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Case Study

VENOUS ULCERS AND THEIR HEALING WITH HERBO-MEDICINAL OINTMENT; *MARHAM-E-RAAL*: A CASE SERIES

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ABSTRACT

Non healing ulcers are those which do not heal by conservative therapy within 3 months. In Unani system of medicine, the term *Qurooh-e-aseerat-ul-indamaal* is applied for those ulcers which are resilient to healing. Venous ulcers sometimes do not respond to conservative treatment and transform to non-healing ulcers. The incidence of vascular ulcer accounts for 98% of all ulcers in this country. Venous ulcers are usually resilient to modern conservative treatment. In this case series we treated completely within 45 days, four cases of venous ulcers by means of local application of *Marham-e-raal*. At one month follow up after complete healing of the wounds, there was no evidence of recurrence of ulcers in patients. The study was carried out during July-August 2018 at our institute. Source of data is Patients attending surgery (Jarahat) OPD/IPD of NIUM Hospital, Bangalore. Method of collection of data is after assessment of patients by means of medical history and clinical examination. Assessment parameters are area of wound/ulcer in square centimeter, appearance of healthy granulation, epithelialization and discharge from wounds, tenderness and photographs of the affected part. Inclusion criteria are both genders, Ulcers not healing for more than 6 weeks, Wagner's 0, 1 and 2 ulcers, Patients in age group of 18-60 years. Exclusion criteria are gangrenous and malignant ulcers, Pregnant and lactating women, any severe systemic disease. Study design is descriptive consecutive case series. Duration of study is 45 days. Intervention is *Marham-e-raal*. Result is Four cases showed astonishing response to *Marham-e-raal* and ulcers got healed completely within 45 days. No adverse effect was documented. The optimum and cost-effective treatment of *qurooh-e-aseerat-ul-indamaal* (Chronic wounds) may include local application of *Marham-e-raal* with maintenance of local hygiene provided all other morbid factors have been controlled.

Keywords: Venous ulcers; *qurooh-e-aseerat-ul-indamaal*; Non healing ulcers; *Marham-e-raal*

INTRODUCTION

Venous ulcer/stasis ulcer is the most harsh and devastating result of chronic venous insufficiency in the lower limbs. These ulcers account for 80 percent of lower extremity wounds.¹ This ulcer mainly results from long standing venous hypertension arising as a result of venous insufficiency. Superficial venous incompetency and incompetent perforators cause 40-50% of venous leg ulcerations. Deep veins in these cases usually function normally.² This condition clinically manifests as dull aching pain, heaviness, discoloration and swelling of lower extremities. The swelling usually subsides on elevating the legs. Eczematous changes of the surrounding skin and varicose veins may be encountered.³ Treatment options for venous ulcers include conservative management; foot elevation, compression stockings, dressing of wound and oral use of platelets inhibitors and surgical intervention for varicose vein includes saphenous vein ablation, subfascial endoscopic surgery and removal of incompetent superficial veins with phlebectomy, stripping, sclerotherapy, or laser therapy.⁴⁻⁶

Other treatment modalities for the chronic wounds include topical application of platelet derived growth factors (PDGF) and granulocyte macrophages colony stimulating factors, application of the engineered skin allograft and dressing containing sterile collagen particles etc. All these are expensive, non-affordable and out of reach of the poor patients. In view of common problem like non availability of affordable topical applications having potency to fasten healing, *Marham-e-Raal* has been chosen as a topical preparation for the treatment of venous wounds.

Presentation of the patients

Four patients of age ranging from 37 to 55 years, residents of Karnataka state, visited surgical OPD of our institute with the chief complaint of wound/ulcer on lower extremities since not less than one and half months. All four were not having the past history of chronic illness like hypertension, diabetes mellitus, bronchial asthma, thyroid dysfunctions and trauma to affected part. They all were having mixed dietary habits, regular bowel and micturition.

Medical Presentation

(Medical presentations described below were recorded at the time the patients had visited our hospital)

Case I

According to the statement of the patient, he was apparently well before 1 year. Then he noticed a small area of dryness associated with itching over the dorsum of left foot. The long-term itching resulted into small multiple excoriations at the same site which, after few days, coalesced together to form large area of excoriations. This excoriated area exhibited scanty serous discharge which, later, transformed initially to serosanguinous and subsequently to dark serosanguinous discharge. Meanwhile the area of excoriation so formed transformed into a large wound. The time taken from appearance of area of excoriation to formation of large wound was about one and half months. The wound was associated with mild aching pain which aggravated on prolonged walking, touching the foot and strenuous work and relieved on rest. Then patient visited number of clinics and hospitals but did not cure and instead, became resistant to healing. Finally, patient visited our institute with above described presentations and got admitted for further evaluation and treatment.

Case II

According to the statement of the patient, he was apparently well before 6 months. Then he suffered spontaneously from itching over lower half of bilateral legs. The itching continued for long time which sometimes relieved by application of some medication (no data provided). With the passage of time, he noticed brownish black discoloration of lower half of both legs with the formation of small multiple blisters. After few days, these blisters busted spontaneously leaving behind the reddish yellow thin liquefied discharge. This was not associated with foul smelling. The ulcers so formed started to increase in size. At this time there was scanty blood-stained liquefied discharge from wounds. He developed dull aching pain at the site of wounds few days after their formation. Pain sometimes worsened on walking and relieved on rest. With all these presentations he visited surgical OPD of our institute.

Case III

According to the statement of the patient, he was apparently well before 10 months. Then he developed itching with brownish-black discoloration of lower part of left leg. Due to persistent itching, small multiple excoriations formed which, later, coalesced to form large area of excoriations. It subsequently transformed into multiple wounds. Initially watery discharge oozed from the affected area which later showed no oozing. He then visited number of clinics, but ulcers did not respond to conservative treatment. He finally visited surgical (Jarajat) OPD of our institute and was admitted for further management.

Case IV

According to the statement of the patient, he was apparently well before one and half months. Then he observed a small vesicle on the lower part of right leg about 3 fingers above the medial malleolus. This vesicle busted accidentally which resulted into initially a small ulcer which later transformed into a big ulcer. He was also having dull aching pain, confined only at ulcer site. Pain aggravated on exertion and relieved on lying on bed with the leg elevated above the level of body.

Clinical examination

The local clinical examination of all the patients has been explained in Table 1.

Investigations

All patients, after admission, were routinely investigated to rule out diabetes mellitus, anemia, viral infections and chronic infection. If any morbid factor found, it was first managed and treated. Table 2 explains routine investigations of four patients.

Treatment given to the patient

After careful history, physical examination, vigilant local examination and necessary investigations, the patients were diagnosed as venous/varicose ulcer. The wound was cleansed with normal saline with proper debridement of necrosed and devitalized tissues followed by dressing with herbo-medicinal formulation; *Marham-e-raal* on first day. Subsequently the dressing was changed on every third day and assessment of wound healing in terms of wound contraction, healthy granulations, epithelialization, absence of discharge and tenderness was carried out on every 15th day. Moreover, patients were instructed to maintain the personal hygiene, daily changing of clothes, foot end elevation to ensure venous return and intermittent movement of bilateral knee and ankle joints in order to avoid joint freezing. With this treatment, ulcers completely healed, and the pain subsided. No evidence of recurrence of ulcers was found at one month follow up after complete healing of all the wounds and the patients were advised to undergo surgical intervention for management of varicose vein.

Various methods which we adopted for assessment of healing have been described below

Method of calculation of wound area

The wound was cleaned first by irrigation with normal saline and mopping with sterile dry gauze pieces. The visible margins of wound on tracing paper were marked with pencil after the paper was properly placed over the wound. Maximum length and breadth were recorded by placing the tracing paper on graph paper and the area of wound was then calculated by multiplying the two dimensions. One large square of graph paper was assumed as 1 cm. The area so recorded at each assessment day was then compared to the area recorded at previous assessment day.

Method of calculation of granulation

The red granulation was considered as healthy one. While measuring the size of ulcer with tracing paper, the extent of granulation on the floor of ulcer was also recorded as maximum length and breadth. The area was calculated by multiplying the length and breadth and percentage was derived with respect to total area of wound. This percentage of granulation was computed at baseline, 15th day, 30th day and 45th day.

Method of calculation of epithelialization

The area of ulcer (in square centimeter) at each assessment day was measured and subtracted from the area of ulcer previously assessed. The percentage of subtracted value to the area of wound previously assessed was then calculated. This percentage showed the area of epithelialization and hence reduction in wound size.

Method of recording tenderness

Arbitrary scale was used to record the severity of tenderness.

- 0 = No tenderness
1 = Mild tenderness
2 = Moderate tenderness
3 = Severe tenderness

RESULTS

Case I

Ulcer size at day '0' was 81.18 cm² and it reduced to 0.96 cm² at day '45' thus 98.81% healing achieved at day '45' (Figure 1 and 2). At baseline, the area of healthy granulations was less than 25% which increased to 98.81% at the endpoint of study. Epithelialization was less than 25% at baseline and it increased up to 98.81% at endpoint of study. There was thin serous discharge on the very first day, but no kind of discharge was observed at day '45'. Tenderness reduced to mild grade from severe one at endpoint of study.

Case II

The average size of all ulcer at the first day was 12.98 cm² and at day '45', it reduced to 0 cm² (Figure 3-8). No granulation was present at baseline but later on at day '45', 100% healthy granulations had been achieved. No signs of epithelialization were recorded at day '0' but at day '45', 100% epithelialization

was covered on the wound surface. No discharge was present after 45 days whereas there was thin purulent discharge initially at the first assessment. No tenderness was recorded at final stage whereas severe tenderness was present in early days.

Case III

Initially the size of the ulcer was 21.05 cm² which completely contracted at day '45' i.e. 0 cm² (Figure 9 and 10). Only 4.25% granulation was present at day '0' which, on day '45', became 100% healthy. 100% epithelialization was achieved at endpoint which initially was 0%. The wound remained free off any kind of discharge from initial stage to endpoint. Moderate tenderness, which was present initially at day '0', had been subsided at day '45'.

Case IV

Initially the average size of the ulcers was 21.15 cm² which completely contracted at day '45' (Figure 11 and 12). 0% granulation was present at day '0' which on day '45' became 100% healthy. 100% epithelialization was achieved at endpoint which initially was 0%. The wound remained free off any kind of discharge from initial stage to endpoint. Severe tenderness, which was present initially at day '0', had been subsided at day '45'.

Table-3 illustrates comparison of various parameters in four patients studied from day '0' to day '45'

Table 1: Clinical examination of wounds/ulcers of four patients studied

Attributes	Case I	Case II	Case III	Case IV
Positions	Antero-medial aspect of left foot at ankle joint	Right leg- anteriorly at junction of upper 2/3 rd and lower 1/3 rd . Medially above and behind the medial malleolus. Left leg- Postero-medially above medial malleolus	Postero-medial aspect of left lower leg	Right leg, 3 fingers above medial malleolus
Number	6	7	4	1
Shape	Irregular	Oval	Irregular	Oval
Edges	Sloppy	Sloppy	Sloppy	Irregular
Floor	Pale and unhealthy slough	Yellowish unhealthy granulation	Unhealthy yellowish slough	Pale unhealthy slough
Discharge	Thin serous discharge	Thin purulent discharge	Absent	Absent
Surrounding area	Oedematous and hyper pigmented	Oedematous, hyperemic and dark pigmented	Dark pigmented	Hyper pigmented
Tenderness	+++	+++	++	+++
Discharge on touch	Absent	Absent	Absent	Absent
Examination for vascular insufficiency	All pedal pulsations palpable	All pedal pulsations palpable	All pedal pulsations palpable	All pedal pulsations palpable

Table 2: Investigations of four patients studied

Investigation	Case I	Case II	Case III	Case IV
Hb%	12.0 gm%	13.2 gm%	14.1 gm%	15.3 gm%
TLC	10400/mm ³	9600/mm ³	12500/mm ³	5800/mm ³
DLC (P/L/E/M/B)	73/16/06/05/0 (%)	82/06/06/06/0(%)	48/38/07/07/0 (%)	73/15/06/06/0 (%)
ESR	60 mm/1hr	56 mm/1hr	44 mm/1hr	37 mm/1hr
Random blood sugar	123 mg/dl	142 mg/dl	104 mg/dl	84 mg/dl
HIV I & II	Non-reactive	Non-reactive	Non-reactive	Non-reactive
HbsAg	Negative	Negative	Negative	Negative
Venous Doppler	Varicose vein along GSV with incompetent perforators	Incompetent perforators	Incompetent perforators along medial aspect of left leg	Incompetent perforators at different level along right lower limb

Figure 1: Day '0'

Figure 2: Day '45'

Case I: Large ulcers at lower leg around medial malleolus. In Figure 1, the floor is covered with multiple yellowish sloughs with little granulation around. In Figure 2, it is 98.81% healed.

Figure 3: Day '0'

Figure 4: Day '45'

Case II: Right foot medial aspect. Note hyperemia around and yellow slough at the floor of ulcer in Figure 3, completely healed in Figure 4.

Figure 5: Day '0'

Figure 6: Day '45'

Case II: Right foot anterior aspect. There is hyperemia, discoloration and mild swelling around the ulcer in Figure 5. It is completely healed in Figure 6.

Figure 7: Day '0'

Figure 8: Day '45'

Case II: Left foot medial aspect; multiple ulcers with discoloration and mild swelling around in Figure 7, completely healed in Figure 8 with persisted discoloration.

Figure 9: Day '0'

Figure 10: Day '45'

Case III: Multiple ulcers with mild swelling and discoloration around at lower leg in Figure 9; completely healed with 100% epithelialization in Figure 10. Later patient was instructed to undergo surgical intervention for varicose vein.

Figure 11: Day '0'

Figure 12: Day '45'

Case IV: Right leg, three fingers above medial malleolus with discoloration around in Figure 11. Note unhealthy granulation with yellowish slough and irregular edges, 100% epithelialization in Figure 12.

Table 3: Outcomes in four patients studied from day'0' to day'45'

Attributes	Case I		Case II		Case III		Case IV	
	Day'0'	Day'45'	Day'0'	Day'45'	Day'0'	Day'45'	Day'0'	Day'45'
Ulcer size (cm ²)	81.18	0.96	12.98	0	21.05	0	21.15	0
Healthy granulation	< 25%	100%	0%	100%	4.25%	100%	0%	100%
Epithelialization	< 25%	98.81%	0%	100%	0%	100%	0%	100%
Discharge	Thin serous	Absent	Thin purulent	Absent	Absent	Absent	Absent	Absent
Tenderness	+++	+	+++	Absent	++	Absent	+++	+

DISCUSSION

As per the literature of Unani medicine, *Marham-e-Raal* is indicated in the treatment of chronic ulcers. It ensures the growth of healthy tissue and thereby helps in wound healing. It also removes the dead and devitalized tissue from the wound.⁷ Molecular action of *Marham-e-raal* has been explained as the enhancing action for the collagen concentration and stabilization of fibers at wound bed. It also hastens the epithelialization process and adds more to wound contraction.⁸

Mom (bees wax) is one of the most important content of the *Marham-e-raal* (an ointment). It increases the effectiveness of this ointment by increasing the penetration of its contents deep into wound bed. Majority of the constituents of a *Marham-e-raal* has desiccants and astringent properties which are desirable for the wound healing. *Kafoor* (*Cinnamomum camphora*) is another important constituent of the *Marham* (ointment). It has antiseptic, stimulant and rubefacient activity. When *Kafoor* is applied locally, it results in hyperemia at the site through its vascular dilatation activity.⁹ It also exhibits antiseptic, demulcent and anodyne properties.^{10,11} *Raalhindi* (*Vateria indica* Linn) has detergent activity and helps in the cleaning of the wound by removing the pus and discharge from its floor¹¹. Ointments containing *Raalhindi* (*Vateria indica* Linn) are beneficial in treating long standing wounds.⁹ Apart from the above, *Raalhindi* has anti parasitic property and rubefacient activity.¹⁰ *Kaathindi* (*Acacia catechu*) has anti pruritus activity. Ointments containing *Kaathindi* (*Acacia catechu*) are effective in management of ulcers of burn and syphilis. Its *sufuf* (Powder) possesses haemostatic activity when sprinkled over the wound.⁹ *Kaathindi* has been reported to be strong astringent and anti-parasitic agent.^{10, 11}

CONCLUSION

Wound healing is credited to *muhallil* (anti-inflammatory), *daf'eta'ffun* (antimicrobial), *mujaffif* (desiccant) and *mundamil* (wound healing) properties of *Marham-e-raal*. This should further be evaluated on large number of cases.

Consent

Written informed consents were obtained from all the patients for publication of this case series and accompanying images.

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