

Diabetic foot ulcers treated with unani formulation: A case series

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Abstract

India with approximately 42 million cases is ranked first in the list of the ten nations most affected with diabetes. Among diabetes mellitus related complications foot ulceration is the most common; affecting approximately 15% of diabetic patients during their lifetime. The diabetic foot is a major medical, social and economic problem worldwide. However, the reported frequency of ulceration and amputation varies considerably. Out of all late complication of diabetes mellitus, foot problems are probably the most easily preventable. The present case series reports the wound healing properties of the Unani formulation which contains *Kundur, Mur, Aelwa, and Dam-ul-Akhwain* in diabetic foot ulcer. The powder of *Kundur, Mur, Aelwa, and Dam-ul-Akhwain* is prepared and it is sprinkled on the wound as per needed, assessment of wound is done by graph paper and dressing is done for two months and assessed on every 12th day of dressing.

Keywords: diabetic foot ulcers, unani, *kundur, mur, aelwa, dam-ul-akhwain*

Introduction

Case – 1

Presentation: A patient, 40 years female, resident of Bangalore, visited NIUM surgical OPD with complaints of wound on left foot since 2 months.

Medical history: According to patient she was apparently well 2 months back and then she noticed a small swelling on lateral aspect of left foot just lateral to left little toe which increased in size and then ulcerated with discharge from it thereby a small wound formation. Patient visited nearby clinic and got some treatment for same. But with this conventional treatment she did not get relief and wound gradually increased in size.

Patient was known case of Diabetes Mellitus on regular treatment on oral hypoglycemic agent.

Wound profile of left lower limb wound (table No.1)

Table 1

Characteristics	Findings
Inspection	
▪ Site	Infero-lateral aspect of base of left 5 th toe
▪ No. of wounds	One, oval shape
▪ Size of wound	3x2cms.
▪ Edges	Slopping edge
▪ Floor	Slough with unhealthy granulation tissues
▪ Discharge	Absent
▪ Surroundings	Black pigmented.
Palpation	
▪ Local temperature	Not raised
▪ Tenderness	Mild tenderness
▪ Margins	Indurated
▪ Base	Not defined
▪ Bleeding on touch	Absent
▪ Other findings	All pulsations are present

Case – 2

Presentation: A patient, 49 years male, resident of Bangalore, visited NIUM surgical OPD with complaints of wound on right sole since 6 months.

According to the patient he was apparently well 6 months back and then he got trauma on his right sole which he did not take care of as there was no pain. But after few days patient accidentally noticed a wound with discharge on his right sole. Discharge was yellowish in color and foul smelling. Patient took antibiotic treatment and dressing of infected wound from clinic, but wound did not show any sign of healing and it gradually increased in size.

Patient was known case of D.M on regular treatment H. Insulin.

Wound profile of right lower limb (table No.2)

Table 2

Characteristics	Findings
Inspection	
▪ Site	Plantar surface of right foot
▪ No. of wounds	One
▪ Size of wound	5x4x0.2cms cm.
▪ Edges	Punched out edges
▪ Floor	Yellowish fibrous slough
▪ Discharge	No discharge
▪ Surroundings	Black pigmented
▪ Other findings	Swelling of right foot
Palpation	
▪ Local temperature	Not raised
▪ Tenderness	Absent
▪ Edge	Punched out edge with induration
▪ Margins	Indurated
▪ Base	Not defined
▪ Bleeding on touch	Absent
▪ Other findings	All pulsations present.

Wound profile

The main purpose of the initial examination of the wound was to establish the assessment parameters of wound and then response to Unani formulation (*Kundur, Mur, Aelwa, and Dam-ul-Akhwain*). The aim of the treatment is safe administration of the Unani formulation to the wound under proper aseptic precautions at every 3rd day for 2 months in order to facilitate the wound healing and assess the wound healing property of formulation.

Procedure

The treatment was commenced on the day the patients were admitted to the hospital. The patients also underwent investigation processes. The patients were also educated how to keep the affected part clean, hygienic and elevated as advised.

The wound was first cleaned with normal saline and sterile gauze piece. Debridement of the yellowish unhealthy tissue and slough was done. After that the wound was again washed with N.S and dried with sterile dry gauze piece. Dressing with Unani formulation *Kundur (Boswellia serrata), Mur (Commiphora myrrh), Aelwa (Aloe barbadensis), and Dam-ul-Akhwain (Pterocarpous marsupium)* was done with full aseptic precaution. Dressing was changed after every 3rd day and wound was assessed by assessment parameters on every 12th day along with photographs of the affected part.

Discussion

India with approximately 42 million cases is ranked first in the list of the ten nations most affected with diabetes probably due to western life style and diet. Among diabetes mellitus related complications, foot ulceration is the most common, affecting approximately 15% of diabetic patients during their lifetime. In people with diabetes, foot ulcers occur as a consequence of the interaction of risk factors, it does not ulcerate spontaneously. Average healing time of foot ulcer is 4-6 weeks. 75-80% of non-traumatic amputations are done in diabetic patients^[1].

Factors that precipitate diabetic foot ulcer are as follows:

- 1) Loss of sensation due to peripheral neuropathy.
- 2) Peripheral vascular disease causes decreased blood flow to legs.
- 3) Deformities of foot may leads to increased pressure and abnormal pressure points.
- 4) Infection and cellulitis of foot.

A wide variety of advanced treatment of diabetic foot ulcer are available such as topical growth factors, skin grafting, vacuum assisted closure (VAC) therapy and hyperbaric oxygen therapy (HBOT)^[1]. But all these treatments have some limitations and unaffordable for most of the population. There are many Unani formulations for chronic non healing ulcers in form of ointment and powder which are cost effective, easily available, efficient and safe. Keeping this view in mind, one of the Unani formulation i.e. *Kundur, Mur, Aelwa, Dam-ul-akhwain* has been tried.

It is essential to know that the term *Qarha (Ulcer)* is concerned with the term *Jarahat (wound)* which is associated with pus within it. And the *Jarahat (wound)* is defined as *Tafarruk-e-ittehal (damage)* of the *lahem (muscles)*. The causative factors of the *Jarahat (wound)* may be *berooni (external)* and *androoni (internal)*. Therefore any *Jarahat* in which there is pus formation is called as *Qarha*.

There are three types of *Qurooh* in *Unani* literature.

1. *Qurooh-e-baseet (Simple Ulcer)*: Those ulcers which are free from those factors which delay in wound healing.
2. *Qurooh-e-murakkab (Compound Ulcers)*: Those ulcers which are associated with blackening of tissues, pain and suppuration.
3. *Qurooh-e-asrat-ul-indamaal (Non Healing Ulcers)*: Those ulcers whose healing is delayed and associated with more damage and destruction of the local part. These types of ulcers have different types of causes^[2].

In Unani system of medicine there are many drugs which show wound healing properties like *Mujaffif* (desiccant), *Mundamil-e-Qurooh* (healing drugs) and *Khatim* (cicatrizant). All these properties are found in *Kundur, Mur, Aelwa, Dam-ul-Akhwain*^[3, 4, 5, 6]. On the basis of these properties these Unani drugs have been selected to explore the efficacy and safety in diabetic foot ulcers.

Case 1

The patient has been scheduled for two months treatment for dressing. Dressing is done after every third day. Wound showed a very good healing just after 12 days of dressing. There was red granulation tissue instead of yellow unhealthy granulation tissue. Initially wound was 3x2cms in size which gradually started shrinking and showed healing properties. Wound was completely healed after two months of dressing.



Day '0' (13-06-2016)



Day '12' (25-06-2016)



Day '24' (07-07-2016)



Day '12' (31-05-16)



Day '36' (19-07-2016)



Day '24' (12-06-16)

Case 2

This patient has also been scheduled for 2months treatment. The patient responded slowly in initial time. The wound has not responded to any conventional treatment up to this time, but became one of the best responding when 3 to 4 settings of dressing have been done. Wound size decreased from 5x4x0.2cms to 2.3x1.5ms within 60 days with Unani formulation exhibiting a promising response. The floor initially was covered with yellowish unhealthy granulation tissues which later were cleared off after application of the Unani formulation. The surrounding pigmented area also showed promising changes i.e. retained its normal texture and color. In both cases it was noticed that wounds decreased after 12days of dressing and signs of healing and epithelialization started within 2 weeks with no slough formation.



Day '36' (24-06-16)



Day '0' (19-05-16)

Gum-resin of *Kundur (Boswellia serrarta)* has antiseptic, anti-inflammatory, antiatherosclerotic properties. A pyrazoline derivative of *Kundur (Boswellia serrarta)* is reported to have maximum anti-inflammatory activity [7]. *Mur (Commiphora myrrh)* has been reported to have antiseptic, bacteriostatic, antiviral, astringent and stimulant properties [8]. *Aelwa (Aloe barbadensis)* gel is known to have topically emollient, anti-inflammatory, antimicrobial activities. Therefore *Aelwa (Aloe barbadensis)* is used for wound healing and sunburn [7]. The ethanolic and methanolic extracts of the *Dam-ul-Akhwain (Pterocarpous marsupium)* exhibits significant antimicrobial activity against Gram-positive and Gram negative bacteria and some strains of fungi *in-vitro* [8]. On the basis of these properties these Unani drugs have been selected to explore the efficacy in diabetic foot ulcers. No oral drug was given during the treatment except local

application of powder on wound.

Conclusion

The Unani formulation (*Kundur, Mur, Aelwa, and Dam-ul-Akhwain*) as a powder form proved to be very efficient and promising dressing material which is easily available. These two cases revealed that above said formulation has a promising healing property in diabetic foot ulcer. By using elaborated control trial study is to the claims of Unani physician and it may lead to a novel drug formulation for wound healing in diabetic ulcers in future.

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