Nonhealing Ulcer treated with Jalaukāvacāraṇa (Bloodletting): A Single Case Study

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ABSTRACT
Chronic leg ulcers are a major cause of mortality and morbidity. The efficacy of hyperbaric oxygen treatment is being evaluated in the management of nonhealing leg ulcers to improve skin graft survival. We are presenting a case of nonhealing ulcer where skin graft was rejected three succeeding times. Suśruta has indicated Visrāvan or Raktamoksan (bloodletting) in the management of ulcers. Jalaukāvacāraṇa (leech application) is one of the methods of Raktamoksana (bloodletting). A case report of 27-year-old female patient was presented with the complaints of swelling over the right ankle joint, with chronic lymphadenitis referred by the plastic surgeon. She was diagnosed as nonhealing ulcer and was treated by the plastic surgeon and skin grafting was performed. But it failed three succeeding times. Her constitution rejected all three skin grafts. This patient was then treated with Jalaukāvacāraṇa (bloodletting through leech application) after fourth time skin graft and it was accepted thereafter.

Keywords: Jalaukāvacāraṇa, Nonhealing ulcer, Raktamoksana, Visrāvaṇa.


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INTRODUCTION
Ulcers are wounds or open sores not healing or keep recurring. Ulcers may or may not be painful.1 The patient generally has a swollen leg and may feel burning or itching. There may also be a rash, redness, brown discoloration, or dry, scaly skin. The nonhealing leg ulcer is examined by discussing three disease processes: Peripheral vascular occlusive disease (PVOD), chronic venous insufficiency, and vasculitis. For PVOD, management decisions are based on risk factors and disease history. Comprehensive management includes the discontinuation of smoking, exercise conditioning and regulation of diabetes, hyperlipidemia, hypertension, and the appropriate application of anticoagulant/antiplatelet drugs. Methods of surgical management include bypass with autogenous or synthetic material in addition to reconstructive surgery with patch angioplasty skin grafting.2 The optimal healing environment for all ulcers prevents contamination, pain, and fluid loss.

CASE REPORT
A 27-year-old female patient presented with the complaints of swelling over the right ankle joint, with chronic lymphadenitis over right inguinal region, and was referred by the plastic surgeon. She had been diagnosed as nonhealing ulcer (NHU) of no specific reason. She had swelling over right ankle joint (Fig. 1). The other symptoms were pain, burning, and itching. The laboratory investigations revealed her hemoglobin level was 11.8 gm/dL; complete blood count was in normal limit; erythrocyte sedimentation rate was raised up to 40. Other routine laboratory investigations (BT: 2.5, CT: 4 minutes, surface antigen of the hepatitis B virus, and human immunodeficiency virus: negative) and radiological investigations (X-ray of right ankle joint and X-ray of chest) were normal. No any abnormality seen, and electrocardiogram was also normal. Blood sugar fasting was 80, which again was in normal limits. She was treated by the plastic surgeon and skin grafting was performed. But it failed three times.

Fig. 1: Chronic lymphadenitis with (NHU)—before the treatment
succeeding times. Her constitution rejected all three skin grafts. She was given jalaukāvacāraṇa after fourth skin graft for seven sessions with the interval of 3 days.

The patient was admitted in indoor facility on December 4, 2007. First session of leech application was done after investigations report and oral Ayurvedic medicine started. Subsequent therapy of second and third session of leech application was carried out till December 11, 2007. As patient showed improvement in signs and symptoms, the patient was discharged. Further therapy of leech application, four to seven sessions, was done on outpatient basis, and the patient was advised to seek plastic surgeons opinion.

APPLICATION OF LEECHES

Nonpoisonous jalaukā (leeches) were collected and kept in fresh water. The part was cleaned with plain water and sterile gauze piece. Thereafter four to five leeches (in 1st session: 4 leeches and in 2nd and 3rd session: 5 leeches, 4th–7th session: 4 leeches) were applied to the affected area as per the readiness of leeches to suck. Every time leech was made to catch on the site near the ulcer. If necessary, site was pricked with needle to bleed, so that it gets easy to catch by the leech (Figs 2 and 3). The leech was allowed to suck the blood for 15 to 20 minutes. Thereafter, the part was cleaned with cold water followed by application of honey or Śatadhauta Ghrita with dressing. The procedure was repeated every alternate day (Fig. 4). She showed improvement after third session of leech application (Figs 5 and 6). After seventh session, her body was able to accept the graft (Figs 7 and 8, lateral view shows healing and anterior view shows reduced swelling). A well-informed patient’s consent was obtained in writing. (A certificate from plastic surgeon is also enclosed.)

OBSERVATIONS

There was a reasonable improvement after third application. The patient was better after seventh session. There was no burning and itching. The patient improved symptomatically (Table 1).
DISCUSSION

Chronic leg ulcers are a major cause of mortality and morbidity. Earlier the efficacy of hyperbaric oxygen treatment is being evaluated in the management of non-healing leg ulcers to improve skin graft survival. Postoperative hyperbaric oxygen treatments have been found to be useful.3 There are many causes of nonhealing (chronic) ulcers and they include problems with blood supply or drainage, nerve damage, excess pressure, cancer, and infection.4 In this patient, no such causes were found and all investigations were normal (color Doppler, magnetic resonance imaging, skin biopsy, and hematological investigations). The patient was instructed for self-help as follows: Avoid walking barefoot; wear compression stockings, skin care (keep legs and feet clean and dry, lubricate dry skin); avoid cuts, cracks, and abrasions. Leg elevation and calf exercise are recommended.

The conventional treatment is topical antibacterial agents, antiseptics, antibiotics, skin grafting, reconstructive surgery, angioplasty, amputation, hyperbaric oxygen therapy.5 In this case, the patient was not accepting the skin grafts. Suśrīta has indicated Visrāvana or Rakṭamokṣaṇa (bloodletting) in the management of Vṛana.6 Rakṭamokṣaṇa is practiced in India since thousands of years, which has been included under the five biopurification procedures. The patient was subjected to bloodletting through leech application. Leech application is one type of bloodletting in Ayurveda.7 Hirudin present in the saliva of leech helps in suppression of the process of blood clotting.8 Along with this therapy, patient was given Tab. Yaśīṃadhu Vāṭi 2 TDS, Syp. Amṛtāriṣṭa 10 mL TDS, Haridrā Khāṇḍa 3 gm BD, all orally.

One leech sucks 5 to 10 mL of blood. After the leech is detached, bleeding lasts for some hours (about 12–24 hours) and patient loses about 20 to 30 mL of blood. Thus, due to influence of five leeches simultaneously, a patient loses 100 to 150 mL of blood. Biologically active substances in salivary glands of medicinal leeches can restore blood circulation in the site of inflammation, removes ischemia of organs, and provide capillary tissue exchange and, due to it, improves immune protection and regeneration of tissues.

So to improve oxygenated blood supply in the wound area, we applied leeches every alternate day for two
sessions and every third day for five sessions. Even though there are standard guidelines in Ayurvedic text for methodology and time gap, Suśruta advises to use treating Vaidyas experience\textsuperscript{9,10} and wisdom to decide frequency of leech applications and number of leeches to be applied. At every session fresh leeches were applied, as used leeches do not suck the blood efficiently.

Probably, due to the action of hirudin and hyaluronidase (the factor of penetration), it improves not only the blood circulation in organs but also in other organs and tissues due to the best capacity of capillary tissues exchanging, and so on. It promotes reduction of swelling, dissolution of the organized blood clots, and cosmetic effect. Use of leeches promotes the local immunity as well. The leech application is effective in reducing the pain; this supports the analgesic action of leech component. Probably the drainage of vitiated blood leads to acceptance of the graft. Further research should be done to find out what could be the mode of action in this case.

CONCLUSION

Multiple Ayurvedic treatment modalities proved effective in the management of nonhealing ulcer and skin grafting. Frequent leech application in nonhealing wound area improved blood circulation and helped reducing inflammatory edema, promoting wound healing. Oral administration of Ayurvedic medicine augmented the above action. More such studies are required in multiple cases.

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REFERENCES

हिंदी सारांश
एक दुष्ट्रण की रूपना में जलौकावचरण का अध्ययन

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पर्यवेक्षण: कोनिक लेग अल्सर, मृत्यू दर और विकृति का एक प्रमुख कारण है। आचार्य सुब्रत ने रक्तमोक्षण का ब्रण चिकित्सा में वर्णन किया है। जलौकावचरण, रक्तमोक्षण की एक विधि है।

लेखी अध्ययन: एक 27 वर्षीय महिला रूपना को दक्षिण गुजरात के शहर और जीर्ण लक्षणों के कारण दुर्जयशील रूप से लिया गया। रूपना का दुष्ट्रण का निदान हुआ था एवं ब्रण उपचार हेतु प्लास्टिक सर्जन ने तीन बार त्वचा प्राप्तारोपण (Skin Grafting) किया था। परंतु ब्रण पर उसका असर नहीं हुआ।

चिकित्सा: चौथी बार त्वचा प्राप्तारोपण (Skin Grafting) करने के बाद महिला रूपना में सात बार जलौकावचरण किया गया।

परिणाम: इस बार उसके शरीर ने त्वचा प्राप्तारोपण (Skin Grafting) स्वीकार किया।

मुख्य शब्द: जलौकावचरण, रक्तमोक्षण, दुष्ट्रण, विद्यालय