



Management Of Ischemic Pain In Post- Amputation Diabetic Foot By Leech Therapy: A Case Study

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Abstract: Diabetic foot complications, especially in chronic cases, often culminate in ischemic pain and even limb amputation. Post-amputation ischemic pain remains a significant concern, affecting quality of life and wound healing. This case study explores the efficacy of *Raktamokshana* (bloodletting) through leech therapy in managing severe ischemic pain in a 44-year-old male with a history of uncontrolled diabetes mellitus and tobacco use, who had undergone foot amputation. Leech therapy showed marked improvement in pain and wound healing over 10 days.

Index Terms - Ischemic pain, Diabetic foot, Leech therapy, Raktamokshana, Ayurveda, Amputation

• INTRODUCTION

Ischemic pain post-amputation is typically due to inadequate blood supply, compounded by underlying conditions such as peripheral artery disease (PAD) and diabetes mellitus (DM). Traditional Ayurvedic approaches like leech therapy (Jalauka Avacharana), which utilizes bioactive substances in leech saliva, have gained renewed interest for their potential to enhance blood flow and reduce inflammation

• Case Presentation

Patient Profile:

- Age/Sex: 44-year-old male
- Complaints: Severe ischemic pain post-amputation, non-healing ulcers on dorsum and sole of right foot, pus discharge, foul smell, and swelling
- History:
 - Uncontrolled DM for 4 years (not on regular medication)
 - Chronic smoking and tobacco chewing for 10 years
 - Underwent foot amputation 4 months ago
 - Diagnosis (Ayurvedic): Vatarakta (occlusive peripheral vascular disease)

• **Materials and Methods**

Conservative Management:

- Wound cleaning with Betadine and H₂O₂
- Complete wound debridement
- Diabetic and high-fiber diet
- Hygiene maintenance
- Alternate day dressing

Leech Therapy Protocol:

- Applied under aseptic conditions
- 2 leeches (5-6 cm) applied to ischemic site
- Leech detachment occurred naturally
- Post-detachment care with 'Haridra' powder
- Jalauka Vamana (~7-8 ml per site)
- Procedure repeated for 5 days

• **Results**

- Day 0: Severe pain, foul-smelling pus, discoloration
- Day 1: Noticeable pain relief
- Day 3: Reduced swelling and odor
- Day 10: Significant wound healing and improved tissue coloration

Day -0

Day-1

Day-3

Day-10



• **Discussion**

Pathophysiology of Post-Amputation Ischemic Pain:

- PAD: Reduced blood flow due to arterial narrowing
- Phantom Limb Pain: Neurological component possibly linked to ischemic-type symptoms
- Neuroma: Pain due to abnormal nerve growth at the amputation site

Mechanism of Leech Therapy:

- Hirudin: Anticoagulant preventing clot formation
- Histamine-like substances: Promote vasodilation
- Calin, Destabilase: Anti-inflammatory and thrombolytic agents
- Enhances oxygen and nutrient delivery

- Reduces localized inflammation and improves circulation

Literature Insight:

Leech saliva is rich in bioactive compounds and shows potential in managing conditions like osteoarthritis and ischemic wounds. However, larger controlled studies are needed for clinical validation.

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- **Conclusion**

Leech therapy, rooted in ancient Ayurvedic wisdom, demonstrates promising results in managing ischemic pain post-diabetic foot amputation. This case highlights its effectiveness in promoting wound healing, alleviating pain, and restoring circulation. While anecdotal evidence is strong, further clinical trials are necessary to solidify its place in modern integrative medicine.