Case Report

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Role of Topical Feracrylum in Management of Pedicle Flap Insertion

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Abstract

The term stem flap refers to a technique that transfers skin, and sometimes muscle or fat, from one area to another. This transferred tissue can be used for breast reconstruction or to cover complex wounds.Feracrylum, a water-soluble combination of partial ferrous salts (II and III) of polyacrylic acid, is one of the chemical hemostatic agents and an antibacterial agent. Its molecular weight ranges from 500,000 to 800,000 Daltons, which prevents systemic absorption and prevents any negative effects on the liver, kidney, adrenals, cardiovascular, or hemostatic systems. Feracrylum has antibacterial properties, which lowers the risk of wound infection. In this article we are trying to evaluate hemostatic and antibacterial properties of feracrylum.

Keywords: Topical; Feracrylum; Management; Pedicle flap insertion surgical site.

INTRODUCTION

Pedicled flaps are two-stage tissue flaps in which the base of the flap is not directly adjacent to the recipient site. These flaps are used when the surrounding skin has insufficient tissue or mobility to prevent primary closure or coverage of the surgical defect with an adjacent flap. Interpolated flaps are similar to transposition flaps in that they are elevated from an area of normal skin to reach the defect.1 The base of a transposition flap is adjacent to the defect, whereas the base of an interpolated flap is located away from the area to be repaired.[2] This place is connected to a fabric or leg bridge between the shutter base and the surgical defect. This must be removed in the second step after installing a blood vessel system between the wound and the shutter.

Postoperative wound infections at skin flap sites can be classified based on pathogen, depth of invasion, and tissue reaction. Diagnostic procedures and treatment should be based on an understanding of the pathophysiology of these wounds and the pathogenesis of different forms of infection. This story of postoperative wound infection repeats itself when the predominant bacterial flora of contaminated postoperative wounds changes over time, ranging from gram-negative and anaerobic organisms to several multidrug-resistant nosocomial microorganisms.

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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 the post-traumatic raw area was included. The patient was 57 years old and admitted for post-traumatic raw area overlying a fracture site with bone loss. Feracrylum in solution form was used as an antimicrobial solution applied over the cross leg pedicle flap insertion surgical site after derma-abrasion of appropriate depth. Serial changing of dressings of the wound was done.

RESULTS

In this study, we had a patient with Post-traumatic raw area wound overlying a fracture site with bone loss due to a high-velocity road traffic accident. The wound at the end of 3 weeksshowed a significant reduction in the treated area measured by digital planimetry with a new epithelium development. During Cross leg pedicle flap procedure for post traumatic raw area, 1% feracrylum was applied to the recipient site following derma-abrasion. After treatment, the size of the raw area surface decreased. Due to the application of feracrylum, no additional painoccurred. Minimal soaking of the woundwith good hemostasis and eradication of infection was observed.

Fig. 1: Cross leg pedicled flap

Fig. 2: Intraoperative picture while using for hemostasis at time of flap insertion

Fig. 3: Post op POD 3 after flap insertion

DISCUSSION

The forehead flap is believed to have been used in India as early as 700 BCE. Antonio Bronca of Italy performed the procedure in the 15th century. The first reports of the median frontal flap in the English-language literature appeared in 1793. Since the 1960s, many advances have been made, including Menick's use of the paramedian frontal flap, which is based on a narrow vascular pedicle supplied by the supratrochlear artery.[3] This change is the easy front of the front defect and the largest

component mobility, and is currently the most used front patch.

The buccal interpolation flap is thought to have been in use since 600 BCE. It was first used in India 4,5 BCE. In contrast, the two-stage postauricular spiral flap is a relatively new technique described by Lewin in 1950. Elacrylam is a water-soluble mixture of partial iron II and III salts of polyacrylic acid containing 0.05–0.5% iron. It is biodegradable and hygroscopic[6]. Molecular weight is around 5,000,000 to 8,000,000 daultons, due to which there is no systemic absorption. No side effects were observed on major organs such as the liver, kidneys, adrenal glands, cardiovascular system, or hematopoietic system.

Feracrylum has multiple actions for wound care Antimicrobial action: Feracrylum is not only haemostatic but also anti-infective against a number of Gram-positive and Gram-negative pathogenic, bacterial and fungal strains like Staphylococcus aureus, Streptococcus pyogenes, Corynebacterium diptheriae, Salmonella typhi, Shigella dysentriae, Pseudomonas aeruginosa, Proteus vulgaris, Escherichia coli, Trichoderma viridae and Candida albicans.

It destroys the cell walls of microorganisms, causing cell lysis. Feracrylam is superior to povidone-iodine in its antimicrobial properties and is comparable to povidone-iodine in its effectiveness. Feracrylam reduces the risk of wound infection, which slows down wound healing.

Hygroscopic: Feracrylam is hygroscopic in nature and maintains a moist environment. It pays attention to the location of the injury, so accelerates healing, and promotes the elimination of bandage. Promotes the growth of healthy granule cloth. FERACRYLUM is available in the form of solutions (1 % MRS ./vol.Feracrylum), gel and tube (1% Feracrylum), and tulle (3% Feracrylum).

Haemostatic action**:** This causes the revitalization of Serin's protease, trombin (factor IIA).

Converts soluble fibrinogen into insoluble fibrin chains and form a thrombus. It catalyzes many other reactions involved in blood clotting, and also forms theracrilum when it comes into contact with blood proteins, especially albumin. It is a biodegradable and insoluble synthetic complex that forms a large rubber mass.

It provides physical barriers in the area of wounds and stops the bleeding and exudation of the hair in 2-3 minutes.

It does not cause allergies and is not absorbed systemically.[9]

CONCLUSION

The present study, results may conclude that better size reduction of raw area(high percentage of epithelized area) and lesser incidence of wound infection when Feracrylumwas used over the derma-abraded recipient site of cross leg pedicle flap over the soft tissue defect on the injured limb. The time taken for cross leg flap uptake was rapid without any complication.It is a good topical agent for prevention of infection and bleeding at flap insert site. Further studies are recommended with large sample size to confirm these findings.

REFERENCES

1. Eyvaz K, Kement M, Balin S, Acar H, Kündeş F, Karaoz A, Civil O, Eser M, Kaptanoglu L, Vural S, Bildik N. Clinical evaluation of negative-pressure wound therapy in the management of electrical burns. Ulus Travma Acil CerrahiDerg. 2018 Sep;24(5):456-461.
2. Moenadjat Y, Setiabudy R, Astrawinata AWD, Gumay S. The Safety and Efficacy of Feracrylum as Compared to Silver Sulfadiazine in the Management of Deep Partial Thickness Burn: A Clinical Study Report. Med J Indones, 2008; 17: 259-71.
3. Menick FJ. Aesthetic refinements in use of forehead for nasal reconstruction: the paramedian forehead flap. Clin Plast Surg. 1990 Oct. 17(4): 607-22.
4. Lahoti KB, Aggarwal G, Diwaker A, Sharma SS, Laddha A. Hemostasis during Hypospadias Surgery via Topical Application of FeracrylumCitrate: A Randomized Prospective Study. J Indian Assoc Pediatr Surg, 2010; 15:87-89.
5. Chauhan MK, Feracrylum KM. An Effective and safe Topical Haemostatic agent. World J Pharm Res. 2017;6(10):319–325. doi: 10.20959/wjpr201710-9372.
6. Laddha AK, Mulla M, Sharma SS, Lahoti BK, 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 DC, Roy MS, Mohan M, Raghu N, Sheriff RM. 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 NT, Munshi AK. Clinical, radiographic and histological observations of the redicular pulp following "feracrylum" pulpotomy. J Clin Pediatr Dent. 1997; 21:151-6.
9. Ramsey ML, Ellison CA, Al Aboud AM. Interpolated Flaps. StatPearls. 2021 Jan.