MAGGOT THERAPY BY OPEN PACK METHOD IN A PATIENT WITH SEVERE AND EXTENSIVE ELECTRICAL BURN

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BACKGROUND

Burn wounds are of critical injuries that can culminate in considerable morbidities and mortalities, which in turn impose huge economic and psychological burdens on the patients and society. Unfortunately, low and middle-income countries, which hold over 5 billion people of the world population, are more affected by the burn injuries than those of the developed countries. Electric burns are one of the frequent burn incidents, and they usually remain thick eschars which are difficult to debride surgically. Lack of appropriate debridement results in more necrosis and infection, and thus limb dysfunction. Here, for the first time we report maggot debridement therapy (MDT) in a case with severe electrical burn. Also, for the first time we used an open pack method, in which the maggots can release from the pack onto the wound.

AIM OF THE STUDY

To debride electrical burn by MDT for the first time in Motahari Burn Hospital, and to prepare the wound for skin graft by an open pack MDT method.

MATERIALS & METHODS

A 29-year-old man with four-degree burn, and over 40% body surface involvement was admitted to Motahari Burn Hospital, Iran University of Medical Sciences, Tehran, Iran. The patient suffered from electrical injuries while he was working near a power station. The patient was sent to ICU for critical care while he was unconscious. After being stable, because of severe necrosis and limb dysfunction, amputation was done on the right leg below the knee. Also the fingers 1 and 2 of the left leg, and the fingers 4 and 5 of the left hand were amputated. Fluid therapy, supportive therapy, and antibiotic therapy were administered for the patient, and the pain was controlled by injection of opioids.
The left leg with 30 x 4cm^2 area involvement, and left hand and forehand with 5 x 3 cm^2, and 5 x 8 cm^2, involvement, respectively, were largely covered by a thick “leather-like eschar” and extensive pus. Since the eschar involved the deeper parts of hypodermis, which were adjacent to vital nerves and arteries, surgical debridement of those areas was highly risky. Therefore, maggot debridement therapy (MDT), which is a safe and natural wound treatment, was administered for this case.

We used the larvae of *Lucilia sericate* – disinfected and prepared in Pasteur Institute of Iran – enclosed in a biocompatible container with an open end. This method facilitates transferring and applying the maggots to the wound, and it is easy to control the larvae before dressing and bandage. After dressing, the maggots can move on the wound surface.

RESULTS



Before MDT



After 4th MDT



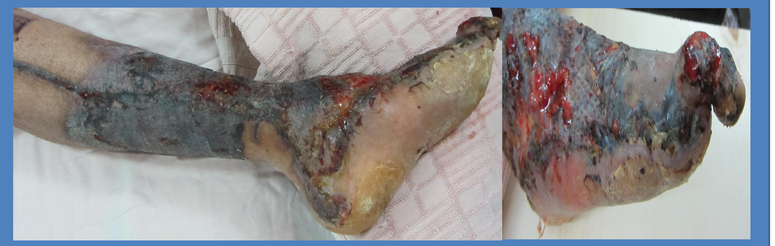
1 week after graft



Before MDT



After 5th MDT



1 week after graft

RESULTS

The patient’s wounds were thoroughly debrided by disinfected larvae of *L. sericata* in the form of open packs for no longer than 16 days including 4 times and 5 times of MDT in the hand and leg, respectively. After this, the wound surface was free of pus and biofilm, and pink granulation tissues appeared in the area. Thereafter, the patient did not undergo any further debridement neither surgical nor MDT. Then, after two weeks the wounds were grafted with the patients’ flank skin. During this course, the patient was receiving his routine medications. The only complication of MDT was the sense of pain and heat in the area that were controlled by the injection of opioids.

CONCLUSION

In this study we used an open pack method which increases the survival of the larvae in delivery, and eases the use of larvae on the wound. Also, this is the first report of MDT in an electrical wound treatment. This method proved its rapid effectiveness, lack of any interactions with typical treatments, and a suitable debridement prior skin graft. The cost-effectiveness of this method, and the worldwide distribution of *L. sericata*, make MDT be a great medication that can even be simply practiced in non-developed countries.