



EFFECT OF IRSAL-E- ALAQ (LEECHING) ON VENOUS ULCER- A CASE REPORT

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ABSTRACT

Introduction: Venous ulcer these days becoming a common problem in the population having habit of sitting and standing for long time period. The event starts with valvular defect in perforating vein and pressure shunting from deep to superficial vein. This inevitably lead

pooling and stasis in superficial vein, this further make sluggish blood flow and microcirculation impedance and both in combination cause cellular death and sloughing of the tissue and it is called venous ulcer. Because of presence of higher pro-inflammatory mediator and healing interfering physical forces; stasis, sluggish flow, congestion, impeded microcirculation, venous ulcer refuse to heal unless circulation improved. Irsal-e- alaq (Leeching) found very effective in curing the venous ulcer. **Material & Methods:** In this study for the purpose of leeching, patients of venous ulcers were selected from surgical OPD of NIUM. Then patients were taken to regimenal therapy unit and two leeches, one on either side of ulcer, were applied for consecutive six weeks at weekly interval. **Results:** Oedema and oozing disappear within one week. At the end of second week ulcers of both patients were devoid of moisture, oedema and hyperaemia and granulation tissues were growing and at the end of third week depth of ulcer was significantly reduced and they were almost at the level of surrounding skin, still lacking epithelisation. At the end of sixth week ulcer was completely dry and almost healed, only the crater and crusting was evident, there was no oozing, spread, pain, and oedema. Ulcer was completely healed. **Conclusion:** Unani physician recommended Istefragh i.e. removal of wastes from the site of chronic ulcer for quick healing. This purpose can be fulfilled by Leeching or *Irsale alaq* which is found very

effective in case of venous ulcer. More studies should be conducted with large sample size to explore the method further so that people can get benefit of the leeching with fewer expenses and no surgical interventions.

KEYWORD: leeching, irsal-e- alaq, venous ulcer, healing of ulcer.

INTRODUCTION

Ulcers are described in general in literature Unani medicine. The essential condition for ulcer is corrosion and dissolution of structure. This may result from bursting of any abscess or putrefaction of wound. According to unani concept there are certain humours which on becoming abnormal acquire corrosive and irritant nature and by these properties in combination cause dissolution of the overlying and adjacent structure. The viability of the body and its various components depend upon appropriate supply of *Ruhe Haiwani* (vital pneuma) and nutrition, loss or deficiency of any or both interfere with living function and ultimately *Hararate Gharizia* (innate heat) becomes vanish and results in death of the part or body. Notwithstanding wound all other causes of ulcer are endogenous. Corrosive and irritative humours include *Safra* (bilious), *Sauda* (black bilious) matter and other putrid matter.^[1,2,3,4] By name venous ulcer is not described in Unani literature but reference may be extracted from the general description and from the description of chronic ulcer (Quroohe Muzmin).^[3,4,5,6]

Unani scholars are of opinion that wound healing essentially require a moderate degree of dryness, unless wound is dry it cannot heal, secondly there must be enough *Hararate Gharizia* (innate heat) so that it can cause growth of healing matter, because no growth can occur in absence of heat. *Rutubat* (moisture) work as matter in which heat acts and convert it into structure as per temperamental obligation. That's why both *Sue Mizaj Ratab* (moist alteration in temperament) and *Yabis* (dry alteration in temperament) are responsible for chronic ulceration. Hardening of edges of the ulcer also prevents proper healing.^[1-7]

In modern stream venous ulcer is described well and a lot of work has been done on its aetio-pathology. The event starts with valvular defect in perforating vein and pressure shunting from deep to superficial vein. This inevitably lead pooling and stasis in superficial vein, this further make sluggish blood flow and microcirculation impedance and both in combination cause cellular death and sloughing of the tissue and it is venous ulcer. Further pressure shunting and venous sluggish flow interfere with capillaries absorption making ulcer oozing.

Unani physician recommended Istefragh i.e. removal of wastes from the site of chronic ulcer. These wastes may interfere with normal Mizaj, Hararate Gharizia, Tarseele Ruh and Quwate Ghazia.^[1-8] In unani system of medicine there are so many methods of Istefragh are available like, fasd, Hijama bil shurt, leeching etc. so, our concern here is Leeching or *Irsale alaq*.

In one study concentration of pro-inflammatory mediator like 1L-1 and TNFA have been found in excess in tissue fluid of venous ulcer; apart from this metalloproteinase concentration has also been found higher in venous ulcer fluid. Because of presence of higher pro-inflammatory mediator and healing interfering physical forces; stasis, sluggish flow, congestion, impeded microcirculation, venous ulcer refuse to heal unless circulation improved. For this purpose several methods are in use.^[9,10]

Medicinal leeches (*Hirudo medicinalis*) have two suckers, one at each end. The caudal (Back end) end has suction cup which helps the leeches to ambulate (crawling) and to attach to its host. The frontal end which also known as rostral suction cup also contains the mouth with three sharp jaws that leaved a 'Y' shaped mark. The medicinal leeches found in fresh water, leech saliva contains anticoagulant, vasodilators, lipotropic and anaesthetic properties.^[9-14]

Mechanism of action of leech

Leeches have various proteins in their saliva, which have different properties responsible for carrying out the desired medical effect. They have evolved highly specific mechanisms to feed on their hosts (both cold and warm blooded organisms) by blocking blood coagulation. Its anticoagulant property is the most potent action which was explained in 1884 by John Berry Haycroft, who discovered an anticoagulant, called "hirudin," from the saliva of leech. It is also known to inhibit platelet aggregation, which further contributes to the process. In addition to this, it also has antiseptic qualities. There are also other proteins present in leech saliva which are said to exhibit analgesic effect and reduce numbness.^[15,16,17,18]

Chemical composition of leech saliva

Leech saliva contains Hirudin; a protein anticoagulant that inhibits thrombin, and several other bio-active substances including prostaglandins, vasodilators, anesthetics and protiens like calin (Calin-inhibit platelet adhesion and activation), apyrase, destabliase (Destabilase-inhibits ADP platelet aggregation), piyavit and kollaginase, Guamerin,

Piguamerin, Gelin, Decorsin, Hirustasin, gamma-Glutamyl Transpeptidase, Platelet Activating Factor Antagonist (PAFA) and an Ornithine-Rich Peptide.

Another pharmacologically active substance secreted by leeches is hyaluronidase (also called orgelase), which may serve as a spreading factor in the wound. Proteinase inhibitors such as bdellins, trypsin-plasmin inhibitors and eglins, inhibitors of chymotrypsin, subtilisin, and the granulocytic neutral proteases elastase and cathepsin G, have also been isolated from the leech, *Hirudo medicinalis*, and may have antithrombotic, antifibrinolytic, and possibly anti-inflammatory activity.^[17]

The salivary apyrases and collagenase seem to prevent platelet aggregation. Besides the above-mentioned bioactive ingredients, leech saliva contains acetylcholine, histamine-like vasodilators that prolong bleeding time. It also contains enzymes that reduce scar tissue and adhesions. Two types of fibrinases and a collagenase that are also present reduce the density of scar tissue and help reduce fibroblast formation in hypertrophic scars and keloids.^[17,19,20]

MATERIAL AND METHODS

In this study for the purpose of leeching, patients of venous ulcers were selected from surgical OPD of NIUM. Only the patients with ulcer on classical site (lateral malleolus), were selected. All these patients were with antecedent history of DVT and varicose vein. Then patients were taken to regimenal therapy unit and two leeches, one on either side of ulcer, were applied for consecutive six weeks at weekly interval. Leeches were allowed to fall spontaneously or when blood regurgitation started it was taken off. The same leeches were applied on every visit, as leeches used first time are kept in a plastic jar and labeled with patient name. No special precautions were taken except bleeding time and clotting time were tested before application of leech. After leeching the ulcer was covered with sterile gauze piece. Leg elevation practiced till the bleeding stop. After that patients were allowed to walk.

RESULTS

The study was carried out in two patients, one male and one female. The male patient also having a tropic ulcer at heel, but female patient having only varicose ulcer and it was developed after she had attack of DVT, as revealed by past hospital records.

Characteristic Features of Ulcer found Before, During & End of the Application of Leeches						
Features	W-1	W-2	W-3	W-4	W-5	W-6
Oedema	++++	-	-	-	-	Disappeared
Oozing	++++	-	-	-	-	Subsided
Spreading	+++	+	-	-	-	Controlled
Hyperaemia	++++	+	+	+	-	Disappeared
Pain	++++	+	+	+	-	Subsided
Black Discolouration	+++	++	+	+	+	Decreased
Depth of Ulcer	+++	++	+	-	-	Healed

Before = W-1, During = W-2 – W-5, End = W-6, W-1 = 1st Week, W-2 = 2nd Week, W-3 = 3rd Week, W-4 = 4th Week, W-5 = 5th Week, W-6 = 6th Week

The ulcer in both cases was oedematous, spreading and oozing, the based was hyperaemic.



Case: 1male



Case 1 :male with trophic ulcer



Case:2 Female

On first time application of leech.



Case 1



Case 2 :

Oedema and oozing disappear within one week.



Case 1



Case 2

On second application healing process hasten and it was evident by the presence of healthy granulation tissues and growing epithelium from edges.



Case1



Case2

At the end of second week ulcers of both patients were devoid of moisture, oedema and hyperaemia and granulation tissues were growing well but epithelisation was not rapid and at the end of third week depth of ulcer was significantly reduced and they were almost at the level of surrounding skin, still lacking epithelisation.



Case1



Case 2

During whole period of treatment patients were ambulatory and performing their routine work. No compression bandage or oral medications were prescribed.



Case1

Case2

At the end of sixth week ulcer was completely dry and almost healed, only the crater and crusting was evident, there was no oozing, no spread, no pain, no oedema. Ulcer was completely healed without any other intervention.

DISCUSSION

Leech is a segmented, aquatic, sanguineous, hermaphrodite, dorso-ventrally flat animal of phylum annelida belonging to hirudinacea family. It has two suckers one on each end. It sucks the blood after making a wound and pouring anticoagulant at the site. It creates vacuum to take blood in, the vacuum is not continuous but intermittent. During feeding leech sucks blood from vein and particularly from cutaneous small veins.

Along with blood, tissue fluid also sucked and thus helps to remove particulate matter from tissue space and helps to established free lymphatic flow and to maintain negative tissue pressure crucial for capillary filtration. Sucking the micro-thrombi from veins, that develop as a result of sluggish flow it also helps to establish free venous flow and thus venous flow is improved. This improvement then reduces hydrostatic pressure at venous end of capillaries and thus improve absorption there and in this way improve the delivery of nutrition at the site which were impeded due to disturbed capillary exchange mechanism, which is the major defect is venous ulcer.

In tissue fluid of venous ulcer dominance of pro-inflammatory mediators like IL-1 and TNF α has been detected and considered as cause of non-healing ulcer, leeching along with blood also suck these mediators from ulcer site and shift the balance in favour of anti-inflammatory mediator, this helps to overcome the inflammation at the site of ulcer and thus hasten the healing.

Unani physicians time and again emphasized that leech suck the waste from the surface mainly and up-to a little depth generally. By this it helps to reduce the *Imtelae Mawad* i.e. corrosive and irritative waste from the site and thus boost up the healing function of *Tabiyat*. Besides, it also helps to rectify the *Sue Amzija* especially *Barid Ratab* by sucking *Barid Ratab Mawad* from ulcer site.

In presence of *Imtela*, function of *Quwate Ghazia* (Nutritive power) become disturbed and it can't assimilate and obtain enough nutrition to incorporate them into organ and it is the basis for healing. Moreover, *Imtela* keeps the ulcer moist and thus interfere with one essence of

healing i.e. moderate dryness – apart from this *Imtelae Urooq* interfere with availability of *Ruhe Haiwani* to the site and this *pneuma* is said responsible for life. Absence of this form of *pneuma* always leads to death and deficiency interferes with functions of *Tabiyat*. Most of the functions of *Tabiyat* are mediated by *Hararate Gharizia* (essential heat) which get boosting from combined action of nutritive faculty and *Ruhe Haiwani*. Defective delivery of any or both disturbs major function of *Tabiyat* and the most important of which is body management. Thus leeching causes tremendous effect of reducing *Imtela*. *Imtelae Urooq* cause sluggish flow and this prevent normal delivery of nutrient and *Ruhe Haiwani*. This defective delivery of both these essential constituent hampers the survival and disturbs the *Mizaj*. This turns the *Mizaj Barid* and *Ratab* and one obligate consequence of this is vanishing of *Hararate Gharizia*, once *Hararate Gharizia* reduces or vanishes, *Hararate Ghariba* starts to act and the only function of this *Hararate Ghariba* is putrefaction. This putrefaction further interferes with *Hararate Gharizia* and thus death of tissue occurs.

To prevent the spread of ulcer and to promote healing this vicious cycle should be blocked and the best way to stop this is the leeching which not only suck temperament disturbing waste but improving the blood flow, improves the delivery of nutrient to the surviving cell also and thus reduces the burden from the *Hararate Gharizia* and minimizes the chances of action of *Hararate Ghariba*, and when *Motadil* blood reaches the ulcer site it hasten the healing, as it is evident from serially taken photographs.

CONCLUSION

Unani physician recommended *Istefragh* i.e. removal of wastes from the site of chronic ulcer. This purpose can be fulfilled by Leeching or *Irsale alaq* which is found very effective, time saving, affordable and acceptable in case of venous ulcer. With Leech therapy the wound completely healed in 6 weeks, whereas by other treatments take months to cure. More studies should be conducted with large sample size to explore the method further so that people can get benefit of this Unani way of treatment i.e. leeching.

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