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Research Article

Role of Fibroheal Ag Ointment in the Treatment of Partial Thickness Burns

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Abstract

Aim of this case report is to assess the role of Fibroheal ointment, a silk fibroin based pharmaceutical, in the treatment of partial thickness burns and split-thickness skin graft donor sites. Clinical examination of the burn wounds before and after use Fibroheal ointment was done.

Keywords: fibroheal ointment; partial thickness burn; epithelization

Introduction

The treatment of partial thickness burns has long been a subject of debate and investigation. Consensus exists regarding the benefits of early excision and grafting for deep burns in reducing morbidity and mortality; however, the early excision of partial thickness burns remains a contentious issue. While the removal of non-viable tissue can diminish the risk of wound infection and progression to deeper burns, the surgical debridement of such tissue can result in substantial blood loss and the loss of healthy tissue.

Recently, biomimetic wound dressings have gained attention for their potential in enhancing soft tissue regeneration. The ideal dressing generally includes a biocompatible material that promotes healing. Although there are existing skin replacement products available, the variety of wound types and their locations necessitate a wider selection of dressing options. The effectiveness of wound healing heavily depends on the choice of biomaterial used. Natural polymer-based dressings are particularly promising due to their low immunogenicity and beneficial bioactivity. Among these, silk fibroin (SF) has emerged as a notable candidate for wound dressings. SF-based dressings have demonstrated their effectiveness not only in promoting complete healing but also in serving as vehicles for the localized delivery of medications, bioactive compounds, and growth factors.

Materials and Methods

This management of burn wound was carried out in a tertiary care facility's plastic surgery department. There was informed consent received. The study subject was a male 42-year-old male without comorbid conditions who developed a grade 38% TBSA in his chest,neck and both upper limbs (Figure 1) as a result self-intentional burns with petrol. He was alone when this happened. The patient was admitted to the Burns ICU and was given painkillers, antibiotics, and IV fluids. Bandages are applied, and healing measures are taken.the wound was covered with fibroheal ointment regularly (Figure 2). The wound had almost fully recovered by the time he left.

Results

It was found that Fibroheal Ag ointment has plausible efficacy in the preparation of wound bed and healing of wound (Figure 3). It could decrease morbidity of patient by making heal faster.

Discussion

Over the past decade, advancements in the treatment of burn wounds and split-thickness skin graft (SSG) donor sites have expanded significantly. Numerous new materials, techniques, and dressings incorporating active agents have been introduced, with even more currently in development.

- Broad-spectrum antimicrobial activity
- Forms an effective barrier and protect the wound against microbial infections
- Reduces bioburden
- Hydrates the dry wounds
- Provides optimal wound environment for healing
- Accelerates epithelialization
- Reduces pain and minimizes scar formation

phase of acute wounds, as endorsed by recent consensus recommendations for wound care.

Silk fibroin (SF) has emerged as an adaptable biomaterial well-suited for effective wound treatment. SF is extracted from the cocoons of Bombyx mori silk worms as well as from the silk produced by spiders, mites, and other

insects. Silk consists of two main proteins: SF and sericin. SF is a fibrous structural protein that is typically used for therapeutic purposes, whereas sericin, which forms a gum-like glycoprotein layer around SF, often needs to be removed due to its potential immunogenicity. To isolate SF, sericin is eliminated through a degumming process, and the purified SF is then regenerated using electrospinning, a straightforward and cost-effective method. SF's versatile properties make it suitable for various wound treatment methods, including molecular scaffolds, topical applications, and innovative delivery systems. As a natural, bioactive polymer, SF is not only effective and readily available but also economical, making it a promising option for broad use. This review specifically examines SF's application in treating partial thickness burn wounds and split skin graft donor sites, though its regenerative potential extends to other tissues such as bone, cornea, nerve, and cartilage.

Fibroheal have been presented as the ideal wound treatment as they are cost effective, dynamic, noncytotoxic, biodegradable, and highly biocompatible. The natural polymer's customizable nanostructures and tunable degradation have led to applications in the form of SF tissue scaffolds and nanoparticles. SF tissue scaffolds serve as an ECM mimic, allowing cells to adhere and proliferate within the wound. SF nanoparticles can modulate novel drug delivery systems for controlled release of therapeutics and aid in wound healing and early recovery of burn wounds

Conclusion

Fibroheal Ag Ointment is an innovative and unique fusion of biotechnological and pharmaceutical components like Silk protein, Centella Asiatica and Silver, which synergistically play a vital role in controlling infection and promoting faster and effective wound healing and has provided its effects in case of this patient with burn wounds. Limitations were that it was done on a single patient.

Conflicts of interest:

This study does not require any institutional approval.

Declarations

Authors' contributions

All authors made contributions to the article

Availability of data and materials

Not applicable

Financial support and sponsorships

None

Consent for publication

Not applicable

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