



## EFFECTIVENESS OF LEECH THERAPY IN DIABETIC FOOT ULCERS – A CASE STUDY

Ramesh Kaundal<sup>1</sup>, Eliza Pandey<sup>2</sup>

<sup>1</sup> Lecturer, Dept. of Shalya Tantra, Govt. Ayurvedic College, Patiala., <sup>2</sup> Intern, Govt. Ayurvedic College, Patiala. Institution – Government Ayurvedic Hospital, Patiala, Punjab, India. Pin code- 147001

Corresponding Author: [pandeyeliza13@gmail.com](mailto:pandeyeliza13@gmail.com)

<https://doi.org/10.46607/iamj4311022023>

(Published Online: February 2023)

### Open Access

© International Ayurvedic Medical Journal, India 2023

Article Received: 20/01/2023 - Peer Reviewed: 29/01/2023 - Accepted for Publication: 09/02/2023.



## ABSTRACT

Diabetes has steadily increased in India and around the world over the last three decades, with India accounting for a sizable portion of the global burden. When chronic and uncontrolled, this disease causes diabetic feet which often lead to unhealed ulcers, resulting in the onset of infections eventually requiring limb amputations, which impacts the individual's physical and mental well-being. A 58 yr. the male patient visited Govt. Ayurvedic Hospital, Patiala with a complaint of chronic nonhealing ulcer on his left foot. After visiting various allopathic hospitals, he'd been advised amputation of his second metatarsal. He was given three sittings of leech therapy and the results when advanced were remarkable. The study below justifies that medicinal leech therapy is an effective, efficient, safe, and in-expensive way to bring about healing in chronic, non-healing wounds which also include diabetic foot ulcers.

**Keywords:** Diabetes, Diabetic foot ulcers, Nonhealing ulcers, Leech Therapy, *Jalauka Avcharana*

## INTRODUCTION

Diabetes has steadily increased in India and around the world over the last three decades, with India accounting for a sizable portion of the global burden. Diabetic foot is one of the most severe complications of chronic uncontrolled diabetes which causes lesions in the deep

tissues of lower limbs and is associated with vascular and neurological diseases ultimately resulting in amputations. Limb amputation has a major impact on the individual's body image, and can cause loss of productivity, increased dependency, and high costs of



wound at the first toe had disappeared and the one at the second toe had clean margins and there was a significant reduction in its size.



**A** During the first sitting of leech therapy  
**B** Second sitting of leech therapy  
**C** Second sitting of leech therapy

## DISCUSSION

The pathophysiology of diabetic foot ulcers commonly involves three significant features - diabetic neuropathy, peripheral arterial occlusion, and infection which result in deformity.

In this patient, the probable course of the disease can be described as - once the neuropathy set in, it caused increased skin pressure while walking. The poor blood supply and circulation caused limb ischemia and ulcers to spurt out/form at the pressure site. The decreased blood supply acts as a breeding ground for microorganisms and the infection later occurs. In this case, the healing was brought in by improving the

blood supply of the area with the help of leeches. They sucked the impure blood, causing negative pressure to build up, hence enhancing the blood flow to the limb. Following a leech bite, it has to establish a sucking pathway (extracellular matrix degradation); inhibit adhesion, aggregation, and coagulation (inhibition of platelet functions, and anticoagulant effect); increase blood flow; protect itself (antimicrobial activity); and avoid detection (analgesic and anti-inflammatory effects).<sup>3</sup>

A few of the active principles of leeches are listed below -

**Table<sup>4</sup>**

Modes of action	Substance
Analgesic and anti-inflammatory effects	Antistasin, hirustasin, ghilantens, eglin C, LDTI, complement C1 inhibitor, guamerin and piguamerin, carboxypeptidase inhibitor, bdellins, and bdellastasin
Extracellular matrix degradation	Hyaluronidase and collagenase
Increasing blood flow	Acetylcholine, histamine-like molecules
Inhibition of platelet function	Saratin, calin, apyrase, decorsin
Anticoagulant effect	Hirudin, gelin, factor Xa inhibitor destabilase, new leech protein 1, whitide, and whitmanin
Antimicrobial effect	Destabilase, chloromycetyn, theromacin, theromyzin, and peptide B

## CONCLUSION

The study indicates that medicinal leech therapy has convincing potential in healing various types of chronic wounds. It is an effective, efficient, safe, and in-expensive way to bring about healing in chronic, non-healing wounds which also include diabetic foot ulcers. The therapy appears to work by venous decongestion, thrombolysis, blood and lymph flow enhancement, and the suppression of inflammation.

## REFERENCES

1. Shobhana R, Rao PR, Lavanya A, Vijay V, Ramachandran A. Cost burden to diabetic patients with foot complications: a study from Southern India. *J Assoc Physicians India* 2000; 48: 1147-1150.
2. Lepäntalo M, Apelqvist J, Setacci C, Ricco JB, de Donato G, Becker F, Chapter V: Diabetic Foot. *European*

*Journal of Vascular & Endovascular Surgery*. 2011 Dec 01 42:S60–74. [Crossref], [Google Scholar]).

3. Ali K, Sig, Mustafa Guney, Aylin Uskudar Guclu, and Erkan Ozmenc. Medicinal leech therapy—an overall perspective. *Integrative Medicine Research - Korea Institute of Oriental Medicine*. 2017 Aug, 10 6(4): 337–343.
4. Amarprakash p. Dwivedi. Case study of leech application in diabetic foot ulcer. *International Journal of Research in Ayurveda and Pharmacy*. 2012 Oct 3(5): 748-751

**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: Ramesh Kaundal & Eliza Pandey: Effectiveness of Leech Therapy in Diabetic Foot Ulcers – A Case Study. *International Ayurvedic Medical Journal* {online} 2023 {cited February 2023} Available from: [http://www.iamj.in/posts/images/upload/466\\_469.pdf](http://www.iamj.in/posts/images/upload/466_469.pdf)