ORIGINAL ARTICLE

Journal of Global Medical Education and Research
Volume 3 Number 1, January - June 2026

Role of Topical Feracrylum in Management of Chemical Burns

Bharath Prakash[1], Ravi Kumar Chittoria[2]

HOW TO CITE THIS ARTICLE:

Bharath Prakash, Ravi Kumar Chittoria, Role of Topical Feracrylum in Management of Chemical Burns. Jr of Glob Med Edu and Res. 2026;3(1):07-09.

ABSTRACT

Chemical burns are prevalent and may inflict considerable physical, psychological, social, and economic burdens. Chemical burns can be life-threatening and lead to significant aesthetic and functional outcomes, representing 30% of all burn-related fatalities. Chemical burns result from corrosive substances (acids and alkalis) that cause extensive damage to tissues. Chemical burns still present various challenges for clinicians treating such cases.

Feracrylum, a soluble mix of partial ferrous salts (II and III) of polyacrylic acid, is classified as a chemical hemostatic agent and an antimicrobial substance. Its molecular weight falls between 500,000 and 800,000 Daltons, which hinders systemic absorption and avoids adverse effects on the liver, kidneys, adrenal glands, cardiovascular system, or hemostatic systems. Feracrylum possesses antibacterial characteristics, reducing the likelihood of wound infections.

KEYWORDS:

• Feracrylum • Management • Chemical Burns

INTRODUCTION

The chemical burn is distinct among burn injuries due to its unique and unpredictable characteristics.[1] While chemical injuries represent just a small portion of all burns treated in burn units, meticulous, personalized care is essential for each case[2]. Several factors influence the assessment and treatment of chemical burns.[3] The initial factor is the nutritional status of the patient. Following this is the extent of the burns[4]. Generally, alkali burns pose a greater threat than acid burns. Lastly, additional factors encompass specific patient attributes such as the patient's age (50 years old); type of chemical, severity of burns, and so on.[5]

AUTHOR'S AFFILIATION:

[1] Senior Resident, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India

[2] Professor & Registrar (Academic), Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

CORRESPONDING AUTHOR:

Ravi Kumar Chittoria, Professor of Plastic Surgery & Registrar (Academic), Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

E-mail: drchittoria@gmail.com

➢ **Received:** 17-03-2026 ➢ **Accepted:** 20-05-2026

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution NonCommercial 4.0 License (http://www.creativecommons.org/licenses/by-nc/4.0/) which permits non-Commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the Red Flower Publication and Open Access pages (https://www.rfppl.co.in)

MATERIALS AND METHODS

As pilot research, the investigation was carried out in a higher education facility in August 2023. The research was entirely descriptive; no statistical analysis was carried out. After gaining informed consent, the patient with chemical burn was included. The patient was 24 years old and admitted for chemical burn over the face and neck (fig.1). adjuncts such as skin grafting platelet rich plasma, low level laser therapy were given. Feracrylum in solution form was used as an antimicrobial solution (Figure 2).

Figure : Burnt area post chemical burns

Figure 2: Application of feracrylum 1% solution

RESULTS

In this study, we had a patient with donor site raw area wound overlying a on limb from which cross leg flap was raised. The wound at the end of 3 weeksshowed a significant reduction in the treated area measured by digital planimetry with a new epithelium development (fig. 3). After treatment, the size of the raw area surface decreased. Due to the application of feracrylum, no additionalpainoccurred. Minimal soaking of the woundwithgood hemostasis and eradication of infection was observed.

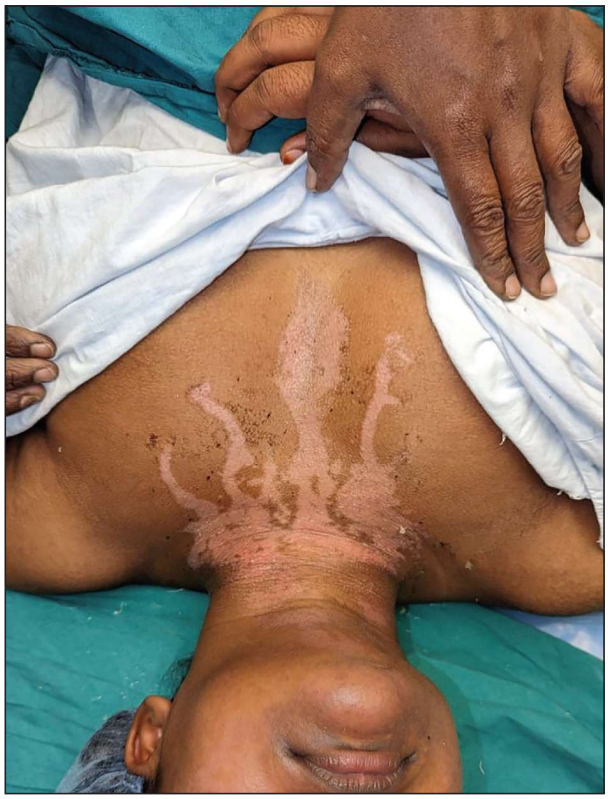

Figure 3: Healed raw area after 3 weeks of using feracrylum 1%

DISCUSSION

Feracrylum is a water-soluble combination of incomplete ferrous salt II and III of polyacrylic acid that contains 0. 05–0. 5% iron. It is both biodegradable and hygroscopic[6]. The molecular weight ranges from approximately 5,00,000 to 8,00,000 Daltons, which results in no systemic absorption. There are no observed side effects on major organs such as the liver, kidney, adrenal gland, cardiovascular system, and hemopoietic system. It possesses antimicrobial and wound healing characteristics[7].

Feracrylum performs various functions for wound care.

Antimicrobial action: Feracrylum not only acts as a haemostatic agent but is also anti-infective against various Gram-positive and Gram-negative pathogenic, bacterial, and fungal strains such as Staphylococcus aureus, Streptococcus pyogenes, Corynebacterium diptheriae, Salmonella typhi, Shigella dysentriae, Pseudomonas aeruginosa, Proteus vulgaris, Escherichia coli, Trichoderma viridae, and Candida albicans. It disrupts microbial cell walls, resulting in cell lysis. Feracrylum is superior to povidone iodine in antimicrobial properties, and its effectiveness is similar to that of povidone iodine. Feracrylum reduces the risk of wound infections that can hinder wound healing.

Hygroscopic action: Being hygroscopic, Feracrylum sustains a moist environment at the wound site, which facilitates faster healing and simpler dressing removal. It encourages the development of healthy granulation tissue. Feracrylum is available as a solution (1% w/v feracrylum), gel and tubes (1% feracrylum), and tulle (3% feracrylum).

Haemostatic action: It activates thrombin (factor IIa), a serine protease that transforms soluble fibrinogen into insoluble fibrin strands, thus forming a clot and catalyzing various blood coagulation-related reactions[8]. Furthermore, upon contacting blood proteins, especially albumin, feracrylum creates a biodegradable water-insoluble synthetic complex that forms a large rubbery clot, establishing a physical barrier on the wound surface and halting capillary bleeding and oozing within 2-3 minutes. It is non-allergenic and shows no systemic absorption[9].

CONCLUSION

The current research suggests that improved size reduction of the raw area (higher percentage of epithelized area) and lower rates of wound infection occur when Feracrylum is utilized. Topical feracrylum may be employed to treat raw area wounds effectively. The duration required for the patients to alleviate pain, return to their usual activities, and regarding their normal food consumption was swift. It serves as an effective topical agent for preventing infection in the raw area wounds of the post-donor site. Additional studies with a larger sample size are suggested to validate these results.

REFERENCES

1. Friedstat J, Brown DA, Levi B. Chemical, Electrical, and Radiation Injuries. ClinPlast Surg. 2017 Jul; 44(3):657-669.
2. Baradaran-Rafii A, Eslani M, Haq Z, Shirzadeh E, Huvard MJ, Djalilian AR. Current and Upcoming Therapies for Ocular Surface Chemical Injuries. Ocul Surf. 2017 Jan; 15(1):48-64
3. Malisiewicz B, Meissner M, Kaufmann R, Valesky E. [Physical and chemical emergencies in dermatology]. Hautarzt. 2018 May;69(5):376-383.
4. Maghsoudi H, Gabraely N. Epidemiology and outcome of 121 cases of chemical burn in East Azarbaijan province, Iran. Injury. 2008; 39:1042-1046. 10.1016/j.injury.2008.03.019.
5. Dünser MW, Öhlbauer M, Rieder J, *et al*. Critical care management of major hydrofluoric acid burns: a case report, review of the literature, and recommendations for therapy. Burns. 2004; 30:391-398. 10.1016/j.burns.2004.01.005.
6. Laddha A.K., Mulla M., Sharma S.S., Lahoti B.K., Mathur R.A. prospective comparison of topical feracrylum citrate versus adrenaline as haemostatic agent in hypospadias surgery in children. Afr J Paediatr Surg. 2014; 11(3):215. doi: 10.4103/0189-6725.143191.
7. Sathyaki D.C, Roy M.S., Mohan M., Raghu N., Sheriff R.M. Feracrylum versus topical adrenaline for hemostasis in tonsillectomy. Int J. Sci Stud. 2017; 4(10):34–36. doi: 8.17354/ijss/2017/07.
8. Prabhu N.T., Munshi A.K. Clinical, radiographic and histological observations of the redicular pulp following "feracrylum" pulpotomy. J Clin Pediatr Dent. 1997; 21:151-6.