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The Importance of Super Oxidised Solution in the Management of Thermal Burn Wounds

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Abstract

Proper dressing and preparation of scald burns wounds are vital not just for infection prevention but also for potential surgical intervention. This article discusses our evaluation of the efficacy of Super Oxidized Solution in locally treating scald burns wounds. In the case report performed on a 2-year-old male child with alleged history of accidental scald injury to perineal region. Super Oxidized solution facilitated wound healing and prepared wounds for definitive coverage by promoting granulation and reducing infection, which are the prerequisites for surgery.

Keywords: Superoxidized solution; Scald burns; Wound management; Burn wound; Wound healing

Introduction

Various agents such as Povidone Iodine, EUSOL, Acetic acid, hydrogen peroxide, silver sulfadiazine, and local antibiotic ointments have traditionally been employed in managing scald burns [1]. These dressings serve the purpose of preventing infection, reducing bacterial load, and promoting granulation to facilitate wound healing. The utilization of Super Oxidized Solution represents a novel approach to wound management. This solution, characterized by a hypotonic nature with an osmolarity of 13mOsm/kg, contains components like Hypochlorous acid, Sodium hypochlorite, Chlorine dioxide, Ozone, Hydrogen peroxide, and Sodium chloride. Manufactured through an electrochemical process involving pure water and sodium chloride, Super Oxidized Solution generates reactive oxygen and chlorine species during electrolysis. These released species disrupt the cell membrane's integrity, leading to lipid and protein denaturation in single-celled organisms due to osmolarity imbalances. Unlike single-celled organisms, multicellular organisms are less susceptible to such osmolarity changes [2].

Case Report

In this study, a 2-year-old male child with alleged history of accidental scald injury to perineal region (Figure 1) was enrolled and managed at the Department of Plastic Surgery, JIPMER, Puducherry, India in December 2025 for a duration of 10 days.

***Figure 1**: Showing sacld burn wound over perineal region at time of presentation.*

***Figure 2**: Showing application of super oxidized solution over scald burn over perineal region .*

***Figure 3**: Figure showing condition of the wound after utilization of super oxidized regenerative therapy.*

The study was ethical approved by the institutional review board. He underwent thorough clinical examination, and essential investigations such as Hemoglobin, Total Count, Differential Count, Serum Creatinine, Blood Urea, HIV, HBsAg, and Complete Urine Examination were done. The wounds received daily once irrigation with Super Oxidized Solution (Figure 2) and were dressed with gauze soaked in the same solution. The wounds responded to treatment with Super Oxidized Solution, and exhibited healthy granulation following local treatment with Super Oxidized Solution. The study documented the status of bacterial growth, time required for wound sterility, granulation appearance, healing duration, and any associated complications.

Results

Wound healing was found to be hastened by application of super oxidized solution, proving the efficacy of using superoxidized solution in treatment for wound healing. The condition of the wounds improved following utilization of super oxidised solution regularly with BWAT score reduced from 16 to 12 (Figure 3) over 1 week.

Discussion

The prevalence of scald burns is quite high especially accidentally. Managing scald burns and its complications requires a multidisciplinary approach, as it affects various organs and systems in the body. Scald burns wounds pose a significant challenge to clinicians in their everyday practice and have historically been treated with various local dressings and agents [3]. Super Oxidized Solution represents a newer approach to wound management. It has been investigated by researchers worldwide as a disinfectant for instruments and has been used on humans for various indications, including ulcers, mediastinal irrigation, peritoneal lavage, and hand washing [4,5]. Approved by the European CE KEMA as a Medical Device Class IIb in 2004 and by the FDA in 2005, this solution has garnered positive results in wound management across various etiologies, with no reported reactions or complications in the literature [6]. In our study, we focused on scald burns wounds and utilized Super Oxidized Solution for cleansing and sterilization. Following 5 days of Super Oxidized Solution application, the wound achieved sterility. Consistent with previous literature, our study found no noticeable complications associated with the use of Super Oxidized Solution [7-11]. This solution aids in debriding necrotic tissue, reducing microbial load, promoting granulation, and accelerating healing time without causing harm to normal tissue. For patients with small superficial ulcers or those unsuitable for definitive surgery, conservative management with Super Oxidized Solution alone may be sufficient. The moisturizing effect and minimal toxicity of Super Oxidized Solution make it a favorable option for managing scald burns ulcers. However, further controlled trials are needed to fully elucidate its antimicrobial, anti-inflammatory, and wound-healing effects.

Conclusion

Super oxidized solution proves beneficial in promoting wound healing in across a spectrum of cases, regardless of whether they are acute or chronic and irrespective of their underlying causes. Its utility extends to burn injuries as well as within the realm of cosmetic surgery. Our case report findings affirm that super-oxidized solution contributes to enhanced wound healing across diverse wound types.

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