Effectiveness of external application of Syzygium Jambolanum mother tincture as an add-on therapy to diabetic foot ulcer: A case study

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Abstract
A description of a clinical case of long-standing diabetic foot ulcer (DFU) is presented below. Patient presented with a non-healing foot ulcer of 3 years duration. Ulcer is graded using Wagner’s classification of DFU. Homoeopathic medicines are also given along with his conventional treatment. Homoeopathic mother tincture (MT) of Syzygium Jambolanum was used as an external application. Aim of this study is to demonstrate the effectiveness of external application of Syzygium Jambolanum mother tincture as an add-on therapy in DFU.

Keywords: Diabetic foot ulcer, homoeopathy, syzygium jambolanum, wagner’s classification of DFU

Introduction
Diabetes mellitus is a metabolic disease characterized by hyperglycemia caused by either an impaired response of body cells to insulin or because the body does not secrete enough insulin. One of the secondary complications of diabetes is diabetic foot ulcers. DFUs may result in gangrene of the affected part and may cause amputation. 15% of people with diabetes will develop a foot ulcer at some point during their life and 85% of major leg amputations start at the level of the foot \(^1\). The increasing incidence of non-healing skin wounds have paved the way for many efforts on the complex wound healing process. Unfortunately, the lack of uniform and successful approach to wound dressings still remains a matter of huge concern in the treatment of diabetic foot ulcers \(^2\).

The major predisposing factors include
Peripheral neuropathy: Leading to lack of sensitivity.
Motor neuropathy: Causes an imbalance between muscle movements.
Autonomic neuropathy: Causing hyperkeratosis and dry skin and

Microvascular complications
These lead to high foot pressure, foot deformities and gait instability, which increase the risks of developing ulcers.
These risk factors are as follows: male gender, duration of diabetes longer than 10 years, advanced age of patients, high Body Mass Index, and other comorbidities such as retinopathy, diabetic peripheral neuropathy, peripheral vascular disease, elevated HbA1C; uncontrolled diabetes mellitus, foot deformities, high plantar pressure, infections, and inappropriate foot self-care habits \(^3\).

The management of DFU should be optimized by using a multidisciplinary team, a holistic approach to wound management is required. According to studies, DFU care should always involve blood sugar control, wound debridement, advanced dressings and offloading modalities.
Homoeopathy as a system of medicine, provides effective treatment for DFUs especially if diagnosed at an early stage. It helps in reduce the symptoms and prevents further spread. Syzygium Jambolanum plant is indigenous to India. In homoeopathy it is mainly used for its anti-diabetic action. \(^4\) Mother tincture is prepared from the seeds of the Jambolanum plant. It is used to lower the blood sugar levels and urine sugar levels. The ethanolic extract of seeds, pericarp and leaf fractions showed anti-inflammatory, anti-ulcer, hepatoprotective and anti-oxidant activities \(^5\).
Syzygium Jambolanum fruits comprise several different types of anti-oxidant compounds, including an alkaloid ‘jambosine’, flavonoids, phenolics, carotenoids and vitamins, which are all considered useful to human health, for reducing the risk of degenerative diseases by decreasing oxidative stress, and for inhibiting macro molecular oxidation [6].

Materials and Methods
The patient attended the outpatient department of Government Homoeopathic Medical College Hospital, Thiruvananthapuram with a non–healing DFU for the past 3 years. After detailed case taking, Kali bichromicum 30 is given along with Syzygium Jambolanum mother tincture as external application. 10 drops of Syzygium Jambolanum MT is mixed with 1 Oz of boiled and cooled water. Wound is cleaned with a cotton soaked in this solution and wiped dry and a sterile dressing is done. Patient is advised to continue his anti-diabetic medication without fail as his diabetic profile is not satisfactory. Case is followed up every 2 weeks and improvement is assessed objectively by Wagner’s classification of DFU [7] and taking periodical photographs of the ulcer.

Case report
A 38 year old male presented with a round punched out ulcer over the ball of left foot since 3 years. He is a shopkeeper. The complaint started 3 years back as hardness over ball of left foot with swelling. Patient approached local hospital many times, swelling was laid open, pus was drained and daily dressing was done, but it fails to heal. Patient is diabetic since 5 years FBS =186 mg/dl and PPBS = 221 mg/dl. He had hemorrhoids in the past in which hemorrhoidectomy was done. History of Diabetes mellitus ran in his family. His appetite is reduced; can’t eat much due to heart burn. He has aversion to milk

Local examination
Inspection
Site: ball of left foot
Size - ~ 2x2x2.5 cm
Number - 1
Shape - round
Edge – punched out
Floor – slough
Surrounding skin - unhealthy, indurated with callus formation

Palpation
No tenderness over the ulcer or surrounding skin , edges were indurated , base was mobile & peripheral pulses of both lower limbs were normal.

Medicinal management
Kali bichromicum 30 was selected according to the round punched appearance and indolent (non-healing) nature of ulcer. (12/12/2021)

Rx
1. Kali bich 30 / 1 dose
2. Blank tabs 1-1-1
3. Syzgium Q/ external application with aqueous solution
For 14 days

Follow up
26/12/2021
Ulcer shows granulation tissue in the floor
Reduction in callus formation
Edge become dark coloured

RX
1. Sacharum lactis / 1 dose
2. Blank tabs /1-1-1
3. Syzgium Q /external wash in aqueous solution

12/01/2022
Ulcer almost healed with marked reduction in callus formation.
Medicine repeated for another 2 weeks.

Discussion
The above case of DFU shows a non-healing ulcer and falls under grade 2 i.e., deep ulcer, penetrating down to the ligaments and muscles, but no bone involvement or abscess formation, as per Wagner’s diabetic wound classification.
With conventional treatment there was no improvement, rather, the ulcer showed signs of worsening. So the patient approached for Homoeopathic treatment. The patient was advised to continue the oral hypoglycemic agents. After case taking and examining the case, medicine was prescribed. Diabetic diet care, proper foot care and dressing of the ulcer with aqueous solution of Syzygium Jambolanum mother tincture were advised. The case is followed up every 2 weeks and wound healing is achieved within the first month of treatment.

Syzygium Jambolanum MT is not frequently used by Homoeopathic physicians as external application in ulcers and wounds. In this case study ulcer healing properties of Syzygium Jambolanum is observed. This shows that external application of aqueous solution of Syzygium Jambolanum MT is an effective add on therapy in the treatment of DFUs.

**Conclusion**

External application of aqueous solution of Syzygium Jambolanum MT produced very good ulcer healing property in this case of non-healing DFU within a span of 1 month. It is suggested to do further clinical trials with Syzygium Jambolanum external application to find out the results and if it is found effective enough, Syzygium Jambolanum external application can be used as an add on therapy to heal non-healing DFUs, one of the most disabling complication of diabetes mellitus.

**Informed consent**

The consent to publish the information is obtained from the patient

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