'website : www.ijacare.in e-ISSN No.: 2457-0443
INTERNATIONAL JOURNAL OF AYUSH CASE REPORTS (IJA-CARE)

Effect of *Ḍimād* of Barg-i-Nīm and Roghan-i-Nārjīl in the Management of Diabetic Foot Ulcer : A Case Report

Birjis Fatma[1*], Abid Nadeem Nomani [2], Mohd Anwar [3], Suboohi Mustafa [4], Fahmeeda Zeenat[5]

[1]MS-Scholar, Department of Niswan-wa-Qabalat, Ajmal Khan Tibbiya College, Aligarh Muslim University, Aligarh; India
[2]Research Officer, Unani Specialty Clinic, Ribandar, Goa- an extension centre of RRIUM Mumbai, CCRUM Ministry of AYUSH Govt of India
[3]Professor, Department of Ilaj-Bit-Tadbeer, Ajmal Khan Tibiiya College, Aligarh Muslim University, Aligarh; India
[4]Professor, Department of Niswan-wa-Qabalat, Ajmal Khan Tibbiya College, Aligarh Muslim University, Aligarh; India
[5]Assistant Professor, Department of Niswan-wa-Qabalat, Ajmal Khan Tibbiya College, Aligarh Muslim University, Aligarh; India

ABSTRACT:
A male patient with chief complaints of wounds and swellings on both feet, along with discharge, and a history of diabetes mellitus for the past 20 years, attended the OPD of Ajmal Khan Tibbiya college Hospital. The patient was clinically examined, routine investigation was carried out and the condition was diagnosed as diabetic ulcer. The patient was advised to continue routine medication and adhere to strict diet control. The wound was cleaned with an antiseptic *Ḍimād* of *Barg-i-Nīm* and *Roghan-i-Nārjīl* was applied locally over the wounds for one and a half months. Assessments were done every fourth day. The patient was assessed at baseline and during each dressing change every fourth day using subjective (size of wounds, swellings and discharge) and objective parameters (EQ5D5L). After completiing the study, it was concluded that the local application of *Ḍimād* is safe and effective in the treatment of diabetic foot ulcer without any side effect.

KEYWORDS: Diabetic foot ulcer, *Ḍimād*, *Barg-i-Nīm*, *Roghan-i-Nārjīl*

Received: 03.08.2024 Revised: 15.08.2024 Accepted: 18.09.2024 Published: 21.09.2024

Quick Response Code

***Corresponding Author:**
Dr. Birjis Fatma
MS-Scholar, Department of Niswan-wa-Qabalat, Ajmal Khan Tibbiya College, Aligarh Muslim University, Aligarh; India.
Email: drbirjisf@gmail.com

INTRODUCTION:

Diabetes mellitus is a metabolic disorder that results due to interference in the lifestyle and genetical factors. It is characterized by polyuria, polyphagia, hyperglycemia. The prevalence of diabetes is rising at an alarming rate throughout the world. The number of patients with DM has increased four times (from 108 million in 1980 to 422 million in 2014) within 34 years only. The incidence of diabetes among adults over 18 years of age has risen to 8.5% (2014) from 4.7% (1980). [1]. According to the WHO, diabetes will be the seventh leading cause of death by 2030 [2]. Prolonged and uncontrolled high blood sugar results in diabetic complications some of which are life-threatening. Among all complications of diabetes foot ulcer is the most common affecting 15–25% of patients over their lifetime [3] Conventional approach requires pharmacological and surgical approach for the management which may cause side effects as well as patients don't want or hesitate to follow surgical approach treatment particularly amputation. So there is the need for alternative treatment and therapies for the management of diabetic foot ulcer.

In Unani medicine a number of compound formulation and regimenal interventions are being used for the treatment of chronic Ulcer like *Ḍimād* (paste), leech therapy and single and compound herbal formulations etc. *Ḍimād* is the local application of semisolid medicated preparation of drugs used for wound healing. Local application of *Ḍimād* of Barg-i-Nīm (*Azadirachta indica)* leaves mixed in Roghan-ī-Nārjīl (coconut oil) are recommended for the management of chronic ulcer particularly in Diabetic foot. The ingredients of this *Ḍimād* possesses diverse pharmacological properties such as antiseptic, cicatrizant- wound healer, analgesic, anti-bacterial and anti-fungal properties. Keeping in view of the medicinal properties of *Barg-ī-Nīm* (*Azadirachta indica)* leaves and *Roghan-ī-Nārjīl* (coconut oil), a study was designed to assess the effect of *Ḍimād* in the management of Diabetic foot.

CASE REPORT:

A 55 years male patient, resident of Aligarh, complaints of wound on both foots since 1 month. According to the patient two small swellings on the dorsal aspect of 2nd and 3rd toes of left foot and on the dorsal aspect of 1st to 4th toes of right foot along with small swelling on right dorsal aspect of foot near intermediate cuneiform appear, which increased in size then ulcerated with discharge coming out causes small wound formation. Patient treated by local practitioners by antibiotics and anti-fungal for same. But he did not get relief and wound gradually increased in size. Patient was known case of type 2 Diabetes Mellitus and taking regular oral hypoglycemic agent as well as on insulin as prescribed by Diabetologist.

The wounds present on the dorsal aspect of 2nd & 3rd toes of left foot till phalanges, size was 3×1 on 2nd toe 2×1 on 3rd toe of left foot along with sloppy edges, oedematous margin and floor filled with unhealthy granulation tissue and yellowish colour slough, discharge was present, surroundings were black pigmented. There was no visible veins, no smelling from wounds, and swelling of left foot. On palpation, the local temperature was not raised, tenderness was absent, indurated margins, undefined base, depth was approximately 0.5 cm, no bleeding on touch and all pulsations of left lower limb normally appreciable. Where as the wounds on the dorsal aspect of 1st to 4th toes of right foot along with small swelling on right dorsal aspect of foot near intermediate cuneiform. The size of wound was 2×2 on 1st toe, 2×2 on 2nd toe, 2×1 on 3rd toe, 1×1 on 4th toe, 3×2

near intermediate cuneiform. Edges were sloppy, oedematous margin, floor was filled with unhealthy granulation tissue and yellowish colour slough, discharge, surroundings were black pigmented, no visible veins, no smelling from wounds, and swelling of right foot. On palpation, the local temperature was not raised, tenderness was absent, indurated margins, undefined base, depth was approximately 0.5 cm, no bleeding on touch and all pulsations of right lower limb normally appreciable.

After taking proper history, physical and local examination, relevant investigations (BS- F & PP, RBS, HBA1C, CBC, LFT, RFT, Urine-R & M) the patient was diagnosed with diabetic foot ulcer, so patient was included in the study.

Procedure:

The wound was first cleaned with lukewarm water mixed with salt. Make the paste of *Barg-i-Nīm* and mixed into coconut oil. Dressing with the formulation on the affected part with full aseptic precaution. *Ḍimād* of *Barg-i-Nīm* mixed in *Roghan-i-Nārjīl* was applied locally over the wounds for one and a half month and assessment done at every fourth day on subjective and Objective Parameters. Concomitantly patient was allowed to take anti-diabetic treatment as advised by physician. Patient was also advised to take tailored diet for Diabetes. The patient was assessed by following subjective and objective parameters.

Subjective parameters:

- Size of wounds: size of wounds were 4 (size of wounds are severe at this score) at baseline which was improved to 0 on the completion of study.
- Swelling: swelling was 3 (swelling is moderate at this score) at baseline which improved to 1 on the completion of the study.
- Discharge: discharge was 3 (swelling is moderate at this score) at baseline which improved to 0 on the completion of the study.

Objective parameters:

- EQ5D5L: It is the health status questionnaire based on quality of life-mobility (1). self-care (2). usual activities (3). pain/discomfort (4). anxiety/depression (5). Each dimensions have 5 levels (no problem-1, slight problem-2, moderate problem-3, severe problem-4, unable to do-5). The total EQ5D5L was 8 (12113) at baseline which improved to 5 (11111) on the completion of the study.

The patient was assessed on baseline, on every fourth day of dressing with *Ḍimād* and after completion of treatment i.e. after one and a half month with the help of subjective parameters (size of wounds, swellings and discharge) and objective parameters (EQ5D5L) for measurement of quality of life.

Table-1: Therapeutic actions different ingredients of Test Formulation

Scientific Name	Name	Parts Used	Therapeutically Active Constituents	Effects As Per Unani Medicine	Associated Pharmacological Activity
Azadirachta indica	*Nīm*	Leaves	Azadirachtin. Docosane [4], Dotriacontane [4], Hentriacontane [4], Nonacosane [4]. Nimbocinolide [5]. Octacosane [6], Heptacosane [6], Pentacosane [6], Triacontane [6].	Anti-bacterial, Anti-fungal, Antiseptic [7] (*Dafi'-i-Ta'affun*), Cicatrizant-wound healer (*Mudammil-i-Qurūḥ*) [8], Analgesic (*musakkin-A-alam*) [9].	Antihyperglycemic, antioxidant, anti-inflammatory [10], skin disease (*Nāfi'-i-Amrāḍ-i-Jild*) [11], Anti-Diabetic(*Nāfi'-i-Dhayābiṭus*) [12], useful in burns and wounds (*Nāfi'-i-Jurūḥ wa Qurūḥ*) [13].
Cocos nucifera	Coconut oil		Lauric acid and Alpha-tocopherol [14,15].	Anti-bacterial [18], Anti-fungal [18], Antiseptic (*Dafi'-i-Ta'affun*) [16], Cicatrizant-wound healer (*Mudammil-i-Qurūḥ*) [16], Analgesic (*musakkin-i-alam*) [17].	Moisturizer (*Muraṭṭib*) [16], Anti-pruritic (*Dāfi'-i-Kharish*) [16], immunomodulator (*Muqawwi-i-Manā'at*) [19], anti-viral [18], anti-protozoal [18]

Photograph of Wounds on right & left foot before treatment:

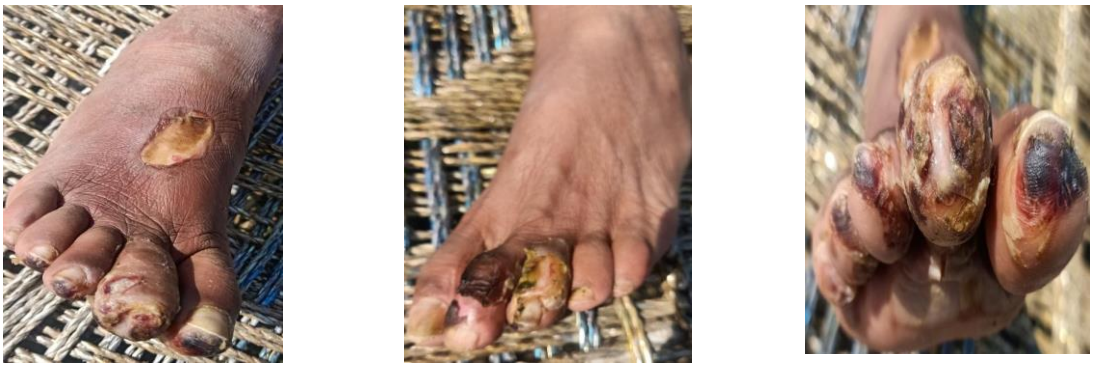

Figure- 1: Status of wound on Right & Left foot before treatment

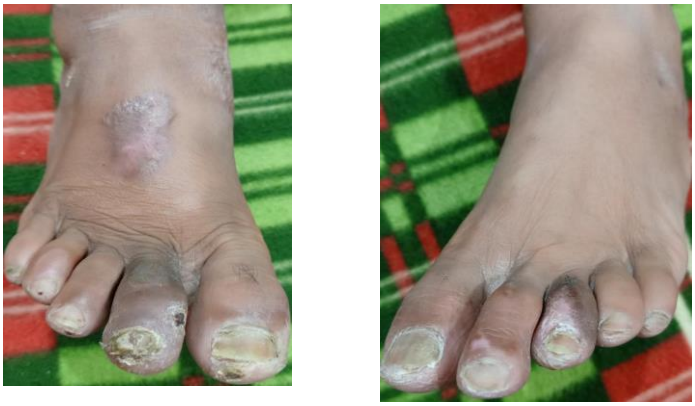

Figure-2: Status of Right & Left foot after treatment

RESULTS:

After completion of treatment, it was observed that within just two weeks the wound healing process started. The unhealthy yellowish granulation tissue had been replaced by red granulation tissue. The wounds were initially quite huge but eventually they began to decrease and leads to healing and shows the signs of improvement. Wounds were entirely healed by one and a half month. The healing effect is shown in the following photograph. the total score (subjective and objective parameters) at baseline was 18 which improves to 6 (66.66%) after completion of therapy. Significant improvement was observed in healing of Ulcer which clearly reflects in Post therapy Photographs.

DISCUSSION:

Management of non-healing leg ulcer is a challenge for the physicians and researchers. Despite of treatment, patient may suffer either of pain[1], restricted activities [2], and or oedema [3]. Apart from substantial financial burden, patients' quality of life is also compromised [4] along with negative effect on social life. Physicians of Unani (Greek) system of medicine treat these patients successfully. This patient's photograph was taken from beginning of treatment and after completion of therapy to document and validate the efficacy of Unani formulation *of Ḍimād* and found effective in the management of Diabetic foot ulcer. The improvement in the process of healing in Diabetic foot may be due to diverse pharmacological action of ingredients of Test formulation. The main ingredient of *Ḍimād* is Neem leaves (*Azadirachta indica*) which contains various chemical constituents such as Azadirachtin. Docosane [4], Dotriacontane [4], Hentriacontane [4], Nonacosane [4]. Nimbocinolide [5]. Octacosane [6], Heptacosane [6], Pentacosane [6], Triacontane. These chemical constituents possesses various pharmacological actions such as Anti-bacterial, Anti-fungal, Antiseptic [7] (*Dafi'-i-Ta'affun*), Cicatrizant-wound healer (*Mudammil-i-Qurūḥ*) [8], Analgesic (*musakkin-i-alam*) [9]. Furthermore, *Roghan-i-Nārjīl* also possess Anti-bacterial [18], Anti-fungal [18], Antiseptic (*Dafi'-i-Ta'affun*) [16], Cicatrizant-wound healer (*Mudammil-i-Qurūḥ*) [16]. Incidentally these drugs also possess the antibacterial and antifungal properties which further prevent the bacterial and fungal infection at the site of wound.

CONCLUSION:

In this case report, it is demonstrated that the application of *Ḍimād* is quite effective in the management of diabetic foot ulcer. This case may provide some insight to the alternative therapies, especially Unani management of

the non-healing ulcers. Therefore it may be used for the management of non-healing diabetic ulcer along with standard anti-diabetic Modern treatment. Further, randomized clinical studies to be carried out to validate the effectiveness of *Ḍimād* in the management of diabetic foot ulcer patients on larger sample size.

Limitation of Study:

- The result of this single case study may be different from other results, in case of change of environment
- Result may be different in different temperament
- Because of being single case study, its result may not be applied in general population
- This study is replicable

Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent for using clinical information reporting in the journal. The patient understand that his name and initial will not be published and due effort will be made to conceal the identity.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor*:* The corresponding author is the guarantor of this article and its contents.

Source of support: None

How to cite this article:

Birjis Fatma, Abid Nadeem Nomani, Mohd. Anwar, Suboohi Mustafa, Fahmeeda Zeenat. Effect of *Ḍimād* of *Barg-i-Nīm* and *Roghan-i-Nārjīl* in the Management of Diabetic Foot Ulcer : A case Report. Int. J. AYUSH CaRe. 2024;8(3):357-363.

REFERENCES:

1. World Health Organization (WHO). Global Report on Diabetes; WHO: Geneva, Switzerland, 2017; Available online: http://www.who.int/diabetes/global-report/en/ (accessed on 22 September 2018).
2. Mathers, C.D.; Loncar, D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med. 2006, 3, e442. [Google Scholar] [CrossRef][Green Version].
3. Neville, R.F.; Kayssi, A.; Buescher, T.; Stempel, M.S. The diabaetic foot. Curr. Probl. Surg. 2016; 53: 408–437.
4. Rochanakij S, Thebtaranonth Y, Yenjal CH, Yuthavong Y., Nimbolide, a constituent of Azadirachta indica inhibits Plasmodium falciparum in culture. Southeast Asian J Trop Med Public Health, 1985; 16: 66–72
5. Majumdar PL., Maiti, D. C., Kraus, W., and Bokel, M, J Phytochemistry, 1987; 26: 3021
6. Iffat A, Siddiqui BS, Faizi S, Siddiqui S., Structurally novel diterpenoid constituent from the stem bark of Azadirachta indica (meliaceae). J Chem Soc Perkin Tran. 1989; 2: 343-345.
7. Kabīruddin M. "Makhzan ul Mufradat". Ejaz Publishing House; New Delhi: YNM; 219.
8. Kareem, Noor, Mukhzanul Advia, Ejaz Publishing House; New Delhi: 1888; 1: 186.
9. Hakeem MA, Bustanul Mufradat, (Reprinted recently) Idara-e-Tarraqqi Urdu Publication, Lucknow: 1311; 341.
10. Ross I.A., Medicinal plants of the world: Chemical constituents,Traditional and modern medicinal uses, Totowa, New Jersy,2001; (2),81-85.

11. Sheerazi A, Tohgatul Monineen wa Makhzam-ul-Advia (Persian), Idara Kitabul Shifa; New Delhi: 1917; 780-781
12. Ghani NH, "Khazainul Advia". Idara Kitabul Shifa; New Delhi: YNM; 988-996
13. Sharif M, Riyazul Advia, Matba Mustafa Musrafa Mohd. Hussain Khan, Idara Kitabul Shifa, New Delhi: YNM; 413-414.
14. Tangwatcharin P, Khopaibool P. Activity of virgin coconut oil, lauric acid or monolaurinin combination with lactic acid against Staphylococcus aureus. Southeast Asian J Trop Med Public Health. 2012; 43:969-985.
15. Arlee R, Suanphairoch S, Pakdeechanuan P. Differences in chemical components and antioxidant-related substances in virgin coconut oil from coconut hybrids and their parentes. Int Foods Res J. 2013; (20):2103-2109.
16. http://www.coconut-connection.com/skin_care.htm. Virgin Coconut Oil and Your Skin. [Last accessed on 20 June-2024]
17. Kabeeruddin H. M., Makhzan-ul-Mufradat: Kitab-ul- Advia, Faisal Publication Deoband, UP. 2000; 575
18. Mandal MD, Mandal S, Coconut (Cocosnucifera L.: Arecaceae): In health promotion and disease prevention. Asian Pacific Journal of Tropical Medicine, 2011;41-247.
19. http://experts.about.com/e/c/co/Coconut_oil.htmhd1. coconut oil; health effects.
20. Khanna, N., Goswami, M., Sen, P. and Ray, A. Antinociceptive action of Azadirachta indica (neem) in mice: possible mechanisms involved. Indian J. Exp. Biol.,1995; 33(11): 848-850
21. Chattopadhyay, R.R., Chattopadhyay, R.N. and Maitra, S.K, Indian Journal of Pharmacology, 1992; 25 (2): 99-100.
22. Garg GP., Nigam, S.K. and Ogle, C.W, The gastric antiulcer effects of the leaves of the neem tree. Planta Medica, 1993; 59 (3): 215-217.
23. Quraishi HA., Islam N., Iqbal A., Bhat SA., Ahmed J., Ashraf SS., Khan QA, Therapeutical and medicinal properties of Neem (Azadirachta indica) in context of Unani system of medicine: a review study. Journal of Drug Delivery & Therapeutics., 2018; 6(8): 123-134
24. Okpanyi SN. and Ezeukwu,G.C, Plata Medica, 1981; 34.
25. Nevin KG, Rajmohan T, Effect of topical application of virgin coconut oil on skin components and antioxidant status during dermal wound healing in young rats. Skin Pharmacol Physio.2010; 23(6):290-297.
26. Hamdani SK. Usool-e-Tib. Qaumi council, New Delhi. 6th edition. 2018;351