



Leech therapy In Non-Healing Ulcer - a Case Study

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Abstract

Non healing ulcer also known as callus or chronic ulcer is a challenging disorder for medical person. It takes a lot of time and significant treatment cost. The exact cause of non-healing ulcer is not clear. All kinds of medical and surgical treatments aim at accelerating the process of healing by the facilitation of local blood supply and eradication and minimizing bacterial infection. Leeching is an ancient way of treatment of such complicated skin disorders mentioned in different popular books of unani medicine by notable unani physicians. The aim of this study to evaluate the effectiveness of leeching to promote the healing processes in non healing ulcer. The study was an observational single case design without control group; it was carried out in department of surgery (Jarahaat) of Ajmal Khan Tibbiya College Hospital, AMU, Aligarh.

Key words: Non healing ulcer, leech therapy

Introduction

Non healing ulcer is a chronic wound that shows no tendency to heal after 3 months of appropriate treatment or is still not fully healed at 12 months [2]. Chronic ulceration of the lower legs is a relatively common condition amongst adults, and ulcer symptoms usually

include increasing pain, friable granulation tissue, foul odor, and wound breakdown instead of healing. [3, 4] It has been reported that ulcers related to venous insufficiency constitute 70%, arterial disease 10%, and ulcers of mixed etiology 15% of leg ulcer presentations [5]. Arterial leg ulcers occur as a result of reduced arterial blood flow and subsequent tissue perfusion [7]. A reduction in blood supply causes death of tissue in the area being fed by the affected artery. Ulcer development is often rapid with deep destruction of tissue. Arterial ulceration typically occurs over the toes, heels, and bony prominences of the foot. The ulcer appears “punched out” with well-demarcated edges and a pale, non-granulating, and necrotic base [7].

The treatment of chronic ulcers of the lower extremities presents a therapeutic challenge. In modern medicine for chronic ulcer include surgery, sclerotherapy, compressive therapy (conventional therapy), and adjuvant pharmacotherapy [8]. Other treatment for ulcer are as neurovascular interventions such as lumbar sympathectomy or spinal cord stimulation; systemic therapy with hyperbaric oxygen or interavenous therapy with agents such as prostaglandins; local mechanical

therapy such as negative pressure wound therapy (NPWT), electromagnetic stimulation or enhanced local oxygen therapy; and finally, topical therapy with vaso-active growth factors or tissue-engineered skin products .

The various treatment options for chronic non heal ulcers in modern medicine are very costly and time taken. Notable unani physician like Ibne Sina, Zakaria Razi, Abul Qasim Zaharawi and many other used leeches as a natural tool for blood letting in different disease. Leechtherapy has tremendous effect in skin disease especially in chronic ulcer. [9,10, 11]

Avicenna (980-1037 AD) delineated in his book “Canon of Medicine” that leech can suck blood from deep veins which cannot be reached by the conventional wet cupping[12,13] and he recommended leeching for skin diseases[14]. In 12th century, Abd-el-latif al-Baghdadi mentioned in his texts the beneficial usage of leech application after surgical operations [14]. Thereafter, Ibn Masehi (1233-1286 AD) in his book “Umda Fi Jarahat” differentiated the medical leeches from the nonmedical (poisonous) ones according to their shape and colour[13].

Recently, extensive researches on leech saliva unveiled the presence of a variety of bioactive peptides and proteins involving antithrombin (hirudin, bufrudin), antiplatelet (calin, saratin), factor Xa inhibitors (Iefaxin), antibacterial (theromacin, theromyzin) and others.[15]

Leech therapy reduces venous congestion, moistness of the wound, removes slough and facilitates the granulation in turn it helps for wound healing. Proper management with timely leech therapy and dressings gradually reduces infection and facilitate wound healing

Aim and Objective of Case Study: To evaluate clinical efficacy of ' Leech Therapy' in the patient with non healing ulcer.

Clinical Technique: Leech Therapy (Irsal-e-alaq)

Type of Study: Observational Single Case Design without control group

Study Centre: Department of Jarahat of Ajmal Khan Tibbiya College Hospital, AMU, Aligarh.

Material and Methods

Present study was carried out in minor OT in the department of surgery (Jarahat) of Ajmal Khan Tibbiya College Hospital, AMU, Aligarh. The study was an observational single case design without control group and approved by the ethical committee of the department. The patient was diagnosed by a single consultant in jarahat (surgery) OPD of the hospital. Patient was informed with informed consent. Before start the study a profile of hemogram, biochemical and serological test were performed to rule out the clotting and bleeding time, diabetes, anemia, HIV,HBsAG etc.

Leeches (*hirudo medicinalis*) were obtained from scientific supplier of Delhi, to apply on non healed ulcer. They were kept in separate glass jars of water (labeling with used leeches and unused leeches) on ulcer during the study. Some unani hemostatic ingredients was procured from Dawakhan Tibbiya College, AMU and make superfine powder and honey was mixed to prepared hemostatic paste (Table-1). This hemostatic paste was applied on ulcer to prevent excess blood loss for stop bleeding after leeching.

After the assessment wound we washed from normal slain. The numbers of leeches were applied according to area involved in ulcer, 2 to 3 leeches were applied on edges of ulcer. The duration of leeching on ulcer was ranging from 10 to 30 minutes. Each leech sucked about 20 to 25 ml of blood, with further mild ooze occurring for 2-3 hours after leeching. After removing the leeches wound was cleaned from normal saline then allow to dry, a unani hemostatic paste was applied on the wound and bandage was wrapped around it. Dressing was done on

alternate day, whereas leeches were applied on non healed ulcer twice a week. Total treatment continues for 30 days. The assessment of ulcer was observed on day 1st, day 10th, day 20nd and on 30th day. The effect of leech therapy in non healing ulcer was observed from parameters like size, discharge, smell, pain, edge and floor.

Case Brief History and Examination

A 40 years old gentleman who had amputated left foot toe and fingers, due to Buerger's disease, or thromboangiitis obliterans (causes blockages in the blood vessels of feet). Non heal ulcer on dorsal aspect on left foot of 1 years' duration and static in nature. The wound bed was partially sloughy with some granulation tissue and generally did not appear to be making progress. There was maceration to the surrounding tissue and the ulcers were deep with callus formation to the peri wound area. On local examination the ulcerated area covered was 4 cm x 2.5 cm x ½ cm (Figure-1). Shape was oval and irregular, edges were dry and slough and floor was unhealthy and less granulation tissues are present. Discharge often mixed with pus with foul smell. While on Grading of ulcer it was Grade 2 type (ulcer deeper to subcutaneous tissue exposing soft tissue or ulcer bone).

On Palpation of ulcer the edge and margin and base were tender. The local temperature was normal. By this complaint he took treatment from one year by local doctors, but no healing was occurred then he consult to Jarahat OPD Ajmal Khan Tibbiya College, AMU, Aligarh for further management and treatment.

Discussion & Result

In Unani system of medicine Irsal-e-alaq (bloodletting through leeches) works on the principal of Istagfrag (evacuation) which is one of the basic principles of six essential factors of life which helps in the maintenance of health. Avicenna mentioned in "Canon of Medicine" that leech can suck blood from deep veins which cannot be

reached by the conventional wet cupping and recommended leeching for skin disease[9]. According to unani system of medicine after leech application expulsion of impure blood takes place, due to which a local Galiz madda (toxins & unwanted Metabolites) are removed from the body. In result it facilitates fresh blood supply & promotes wound healing by formation of healthy newer tissues. [12,13]

The saliva of the leech consist of Hirudine which act as anticoagulant. Slavia contains anti-inflammatory action due to presence of substance like Bdeleins & Eglins in the saliva which prevents leukocyte accumulation in the surrounding vessels, thus inhibits releases of inflammatory factors which causes chronic wound formation.[16]. Calin, Histamine, Eglins and Hyluronidase, act as vasodilator, anti-inflammatory and anesthetic agent respectively. These properties of leech's saliva help in to reducing pain and size of ulcer and promote healing [15]. Leech application corrects reduces vascular congestion of the ulcer due to presence of Carboxypeptidase A inhibitors enzyme. Leech saliva has peripheral vasodilator effects due to presence of vasodilator constituent in the saliva which improves blood circulation and corrects " ischemia' around the wound, thus promotes wound healing.

Present study evaluated that wound showed fast clinical evolution, resulting in complete healing in thirty days. At first assessment, the wound was oval with irregular edges and floor was unhealthy which shows less granulation tissue. The ulcer was filled with bloody discharge mixed with pus with foul smell (fig.1) (table-3).

After two weeks healing processes take place progressively, the wound bed had reduced ulcer size, edges was irregular and floor was unhealthy with less granulation tissue could be seen at the wound margins. It was also observed that wound had less discharge without foul smell (Fig.2) (table-3). At the third week of the month

ulcer showed mark able healing process resulting reduced size of ulcer, regular margins and floor was smooth and granulated without discharge (fig.3) (table-3). Lastly at the end of month non-healed ulcer was properly healed. (fig.4) (table-3)

Conclusion

The reported beneficial effect of leeching in the treatment in non healing ulcer compelled us to conduct this study .Present study demonstrate that leech therapy on non healing ulcer reduces ulcer size and shape with epithelization of the wound, removes slough and facilitates the granulation in turn it helps for wound healing completely. In our study when we compare the ulcer before and after leech therapy the ulcer was grade type 2 (ulcer deeper to subcutaneous tissue exposing soft tissue) was heal completely in thirty days. During the

(Table-1) Unani Hemostatic Paste

S.No	Ingredients	Scientific Name	Weight
1.	Sang-e-Jarahat	Hydrated Magnesium Silicate	10gm
2.	Dam-al-akhwain (Resinous Secretion)	Pterocarpus Marsupium	10gms
3.	Gil-e-Armini	<i>Armenian bole</i>	10 gm
4.	Phitkari Safaid (Alum)	Aluminum Potassium Sulfate	10 gm
5.	Shahad (Honey)	Apis mellifera	20 gm

study it was observed that no any complications like sever bleeding, wound infection was not occurred. Leech therapy reduces venous congestion, moistness of the wound, removes slough and facilitates the healthy granulation tissue in turn to help for wound healing. Proper management with timely leech therapy and dressings gradually reduces infection and facilitate wound healing .On the basis of this case study we can conclude that in unani system of medicine have potential to cure non healing ulcer through leech therapy.

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Table-2 Gradation Criteria For Assesment Of Ulcer

Parameters for Assesment	Gradation criteria				
	0	+	++	+++	++++
Size (<i>Wagner's grading of ulcer</i>)	healed ulcer or pre-ulcerative lesion	Superficial ulcer	Ulcer deeper to subcutaneous tissue exposing soft tissue or ulcer bone	Abscess Formation Underneath, osteomyelitis,	Gangrene of part of tissues, limb or foot
Discharge	No discharge/no dressing	Scanty, occasionally discharge/little wet dressing	Often discharge needs daily dressing	Prfouse, continuse discharge need daily dressing	_____

Pain	No pain	Localized pain during movement but relieve on rest	Localized pain even during rest	Localized pain even during rest and also toward other side	_____
Smell	No smell	Bad smell	Tolerable unpleasant smell	Four and intolerable smell	_____
Edge	adhere edges	Smooth,even regular edges	Rough,irregular edges	Angry look	_____
Floor	Smooth regular with granulation tissue/no need dressing	Rough ,regular ,mild discharge,less granulation tissue/need dressing	Unhealthy,less granulation tissue/needs daily dressing	Unhealthy,no granulation tissue	_____

Table-3 Result

Parameters	Before Treatment	During and After Treatment		
	Day -1	Day-10	Day -20	Day -30
Size	++	++	+	0
Discharge	++	+	+	0
Pain	+	+	0	0
smell	+	+	0	0
Edge	++	++	+	0
floor	++	++	+	0



Fig.1
(Before treatment)



fig.2
(During treatment)



fig.3



fig.4
(After treatment)

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