy; Haglund's syndrome

INTRODUCTION

There are two separate bursae about the posterior part of the heel, the tendo Achilles bursa and the retrocalcaneal bursa. The tendo Achilles bursa is superficial within the subcutaneous tissue adjacent to the insertion of tendo Achilles. The retrocalcaneal bursa is constantly present and lies between the posterior smooth surface of the tuberosity of the calcaneus and the Achilles tendon. Retrocalcaneal bursitis is a common cause of pain in the posterior heel consists of a painful swelling of the local soft tissues. The condition is caused by compression of the distal Achilles tendon and surrounding soft tissue between the os calcis and the shoe with hard contour.

An abnormal prominence of the posterosuperior surface of the calcaneus, also known as the bursal projection is the Haglund's deformity. Haglund is 1928 described this deformity in a 20 year old woman with an associated bursitis between the bony prominence and the Achilles tendon, since then it has been given various names, including pump-bumps, knobby heels, calcaneus altus, high prow heels, cucumber heels, square heels, police man's heels and winter heels.

Conservative treatment of retrocalcaneal bursitis with non steroidal anti-inflammatory medication doesn't give complete relief of symptoms in most of the cases. Local steroid injections can lead to Achilles tendon rupture. Patients resistant to such conservative treatment are considered for excision of the postero superior portion (calcaneal osteotomy) of the calcaneus. Hence the present study is undertaken to assess the outcome of calcaneal osteotomy in the surgical management of retrocalcaneal bursitis.

AIMS AND OBJECTIVES

- To assess clinically the outcome of surgical management of retrocalcaneal bursitis by calcaneal osteotomy
- To study the merits and demerits of surgical management for retrocalcaneal bursitis

MATERIALS AND METHODS

Our prospective study consisted of 40 cases of retrocalcaneal bursitis admitted to Tertiary Care Hospital attached Surat between From April 2016 to September 2018. A careful history was elicited from the patients to reveal the severity and duration of pain and the conservative treatment taken. Other conditions such as gout, rheumatoid arthritis, calcific tendinitis, osteomyelitis and Reiter's syndrome were ruled out. Palpation revealed swelling and tenderness on either side of the tendo Achilles and behind the Achilles tendon on the bursal projection.

Radiographs of the calcaneus, lateral view was obtained. Parallel pitch line was drawn and superior calcaneal angle was calculated. The bursal projection to be resected was assessed. The operative procedure and its advantages were explained in detail to each patient and an informed consent was obtained. The patients posted for surgery were subjected to routine investigations and were referred to the physician for fitness for surgery. The investigations are as follows. Haemoglobin percentage (Hb %), Fasting Blood Sugar (FBS), Blood urea, serum creatinine, HIV, HbsAg, ECG, Urine for sugar and Chest X-ray. All cases were surgically treated with calcaneal osteotomy.

Instruments used:

- Periosteal elevator
- Osteotomes / oscillating saw
- Bone nibblers
- Curettes

Operative Technique

Pre operative planning: When the surgical procedure was decided on, certain preoperative steps were routinely taken. Consent for surgery was taken from the patient and attendant after explaining the procedure and possible complications.

- The leg was prepared from knee to toes.
- Tetanus toxoid and antibiotics were given 1 hour preoperatively.
- Preoperative X-rays of calcaneus lateral views were taken. The bursal projection to be resected was assessed.

Operative Procedure:

Resection of the bursal projection can be done by medial approach or lateral approach.

Medial Approach:

Patient positioning: With the patient prone and the ankle in plantar flexion, tourniquet was applied to thigh for the haemostasis. Leg was prepared from knee to toes, sterile drapes were applied.

Approach: Oblique, slightly curved incision was made on the posteromedial aspect of the heel with care not to injure the superficial branch of the sensory nerve in the area of the structure behind the medial malleolus. Subperiosteally the posterosuperior angle of the calcaneus was exposed by carefully retracting the tendo Achilles laterally, with the use of an osteotome or oscillating saw the bursal projection was excised by directing the blade obliquely from the posterior tip of the talar articulation to the posterior calcaneal

tuberosity.

At the same time the blade was directed obliquely laterally and in plantar direction. By this means the bursal projection and adjoining calcaneus on the superior and superolateral aspect was excised. Once the osteotomy was completed, the portion of the bone was easily shelled out from the surrounding soft tissues. The wound was washed with normal saline, closed in layers, compression bandage was applied and Tourniquet was removed.

Lateral Approach: Curved longitudinal incision was made along the lateral border of the tendocalcaneus and the proximal part of its insertion on the calcaneus, providing good access to the bursa and to the posterosuperior angle of calcaneus. Posterosuperior angle of calcaneus was resected, haemostasis was secured and wound was closed.

Post operative management: A crepe bandage was applied, no immobilization was given. Check X-rays were taken on first post operative day. All the patients were mobilized on second post operative day with full weight bearing.

Appropriate analgesics and antibiotics were given to the patients till the time of suture removal. Sutures were removed on tenth postoperative day. Patients were discharged with advice to perform passive stretching exercises of ankle.

Follow Up: All the patients were followed up at monthly intervals for the first 3 months and at 2 monthly intervals till one year and once in 6 months till the completion of study.

Of the twenty patients of our series minimum follow up period is 4 months and maximum follow up period is 1 year 6 months, average follow up period is 11 months.

On each follow up patient was assessed for

- Percentage of pain relieved
- Presence of pain at rest
- Appearance of pain after sport activity
- Appearance of pain after walking a long distance
- Examined for any tenderness over posterior heel.

ASSESSMENT OF END RESULTS:

Good 100% pain free

- Patient can walk normally to any distance

Fair 100% pain free

- Patient can walk normally without pain. Sometimes pain appears after walking for a long distance or after sport activities.

Poor No pain at rest

- Pain appears after walking even for a short distance Tenderness over the operated site on examination

RESULTS

The present study consisted of 40 cases of retrocalcaneal bursitis treated surgically by calcaneal osteotomy from April 2016 to September 2018. All the patients were available for follow up.

Age Distribution:

Age of these patients ranged from 22 to 61 years with 26 (65%) patients in the 5th and 6th decades. The average age was 44.5 years.

Age in years	No. of Cases	Percentage
20 – 30	4	10
30 – 40	8	20
40 – 50	16	40
50 – 60	10	25
60 – 70	2	5

Sex Distribution:

Majority of the patients, 28 (70%) were females and only 12 (30%) were males

Sex	No. of Cases	Percentage
Male	12	30
Female	28	70

All the patients were agricultural workers and house wives except two patients who were a tailor and teacher.

Side Affected:

In our series most of the patients were affected on right side.

Side affected	No. of Cases	Percentage
Right	20	50
Left	8	20
Bilateral	12	30

Duration of symptoms varied from 6 months to 2 years.

Overall Results:

34 (85%) patients had good results, 4 (10%) patients had fair results and 2 patients (5%) had poor result.

Results	No. of Cases	Percentage
Good	34	85
Fair	4	10
Poor	2	5

Total period of hospitalization:

The number of days spent in the hospital ranged between 10 days to 14 days. The average duration of stay in the hospital was 10.5 days.

Complications:

Intraoperative – No intraoperative complications.

Post operative –

Infection: 4 patients had superficial infection – treated with rest and appropriate antibiotics for 2 weeks

Recurrence of pain – 2 patients had recurrence of pain due to inadequate excision of the bursal projection.

DISCUSSION

Retrocalcaneal bursitis is a common cause of pain over posterior aspect of heel. Haglund's deformity is the contributing factor for retrocalcaneal bursitis. This study was done to determine the efficacy of calcaneal osteotomy in the surgical treatment of retrocalcaneal bursitis. 40 cases of retrocalcaneal bursitis were treated with this procedure. We evaluated our results and compared with those obtained by various other studies opting calcaneal osteotomy. Our analysis was as follows:

Sex distribution: The ratio of females affected were much higher than the males in our study 70%, supported by other studies like Haglund's deformity and retrocalcaneal bursitis by Michael M Stephen's in 1994. In his study men had a lower incidence. But he had pointed out most of his cases were adolescent females contrary to our study where most of the patients were affected between the age group of 30 to 60 years.

In our study most of the patients were affected on the right side in the percentage of 50 (10 patients). 8 patients presented with left side and 12 patients were bilateral.

In our study all patients were presented with pain and swelling on either side of the tendo Achilles which can be clearly seen from behind. Tenderness over the swelling was present in all cases. Michael M Stephens studies showed a prominent posterosuperior portion of the calcaneus is always present when the calcaneus is viewed from behind and it is located more to the lateral side.

In our study 26 patients were operated through medial approach as described by Dickson and Michael M Stephen. In this approach excessive prominence of the posterosuperior portion of the calcaneus is easily visible and it lies directly beneath the incision. 14 patients were operated through the lateral approach as the prominent posterosuperior portion of the calcaneus was located more to the lateral side. By both approaches wound healing was uneventful and there were no complications noticed.

In our study of 40 patients treated with calcaneal osteotomy, 4 patients had superficial infection post operatively. They were treated with appropriate antibiotics after culture sensitivity, wound healed completely after 2 weeks. Michael M Stephens in his study of 14 patients was reported no infections post operatively. Infection can be prevented by taking aseptic precautions during preoperative, operative and post operative period. Meticulous dissection of soft tissue and retracting the tendo Achilles gently to resect the bursal projection and adequate antibiotic therapy is mandatory.

In our study of 40 cases of retrocalcaneal bursitis treated surgically with calcaneal osteotomy, good results achieved in 34 patients (85%), fair results in 4 patients (10%) and poor results in 2 (5%) patients, due to inadequate resection of bursal projection. In comparison with other studies by Michael M Stephen in 1994 achieved 100% results in 14 cases. Huber HM and Waldis treated 165 cases between 1946 to 1985, achieved 80% good results, 20% fair results. Miller AF and Vogel TA (1989) achieved 100% good results in all 18 cases. Angerman P achieved 92% good results 8% fair results.

CONCLUSION

Our study suggests that, calcaneal osteotomy could be an effective treatment for patients suffering from retrocalcaneal bursitis. The limitation of the surgical procedure might be prolonged recovery time. The prolonged recovery times should be explained to the patients before proceeding for the surgical procedure.

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