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ROLE OF LEECH THERAPY TO ENCOUNTER HEEL PAIN IN ASSOCIATED CONDITIONS OF RETROCALCANEAL BURSITIS, PLANTAR FASCITIS WITH TENOSYNOVITIS: A CASE STUDY

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ABSTRACT

Pain at posterior heel or posterior ankle is most commonly caused by specific or nonspecific pathological conditions occurring at posterior calcaneus, the Achilles tendon or associated bursae. This may lead to painful and restricted movements with hampered day to day activities. The available treatments are NSAIDS, local injection of steroids and Surgery that are costly and with adverse side effects. A male patient aged 22 years visited the Shalya OPD of M.A Podar hospital with complaints of severe pain and swelling in Right heel, difficult and painful walk and warm skin on back of heel. He was involved in Kabaddi sports from last 3 years. MRI of Right ankle joint reported the inflammatory changes within the retrocalcaneal and supra calcaneal soft tissues being associated with moderate bursitis. Minimal fluid along tibialis posterior and flexor digitorum tendons suggestive of tenosynovitis. Mild ankle joint and subtalar effusion along with plantar fasciitis. The patient was successfully managed with Leech application on affected heel and ankle site, once in a week for a total of 6 sittings for 42 days along with oral intake of Dashmool, Punarnava and Guduchi decoction 20ml BD. The localized swelling and warmth got completely reduced and a considerable relief in pain was achieved. The mobility of joint improved with a happy and comfortable walk thereby, fulfilling the main goal of treatment.

KEYWORDS: Jaloka Avcharana, Leech therapy, Shotha, Inflammation.

INTRODUCTION

Bursitis is the inflammation of bursa. The bursa itself is fluid filled and is rich in hyaluronate,[1] Retrocalcaneal bursitis is a commonly co existing pathology with insertional Achilles tendionopathy's. The Retrocalcaneal bursa,[2] that is anterior or deep to the Achilles tendon and the subcutaneous calcaneal bursa,[3] also called as achilles bursa, which is posterior or superficial to the Achilles tendon – the inflammation of these two respective calcaneal bursae is commonly caused by repetitive trauma or overuse, and the condition is aggravated by pressure, such as when athletes wear tight fitting shoes. The primary purpose of the retrocalcaneal bursa is to protect the Achilles tendon from friction and shear forces against the calcaneus,[4] Inflammation of either or both of these bursae can cause pain at posterior heel and ankle region.[5] Modern treatment involves the Corticosteroid injections, microcurrent therapy and surgical method Bursectomy wherein the bursa is removed from the back of ankle. The tibialis posterior tendon is the largest and most anterior lying tendon on medial aspect of ankle. It produces plantar flexion and supination of the ankle and is also one of the main sources of support for the medial arch of foot. Pain and swelling with tenderness of the Tibilais posterior behind the medial malleolus is suggestive of tenosynovitis. The plantar fascia is a thick connective tissue (aponeurosis) that runs from the tuberosity of the calcaneus forward to the head of metatarsal bones. It supports the medial and lateral longitudinal arches of the foot and helps prevent arch flattening. Plantar fasciitis is one of the most common cause of heel pain.[6] Such pathologies may be the outcome of trauma, excessive running, jumping or putting heavy load on feet and the athletes are much more prone to this painful condition of heels. The trauma to calcaneum bone, inflammation of its associated tendons and lubricating cushions bursae exhibits intense painful condition of ankle joint and respective heel.

Inflammation associated with effusion has been treated as an independent entity in the Ayurveda Samhitas *Charaka, Sushruta* and *Ashtanga Sangraha*. *Shotha* as a disease, is caused due to derangement of *Doshas*, which may appear in any part of the body involving *twaka and mamsa*. It is characterized by heaviness, instability, discoloration, thinning of veins and raised localized temperature.[7] Etiologically, *Shotha* is divided into two types - *Nija* (due to intrinsic factors) and exogenous called as *Agantuja.*[8] *Sushruta* mentioned the treatment of *shotha* with *Visravana* technique in early stage of shotha (inflammation) and to reduce the pain and inflammation and to avoid complication like suppuration.[9] *Rakta Visravana* can be done with Siravedha (Venesection), Shrung application (application of cow

horn), Alabu application (*Lagnaria vulgaris*) and Jalaukavacharan (leech therapy)

The present case of tenosynovitis, bursitis and plantar fasciitis- all these are local inflammatory conditions that occurred in the subject due to an extrinsic cause and can be co-related with Agantuja Shotha for which Leech therapy is being advocated as treatment for Pain management.

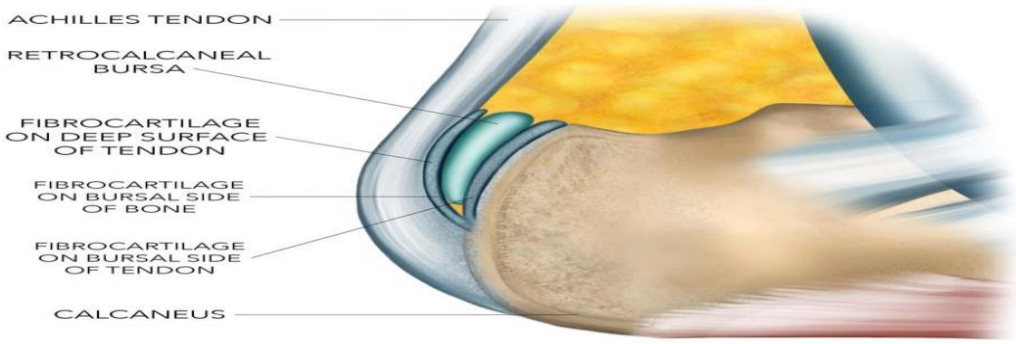

Figure 1: The anatomy of retrocalcaneal bursa.

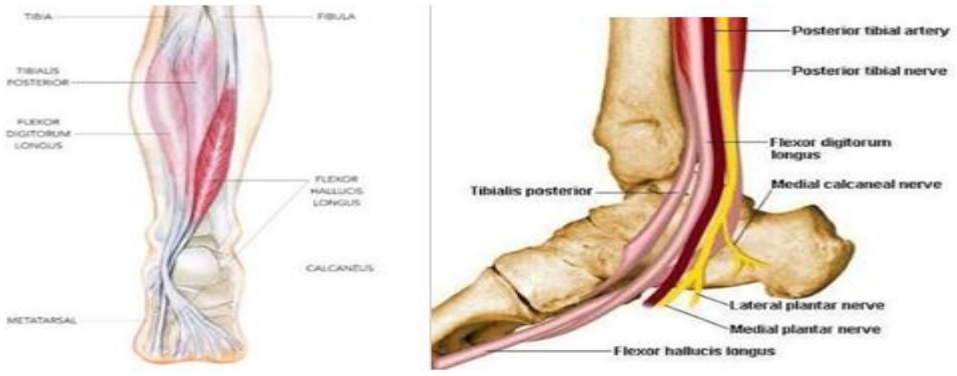

Figure 2: Location of tibialis posterior & flexor digitorioum.

Case History

A male patient aged 22 years visited the Shalya OPD of M.A Poddar hospital with complaints of

- Severe pain and swelling in Right heel
- Difficult and painful walk
- Discoloration and warmth on back of heel.

Personal History: The patient was involved in Kabaddi sports from last 3 years. He used tight shoes while play for a period of 6 months, when all of a sudden, the pain arises at heel region and the condition got worsened with ignorance.

MRI Right ankle joint reported the inflammatory changes within the retrocalcaneal and supra calcaneal soft tissues being associated with moderate bursitis. Minimal fluid along tibialis posterior and flexor digitorum tendons suggestive of tenosynovitis. Mild ankle joint and subtalar effusion along with plantar fasciitis.

Signs and Symptoms

a) Severe Pain at the back of right heel
b) Localized Swelling and prominence of Achilles tendon.
c) Redness at the posterior aspect of heel and leg.
d) Disability in walk.
e) Pain gets worse with increased activities which loads the calf
f) Tenderness at the back of heel
g) Pain on dorsiflexion of foot.

Treatment

Hirudo Medicinalis Leeches that are indicated for medical use are applied locally on posterior aspect of heel and ankle joint once in a week for a total of 6 sittings for 42 days along with oral intake of Dashmool, Punarnava and Guduchi decoction 20ml BD.

Patient was advised to avoid excess movements, wear soft shoes and foot elevation at night.

After obtaining voluntary informed consent from patient this study is being reported for publication.

Criteria for Assessment

- Subjective Parameter-(A) Pain
- Objective Parameter -(B) Swelling (C) Redness (D) Tenderness

1. Pain

Pain rating is started from the zero day when he arrived to the OPD for treatment purpose. Total 6 sittings were given of leech therapy and on every visit, that is once a week, the patient was asked to give the Pain rating using the Numerical rating score scale.

Numerical rating score scale

1	2	3	4	5	6	7	8	9	10

Grade

- No pain
- 1-3- Mild pain
- 4-7- Moderate pain
- 8-10- Severe pain

2. Swelling

Grade 0- No swelling **Grade** 1- Swelling present.

3. Redness

Grade 0- absent

Grade 1- present

4. Tenderness

Grade 0-No tenderness

Grade 1-Tenderness on deep palpation **Grade** 2-Tenderness on light palpation **Grade** 3-Does not allow the touch.

Note: Do Not Ignore Heel Pain

OBSERVATION AND RESULT

Figure 3: Before Treatment.

Figure 4: After Treatment.

Subjective Parameter (Pain)

Leech sittings date	Score
22.6.19(First OPD Visit)	10
27.6.19	10
3.7.19	8
10.7.19	6
17.7.19	4
24.7.19	2
1.8.19	1

Objective Parameters

Criteria	Before Treatment	After Treatment
Swelling	Grade 1	Grade 0
Redness	Grade 1	Grade 0
Tenderness	Grade 3	Grade 0

RESULT

The bio active saliva decreases the host's normal humoral and cellular immune responses including inflammation, pain and swelling.

DISCUSSION

Leech has shown tremendous result in the inflammatory conditions and therefore, this present case of Retrocalcaneal bursitis, Tibialis posterior Tenosynovitis and plantar fasciitis has been successfully managed. The excruciating heel pain, localized swelling on posterior aspect of calcaneus and redness significantly dropped with the advised treatment and the Quality of life of patient considerably improved.

Leech Saliva contains a number of bioactive substances that reaches the deeper tissues, tendons, adjacent structures on the site of application and exerts substantial effects. The saliva of leech contains certain substances that have anticoagulant and blood circulation enhancing effects(eg.Hirudin, Factor Xa inhibitor, calin); thrombolytic (eg.destabliase, hyalouronidase, hirudin); vasodilator(eg.acetylcholine, histamine like substance, Carboxypeptidase A inhibitor); anti inflammatory (eg.bdellins, eglins, anti stasin, leech derived tryptase inhibitor) actions. The local analgesic, anti edamatous and antiphlogistic effect by these substances enforced by hyaluronidase and counter-irritation has proved to be helpful in reducing the sign and symptoms.[10,12]

The continuous sucking of Leech removes the pooled blood that is loaded with deep seated toxins and eradicates the effusion of ankle joint. Their bioactive substances bring about

vasodilatation and increases micro circulation, thereby, restores the blood circulation in the nidus of inflammation to remove ischemia, provides capillary tissue exchange, improve the immune protection and regeneration of tissues.

This parasurgical therapy along with the oral medications- Dashmoola, Guduchi and Punarnava 20 ml BD pacifies the Tri-doshas, clears the blocked channels and remove toxins, does strotas shodhana and improves the Vaivarnyata, thereby restoring the normal colour, mobility and does tissue repair.

CONCLUSION

The simple bloodletting therapy have evolved into a scientifically based physiological process with rational defined clinical applications. Using this traditional healer, one can avoid the hazards of analgesic and anti-inflammatory drugs. The pharmacological active substances led to the reduction of inflammation by virtue of which swelling decreased, pain decreased and the restriction of joint decreased. The redness and warmth completely disappear as Leech mainly acts on balancing the Rakta Vitiated with Pitta dosha. Patient gains a comfortable and happy walk. Hence, it can be concluded that Leech therapy encounters Heel pain in associated conditions of RCB, Plantar fasciitis with Tenosynovitis.

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