

Case Report**TROPHIC ULCER WITH TYPE-2 DIABETES MELLITUS: SKIN DEBRIDEMENT THERAPY WITH INITIAL ANTIBIOTICS**S. Sunilkumar <sup>1</sup>, Dr. M. vinyas <sup>2</sup>, Dr. Sivaiah Kummara <sup>1\*</sup>, M. Srenivasulu <sup>1</sup><sup>1</sup> Santhiram College of Pharmacy, Nerawada, Panyam, Nandyal, Kurnool-518112, Andhra Pradesh, INDIA.<sup>2</sup> MNR College of Pharmacy, Sanga Reddy, Telangana 502294, INDIA.

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**ABSTRACT**

**Introduction:** A trophic ulcer is a chronic ulcerative defect in the skin or mucosa. It is also defined as impaired nutrition to the part effected. It is an external trauma to the body due to vascular insufficiency or loss of afferent nerves. It is mostly occurs on the lower extremities of the body. More than 95% of the cases, reported on the trophic ulcers were on lower limbs. A skin trophic ulcer consists of various complications because it is not an independent pathological condition. These ulcerations are mainly caused due to the PVD, Injuries, Trauma, Diabetes mellitus and certain infectious condition.

**Objective:** In the present case study, the possible efforts were made to prevent trophic ulcers of the patient which was mainly due to the trauma below the toe region of the right lower limb. The patient was T2DM since 5 years.

**Method:** The patient was treated with systemic Antibiotics with continuous Insulin therapy and skin debridement therapy.

**Results:** Antibiotics like Sulbactam with ceftriaxone, metronidazole, and clindamycin were given to accelerate the wound healing of the trophic ulcer.

**Conclusions:** The results shown that entire wound surface area get healed by the combination of antibiotics and continuous Insulin therapy.

**KEYWORDS:** Tropic ulcer, Antibiotics, Diabetes. Skin debridement, Salbactam, Clindamicin.

**INTRODUCTION**

Trophic ulcer is a skin defect due to the impaired part of the body because of vascular insufficiency/ loss of afferent nerve fibres or no disease condition. Trophic diabetic ulcer is multifactorial pathogenesis with neurogenic, ischaemic and nutritional deficiency. It is further classified into 4 types, they are neurogenic, vascular (arterial), vascular (venous), systemic. In diabetes condition this trophic ulcers eventually get complicated and lead to chronic ulcers by involving larger surface area [1]. Many systemic factors are associated for the cause such as hyperglycemia, physiological derangements, cracks, fissures and ulcers act as portals of entry for systemic

infection, associated malnutrition with immunodeficiency and disease conditions such as diabetes mellitus. Trophic ulcers can also occur to the visitors of trophic [2]. When compared to the females, males are more commonly affected [1]. Neuropathic ulcers would be affected majorly on the sole of the feet or fingertips. It is usually affected in the sites exposed to high pressure or walking or working. In such patients pain perception would be lost, they do not relieve pressure and severe trauma would lead to skin breakdown and ulceration. Muscle mass and motor activity will also be lost in those patients. Due to hypertrophic reactive response cause local hyperkeratosis. This will lead to callus formation, callus breakdown into cracks and ulceration of the foots. Callus formation is the direct index of ulcer formation. In this case study, the infection spread deep to the subcutaneous tissue very close to the bone in the foot. In ulcer edges were covered by a thick rim of fibrous tissue [3]. If untreated, it may also cause long term hospitalization and may risk to amputation if the infection is aggressively progressed [4]. In the present study, patient received initial antibiotic therapy and continuous Insulin therapy successfully and discharged after one month 29 days.

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## CASE REPORT

A 48 years old male patient with T2DM was admitted at the emergency department on 20 June 2019 in Santhiram Medical College. The wound was 3x2 cm dimensions present at the sole region of the right foot since 2 months. Additionally he was a smoker and he had fever and an inflammatory sign was observed around the site of the wound. Patient was complained on restless, with fever, BP was normal. The patient was apparently normal 2 months back due to the trauma then he developed a wound over the right foot 2 months back and he had a pus discharge continuously with foul smell. The patient was later shifted to the general surgery ward for the wound care. The exudates from the wound were sent to the microbial

culture test it revealed positive to the *Streptococcus aureus*. Antibiotics therapy was started after the wound debridement and wound dressing. Patient was treated with selective antibiotics such as sulbactam with ceftriaxone, clindamycin, metronidazole was followed for 2 weeks where tissue growth seen at the wound region for following certain skin debridement therapy. A good progress was achieved within short duration of time. The continuous Insulin therapy was provided to the patient to control the increased sugar levels in the blood. After 3 weeks antibiotics was discontinued for 3 days and again continued from 4<sup>th</sup> week. As in diabetic condition the wound healing is a time taking process. The patient was cured about 75% and patient was discharged after 59 days therapy. The outpatient consultation drug follow up was continued.



Fig. 1: Before treatment

## DISCUSSION

Diabetes mellitus is characterized by hyperglycemia associated with diabetic retinopathy, kidney failure, neuropathy, nephropathy, cardio vascular complications. About 60-70% population loss nerve damage in the foot. Diabetic foot ulcer is one of the severe complications of the diabetes mellitus. Trophic ulcers are chronic ulcerative skin lesion which is caused due to the microbial infection. It primarily occurs on the anterolateral aspect of the lower limbs. Ulceration will lead to peripheral sensory, motor loss in the infected area. The ulceration mainly depends on the pathophysiological abnormalities, anatomical changes and environmental influences. In this case study, we observed some risk factors associated with natural history of the trophic ulcers, the patient include diabetes mellitus and other metabolic disorders. The primary role is to control the increased sugar levels in the blood by giving oral hypoglycemic agents and Insulin injections. The patient had a habit of smoking due to this it may cause vasoconstriction [5]. It was stopped during the antibiotics therapy. Continued walking on an injured foot will damage it further and minor lesions can become more serious. Patient was completely on the bed throughout the therapy. The ulcer may recur and persist as a small raw area after initial improvement then it may considered as chronic

ulcer [6]. Diabetic foot ulcers should be treated to maintain health status, improve quality of life and reduce the number of amputations. Diabetes patients would have impaired fibrinolytic activity associated with increased plasminogen activator inhibitor PAI-1. Patient was undergone initial evaluation such as comprehensive history and physical examination to find the cause of the condition. A laboratory investigation was performed regularly. These ulcers having scanty discharge, hyperkeratic edges and hard fibrous base with pale granulation tissue. The dynamic deformity of peak pressures on local areas on insensitive skin is well illustrated by pressure studies [7]. Before starting the treatment the culture test should be done for starting appropriate systemic antibiotic therapy [8]. The systemic antibiotics like Sulbactam with Ceftriaxone combination, Metronidazole and Clindamycin were given to reduce or prevent the infection further. Alternatively skin debridement was also done by daily dressing. During debridement the platelets get activated for the control of bleeding which begins the process of healing due to the release of growth factors [9]. In this case the trophic ulcers was up to the deep tissue layer hence treated with long term antibiotic therapy to accelerate the wound healing process and to counter infection with skin debridement. Self-care is important for the prevention of trophic ulcers in presence or absence of medical supervision.



Fig. 2: After treatment

### CONCLUSION

In this clinical study it was proved that safety and efficacy of antibiotics for the treatment of Trophic ulcers. Mainly the skin debridement therapy and antibiotics plays a significant role to heal the wound and also it depends on the size of the injury and efficacy of the treatment followed. The results shown that entire wound surface area get healed by the combination of antibiotics and continuous Insulin therapy. The results confirmed that patient got cured by this treatment which was conducted in our tertiary care teaching hospital.

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