



Figure 1: Initial Stage



Figure 2: MIRE Machine



Figure 3: PEMF Machine



Figure 4: Healed stage



## ABSTRACT

Diabetes mellitus is the major cause of Non traumatic Limb Amputation [1]. The normal wound healing cascade gets altered in a diabetic due to the biochemical changes occurring at the cellular level. In certain cases it gets arrested due to altered cellular function and cytokine production along with delayed response to growth factors [2].

Photobiomodulation is a method wherein specific wave length and energy of light is used in healing of tissues. Increase in NO (Nitric Oxide) & ATP biologically increases angiogenesis, collagen production & fibroblast production which facilitate healing of wounds [3].

Pulsed electromagnetic field uses low grade magnetic field and energy in altering the growth factor like FGF2, TGFB and production of NO to increase rate of healing [4] [5].

A chronic ulcer in a diabetic poses the threat of impending amputation necessitating the need for healing at the earliest.

This is a case report of a chronic heel ulcer of 28 weeks in a diabetic female patient, who had undergone conventional treatment with antibiotics and offloading technique of no avail and was exposed to Photobiomodulation and Pulse electromagnetic field which healed the ulcer.

## METHODS

A female diabetic patient 58 years presented with a chronic ulcer of the left heel of 28 weeks duration. O/E the ulcer was of 4x3 cm, depth 1 cm of Wagner Grade 2. Investigations showed raised ESR and HbA1c, severe PN, Severe PVD. The wound was exposed to Photobiomodulation – MIRE (Monochromatic Infrared Energy) of 890 nm wave length and 53 joules/cm<sup>2</sup> for 40 mts daily for 30 sessions with an interval on 7<sup>th</sup> day. The wound was also exposed to Pulsed electromagnetic field (PEMF) at 10Hz and 1500 nT for one hour everyday for 30 session with an interval after 7 sessions.

## RESULTS

The non healing ulcer started healing as the exposure to MIRE and PEMF was instituted. The ulcer healed by 30 sessions of MIRE and PEMF.

## CONCLUSIONS

Occasionally Diabetic Foot Ulcers lead to Lower Extremity Amputation. Exposure to Photobiomodulation and Pulsed Electro Magnetic field may be of use when Conventional therapies do not yield the expected results. This result seen in the non healing ulcer of a diabetic patient using MIRE and PEMF warrants further studies to know the efficacy of these methods in healing of Diabetic Foot Ulcers.

## REFERENCES

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