

## TREATMENT OF BONE MARROW EDEMA OF TALUS BONE BY JALAUKAACHARANA (LEECH THERAPY): A CASE STUDY

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**Abstract:** Bone marrow edema is the inflammation of the bone marrow that may occur secondary to a trauma of the bone or other nearby tissues. Bone marrow edema of the talus bone is a rare cause of pain in feet. No specific treatment is available for this condition till date. As per Ayurveda, if *Asthi gata vidradhi* is not treated appropriately it may leads to *Majja -paak* (inflammation of bone marrow). In the present study the case of bone marrow edema of talus bone was treated by *Raktamokshana* (Leech Therapy). This case study reveals importance of the age old treatment methodology of Ayurveda that one should ascertain the progression of the disease first and then only treatment must be planned

**Keywords:** Ayurveda, Bone marrow edema, Leech therapy *Raktamokshana*, *Majja-paak*, *Asthigata vidradhi*

### Introduction

Bone marrow edema is the inflammation of the bone marrow that may occur secondary to a trauma of the bone or other nearby tissues. It may be found associated with other diseases of the bone like osteoarthritis, inflammation of the synovial membrane and other joint disorders (<http://www.wisegeek.org/what-are-the-causes-of-bone-marrow-edema.htm>).

Bone marrow edema of the talus bone is a rare cause of painful foot. There is no specific treatment available for this condition, but symptomatically it is treated with anti-inflammatory medicines and surgical treatment like core decompression. Infusion of Iloprost has shown excellent efficacy in treating this disease (**Aigner, N. et al 2001**).

As per *Ayurveda*, the inflammation of bone marrow (*majja-paaka*) (*S.S.Ni. 9/33-37*) may result from inappropriate management of bone abscess (*asthigata vidradhi*).

### Case report

A 62 year old male with slightly limping gait presented with the complaint of pain and swelling over right ankle due to which he was unable to walk smoothly. Mild swelling and tenderness over ankle joint was observed during local examination. Skin over that area was slightly reddish. (**Figure-1**)

There was history of blunt trauma at his right ankle nearly one and half month back for which he took some analgesics. Next morning



**Figure 1.** Photograph of right ankle before treatment.

he had pain and swelling on the ankle for which he consulted a physician who advised him massage with some medicated oil, and hot fomentation for 5 days on injured area. But the patient got no relief and sought expert opinion from an orthopedic surgeon who advised him digital x-ray of right ankle. The X-ray showed no abnormality. Presuming soft tissue injury, crepe bandage was advised for 3 days but the condition remained unchanged.

The doctor advised him antibiotics and anti-inflammatory drugs and applied POP cast for 21 days. He got some relief in pain but swelling and tenderness were still persisted after removal of cast. The patient again consulted the orthopedic surgeon who advised a MRI scan of the ankle joint which showed *marrow edema predominantly involving the dome and the neck of talus along with involvement of lower end of tibia. The associated cortical erosions and mild joint effusion were suggestive of infective etiology* (Figure-2 and Figure-3).

As MRI report was suggesting an infective pathology, a haemogram was advised which showed all parameters within normal limits except a slightly raised Erythrocyte Sedimentation Rate (ESR). ELISA for Mycobacterium TB Antibodies was done to exclude tubercular pathology that showed equivocal IgG and negative IgM levels which ruled out the suspicion of infective pathology. The patient was prescribed another course of antibiotics and anti-inflammatory drugs for a week without any further relief in the condition. He was then referred to a physiotherapist who suggested hot saline fomentation and a brace for 15 days which improved the condition slightly. The patient then reported to us.

### Treatment and result

Along with the history of blunt trauma, presenting signs like swelling (*Shopha*), pain, tenderness (*Sparshaashyata*) and redness (*Lohitaabhaasta*) over right ankle were indicating a pathology due to *Rakta* and *Pitta* (A.H.Ni. 13/38,34) so he was advised *Raktamokshana* (blood-

letting). Considering a localized condition having pathology due to *Rakta* and *Pitta* (S.S.Su. 13/6), *Jalaukaavcharana* (leech therapy) was initiated after taking written consent of the patient (Figure-4).

In first course, three leeches were applied on and around the right ankle joint for about 40 minutes. After first course of therapy the swelling as well as discomfort in walking was reduced considerably. Three more courses of therapy were given at the intervals of 7 days. In all of these consecutive courses of therapy, fresh leeches were used for 30 to 40 minutes. During the whole course of *Jalaukaavcharan*, no oral medicament was given. The pain was assessed using the Numeric Rating Scale for pain. (McCaffery, M., & Beebe, A. 1993).(Table-1).

**Table 1.** Assessment of Pain  
(Jalaukaavcharan treatment)

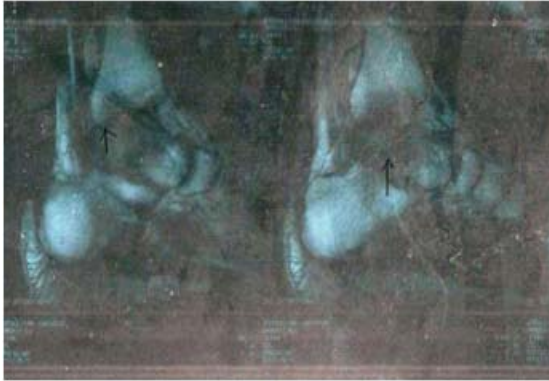
	Before treatment	At 1 <sup>st</sup> week	At 2 <sup>nd</sup> week	At 3 <sup>rd</sup> week
Rating	7	5	2	0

After completion of therapy there was no pain and tenderness, and no swelling was observed over ankle joint.

After period of approximately one month patient's gait showed no abnormality and there was no swelling or tenderness over his foot. (Figure-5). No further treatment was given.

After 39 days of completion of treatment, the MRI scan was suggestive of subcutaneous edema with patchy areas of bone marrow edema involving the sub-articular region of tibia and the talus bone with involvement of the rest of the tarsal bones, minimal joint effusion in the tibio-talar joint.

On comparison with previous scan there is regression of marrow edema in the tarsal bone with persistence of edema in the lower end of tibia. (Figure-6 and Figure-7).



**Figure 2.** MRI scan showing joint effusion.



**Figure 3.** MRI scan showing bone marrow edema.



**Figure 4.** Application of leech over right ankle joint.



**Figure 5.** Photograph of right ankle after treatment.



**Figure 6.** MRI scan showing minimal joint effusion.



**Figure 7.** MRI scan showing minimal bone marrow edema.

### Discussion

In present case study, there was history of trauma at ankle joint and MRI scan before initiation of treatment showed bony erosions and joint effusion over the affected area. These findings suggested the condition as early stage of *asthi vidradhi*. The bone marrow edema shown in MRI scan may be correlated with

*Majja-paak*. As per Ayurvedic classics, *Aagantuja shopha* (edema caused by external factors) leads to vitiation of *rakta* and *pitta* (S.S.Su. 17/4-5), and therefore initially cold treatment is indicated as it helps to alleviate the *shotha* by reducing the effects caused by the property of hotness of the *Doshas* (A.H.U. 25/24). As the patient did not take proper rest and

was given hot fomentation and massage of oil in the early stage, that could have further vitiated *Rakta and pitta* (vitiating of blood and *pitta*) leading to worsening of the condition. It seems that the condition of simple *Abhighataja shopha* worsened to become *Asthi Vidradhi* and *Majja paak* (bone marrow edema) (S.S.Ni. 9/12-13 &36-37).

*Raktamokshana* is the choice of treatment for both *Kshataja shotha* (A.H.Ch.17/41) as well as *Majja-paak* (S.S.Ch.16/39). As a complication gets subsided by the treatment of the main disease (C.S.Ch. 21/40), *Raktamokshana* by application of leech proved very effective in this case.

### Conclusion

This case study shows the efficacy of leech therapy in the condition of bone marrow edema of the talus.

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