WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 3, 342-350. Review Article ISSN 2277–7105

HEEL PAIN AND AGNIKARMA: AN AYURVED APPROACH

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Article Received on
26 Dec. 2016,

Revised on 16 Jan. 2017,
Accepted on 06 Feb. 2017

DOI: 10.20959/wjpr20173-7926

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ABSTRACT

Acharya Sushruta explained about Agnikarma (Para Surgical Procedure) for eradication of various diseased conditions of *Sira, Snayu* and *Sandhi* in which pain is a predominant symptom. *Agnikarma* can be ideate as ancient pain treatment tool. Heel pain is common condition that can persist for a long time and turn into a chronic. Untreated heel pain can result in debilitating discomfort. Plantar fasciitis, heel spur, tarsal tunnel syndrome, stress fractures, Achilles tendonitis are common causes for expressing heel pain. In Ayurveda texts it can be correlated with *Vatkantak* and managed successfully with *Agnikarma* procedure.

KEYWORDS: Heel pain, *Agnikarma, Ayurved.*

INTRODUCTION

Heel pain is one of the most commonest complains of with which a person that face, especially women, presents to the out-patient department. Mild heel pain can be short term and may disappear on its own. However, it can persist for a long time and turn into a chronic condition which needs immediate attention. Up to 10% of the population may present with heel pain over the course of their lives.[1]

Pain in the heel may be the result of arthritic, neurologic, traumatic, or other systemic conditions. The Reasons for heel pain include Planter fasciitis, Retrocalcaneal bursitis, planter fasciosis, atrophy of heel pad, Achilles tendinitis, Haglund's deformity, enlarged calcaneal spur, degeneration of achilles tendon insertion. Neurological conditions such as

tarsal tunnel syndrome or entrapment of nerve to abductor digiti quinti, degenerative disc disease with radiation toward heel. Systemic disease (e.g., psoriatic arthritis, Reiter's disease, rheumatoid arthritis, fibromyalgia and gout). Post traumatic conditions (calcaneal fracture, injury to sustentaculum tali and the plantar calcaneal tubercles, avulsion of the posterior aspect of the tuber. Among them the most common cause of heel pain is plantar fasciitis.[2] Heel pain may be due to arthritic, neurologic, traumatic or other systemic conditions but most commonly is mechanical in origin.

VARIOUS POTENTIAL DIAGNOSIS FOR HEEL PAIN

Plantar Fasciitis: Patients usually report a maximal area of tenderness localized over the medial calcaneal tuberosity at the plantar aponeurosis. Patients typically complain of gradually worsening pain at the inferior heel near were the plantar fascia attaches. Typical pain is described as throbbing, searing, or piercing and is usually worse with their first few steps in the morning or after a period of inactivity.[3][4] Walking barefoot, on toes, or upstairs can aggravate the pain. They also may report limping while trying to keep their heel off of the ground. **Risk factors** that predispose patients include walking barefoot, sudden increase in amount or intensity of running or walking, Poor footwear, or Inadequate stretching exercising on a different surface.

Achilles Tendinopathy: Localized pain over the Achilles tendon, usually worse at the beginning and end of exercise.[5] In the acute phase the tendon is diffusely swollen with tenderness to palpation most severe 2-6cm proximal to the tendon insertion, in some cases crepitation can be felt due to fibrin precipitation. In chronic cases edematous swelling and crepitation is no longer present, but painful exercise remains. Also, tender nodular swelling may be present.[6] In severe cases it can affect activities of daily living, including constant pain during light walking. The diagnosis of **Achilles tendinopathy** is primarily made through history and physical exam, but imaging can be useful to confirm clinical suspicion or exclude other disorders. Ultrasound can be used for acute or chronic cases. In acute cases it shows fluid accumulation around the tendon. In chronic cases, a thickened irregular hypoechoic signal around the tendon is a sign of peritendinous adhesions.[7]

Tarsal Tunnel syndrome: Tarsal tunnel syndrome is caused by damage to the posterior tibial nerve where it travels under the flexor retinaculum on the medial side of the ankle, just posterior to the medial malleolus. The initial and most defining characteristics of tarsal tunnel syndrome are paresthesias or burning sensation at the medial plantar aspect of the foot.[8]

Painful pressure on the medial side of the ankle is a common complaint, which can intensify the paresthesias. Physical exam can elicit symptoms with forced eversion and dorsiflexion of the foot. Weakness appears first in the toe abductors and toe flexorsmuscle atrophy[9] and decreased sweating are later occurrences.

Ankle/Foot Fracture, Stress Fracture[10]: Patients complain of pain in the posterior heel during an increase of weight-bearing activity, the pain occurs at first during increased activity and over time will present at rest and exacerbate on walking harder surface. Physical exam can show edema or ecchymosis over the calcaneus, as well as point tenderness to palpation. The most common site of fracture seen on imaging is inferior and posterior to the posterior facet of the subtalar joint, but can also be seen in the anterior and middle calcaneus with lesser incidence. X-ray is not sensitive to stress fractures and if negative an MRI or bone scan may be necessary to confirm the diagnosis. Both imaging techniques have a high sensitivity, with MRI having a higher specificity.[11]

Heel Spur: A spur is a bony projection forwards from under surface of calcaneal tuberosity. It is nothing but ossification of the plantar fascia at its calcaneal end. Sharp pain in the morning upon standing and first steps, but improves throughout the day.[12] X-rays can provide information about heel spur location and length; it is believed that heel pain is related to an increased length of the heel spur. Ultrasound can also assess the length of the heel spur, but can also evaluate any fat pad abnormalities, which has been correlated with heel pain.[13]

Conditions	Common findings
Neuropathy such as from diabetes	Paresthesias in plantar region
Acute calcaneal fracture	Likely after hard landing on heel
Calcaneal stress fracture	Most likely seen in runners
Sever disease: calcaneal apophysitis	Seen in pediatric patients with open physes
Rheumatoid arthritis	Expect pain in multiple joints along with heel pain
Fat pad atrophy	More common in elderly people
Fat pad contusion	More likely associated with hard landing on heel
Achilles tendinitis	Posterior calcaneal tenderness and tendon pain
Retrocalcaneal bursitis	Pain in retrocalcaneal bursa
Posterior tibial tendinitis	Pain along posterior tibial tendon and at insertion mid foot at the arch

AGNIKARMA

Agnikarma (Para Surgical Procedure) is an ancient pain treatment tool that has been practiced and documented for at least 3000 yrs.[14] Classical texts explain the Agnikarma in detail for the management and eradication of various ailments with the limitation to understand its

application and standardized methodology for each ailment. Agnikarma is mainly indicated in Ruja pradhana, Vata and Kaphaja vyadhis. It is of 2 types viz Ruksha Agnikarma (performed with dry substances) and Snigdha Agnikarma (per-formed with oily/sticky substances). Pancha dhatu shalaka is used on a regular basis for the purpose of Agnikarma irrespective of the structure involved or level of the pathology. But according to the classic, specificity of Dahanopakarana depends on the disease level concerned.[15] Most of the painful conditions are related to musculoskeletal system which comprises bones, joints, tendons, ligaments etc. The Dahnopakaranas mentioned for the diseases of these locations are Snigdha dravyas such as Kshaudra, Guda, Taila, Vasa, Madhuchista etc., as they have the deep heat penetration capacity with a greater latent heat period. Sushruta has described four types of Agnikarma on the basis of shapes which depend on different location of the body. These include Valaya, Bindu, Vilekha and Pratisarana1. Vagbhata adds three more types viz, Ardhachandra, Svastika and Ashta-pada.

Different *Dahanopakaranas* depending upon the disease level [16]		
Twak	**Mansa**	**Sira,Snayu, Asthi, Sandhi**
Pippali, Aja Shakrit Godanta Shar Shalaka	Jambavostha Loha Swarna Tamra	Madhu Guda Sneha

AGNIKARMA IN VATAVYADHI

Snehopanaha **agnikarma** bandhana unmardanani cha,

Snayu sandhyasti samprapte kuryat vayaavatandritaha. (Su. Chi. 4/8).

Snayu, sandhi sthan aashrit vatavyadi can be consider such as Vatakantak, Parshneeshool. In such condition management should be done with oleation, poultice, **Agnikarma,** Bandaging and massage up to a considerable relief from pain.[17]

Agnikarma with Snigdha dravya (Kshaudra, Guda, Taila, Vasa, Madhuchhista) can be consider in Gambheera dhatu gata vyadhi like Heel pain; Snayu, Asthi involvement; as Dhahanopakaran. Snigdha dravya owing to its higher latent heat can effect a greater fluctuation in the temperature of the tissue surface and also that of subsequent layers. Eventually the heat penetration will always be higher when such liquids are used for Agnikarma. It gives better results than that of Ruksha Agnikarma, when used for the disease of Snayu, Sira, Sandhi and Asthi.

Snigdha Agnikarma can be therapeutically use[18] as relief of pain, relief from muscle spasm, acceleration of heating, promotion of resolution of chronic inflammation and increase in the ROM.

In classical texts heel pain is associated with such ancient terms as Vatakantak.

VATAKANTAK

Nyaste tu vismam paade rujah kuryaat samiranna
Vatakantak itiyesa vigyeya khudakashritah Su.Ni.1/79.

Sushruta mentioned that the disease *Vatakantaka* is caused by vitiated *Vata Dosha* due to constant standing and walking on uneven surface resulting into pain in foot.[19] It is characterized by *shool* (pain) and *shotha* (Inflammation) in *khudak* (Heel) which is *Snayu Asthi Sandhi* Ashrit.

Various studies have been conducted on Heel pain

1. *AGNIKARMA* ON *PARSNISULA* (PLANTER FASCITIS)[20]: Author selected 30 patient for the treatment of Parsnishoola. Clinical improvement assessed on the basis of Scoring pattern [**Pain in morning**, **tenderness of heel**, typical pain **increased** when standing/walking/ running after getting up from sitting posture and **localized swelling**]. He revealed from study that 15 patients have got excellent response, 11 patients have got fair response whereas 4 patients have got no response on the basis of individual assessment of symptoms. Also observed that Parsnishoola or Plantar fasciitis is commonly seen in female subjects specifically in pre-menopausal age (31-40 yrs.). Finally concluded that Agnikarma is the right solution for the treatment of Parsnishoola.

The pain is usually caused by collagen degeneration at the caused by collagen degeneration at the origin of the plantar fascia at the medial tubercle of the calcaneus. This degeneration is similar to the chronic necrosis of tendonosis, which features loss of collagen continuity, increases in ground substance (matrix of connective tissue) and vascularity and the presence of fibroblasts rather than the inflammatory cells usually seen with the acute inflammation of tendonitis.

2. *AGNIKARMA* ON CHRONIC PLANTAR FASCIITIS[21]: Author reported a case of chronic plantar fasciitis treated by Agnikarma for a period of 45 days. In this period 6 sittings were administered at the interval of 7 days giving a complete relief from pain. After

completion of Agnikarma, the patient was followed up and observed for recurrence for 3 months but recurrence of symptoms were not observed.

3. *AGNIKARMA* IN *VATKANTAK* (CALCANEAL SPUR)[22]: Author reported an innovative idea for *Agnikarma* on temperature controlled design. Electric designed *Agnikarma Shalaka* with **0^0C -200 ^{0}C**. Temperature control used in study. Author selected 30 patients of Painful heel (Calcaneal spur). Divided into 2 groups on temperature basis N=13(**100^0C -150^0C)** and another N=17(**150^0C -200^0C.**). *Bindu Vat AgniKarma* pattern done on lateral Aspect of heel. *Ghrita lepan* was done after procedure and followed up was taken on 7th day. 13 treated patient got unsatisfactory while 17 got satisfactory result. Author concluded on obtained results that more the temperature more the pain relief. Agni karma which is done near 150-200 Celsius got more relief then who is treated with 100-150 Celsius. Hence Agnikarma at higher temperatures is having instant pain relief properties

4. *AGNIKARMA* IN VARIOUS PAINFUL CONDITIONS OF LOWER EXTREMITIES[23]: (N=30) Author selected 30 patients of various painful conditions of lower extremities i.e. Parshnishool, Janu shool, Kadar, Gridhrasi and Gulfashool. Out of them 13 patients were of Parshnishool (N=13). Agnikarma treated site was dressed with Kumari pulp or ghee mixed with honey. Follow up taken of 8 days. Author concluded that pain reduced immediately after Agnikarma in almost cases.

5. *AGNIKARMA* IN THE MANAGEMENT OF CALCANEAL SPUR[24]: Author reported a case of calcaneal spur with severe pain and tenderness. 5 consecutive sitting done with 8 days interval. *Madhu Ghrita* applied prior to dressing. Severe heel pain was gradually reduced within 5th sitting. Concluded that Agnikarma is a very effective, easy and simple procedure that can implied as outpatient procedure for treating calcaneal spur.

6. MANAGEMENT OF PARSHNISHOOL WITH *AGNIKARMA*[25]: Author selected a case of 45 yr. Male patient with complain of severe heel pain in the morning since one week. Case was suffering since last 3-4 months. *Goghruta* was used for local application after Agnikarma. 3 sittings were done with 5 days of interval. Pain was completely subsided after 3rd sitting of Agnikarma. Concluded that Agnikarma is a better treatment than any other management of Parshnishool.

CONSERVATIVE TREATMENTS FOR HEEL PAIN

Use of a no steroidal anti-inflammatory drug (NSAID), physiotherapy, low-energy extracorporeal shock-wave therapy, Corticosteroid Injections, Low-Dye Taping[26], Heel Cups[27], dorsiflexion night Splints[28] and Orthotics[29] are useful as conservative treatment plan for regarding etiology of heel pain.

SURGICAL TREATMENT OPTIONS FOR HEEL PAIN

Operative intervention is reserved only for cases that have not responded to non-operative treatments over a period of at least four to six months.

CONCLUSION

Conservative Treatment of heel pain is indicated in early period of onset of symptoms whether surgical correction have their merits and demerits. Agnikarma procedure is cost effective and easy to undertake in OPD level. Various researches proves its effectiveness in heel pain mostly caused by planter fasciitis or calcaneal spur; symptomatic relief occurs instantly and reoccurrence of symptoms are very less in average more than 5 sitting of Agnikarma in different pattern mentioned in texts. So it can be conclude that Agnikarma procedure provide instant pain relief in non-inflammatory conditions.

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