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Clinical Application of Skin Wound Adhesive (Glue) in Skin Incisions

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Abstract: *Objective:* To explore the clinical application of skin wound adhesive (glue) in skin incisions. *Methods:* Data from 46 patients who underwent surgery in our hospital between June 2024 and August 2024 were collected, focusing on breast surgery incisions as the study subject, with follow-up observations conducted for 1–2 weeks. *Results:* All incisions healed well without splitting, allergic reactions, or infections, and no adverse reactions were observed. *Conclusion:* The application of skin wound adhesive (glue) in breast surgery incisions is effective and safe; the adhesive process is convenient for external body incisions, eliminates the need for suture removal, shortens patient surgery and hospital stays, and reduces incision infection risk, resulting in satisfactory incision healing outcomes.

Keywords: Skin wound adhesive (glue); Skin incision, N-butyl cyanoacrylate; 2-octyl cyanoacrylate

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1. Introduction

Medical skin wound adhesive is a medical glue used for bonding minor skin wounds and is widely used for closing, hemostasis, and securing skin incisions [1-3]. Its main component, α-cyanoacrylate, is known for its excellent physical and chemical properties and good biocompatibility [4-6]. In recent years, with advancements in medical technology, medical skin wound adhesives have shown great advantages and potential in clinical applications [7-9]. This study selected 46 surgical patients to evaluate the clinical application of "Yishumei" skin wound adhesive (glue) for incision treatment.

2. Materials and methods

2.1. General information

A total of 46 patients who underwent breast surgery in our hospital from June to August 2024 were selected as study subjects. Among them, there were 2 males and 44 females, resulting in a male-to-female ratio of 1:22.

The age range of the patients was 16 to 64 years (41.59 ± 5.67), with incision lengths ranging from 23 to 54 mm (38.49 ± 2.46) and depths reaching the fat layer. All incisions were linear.

2.2. Methodology

The skin wound adhesive used was "Yishumei" skin wound adhesive (produced by Chongqing Gexin Medical Technology Co., Ltd., registration number: Yu Medical Device Certificate 20212020156), with n-butyl cyanoacrylate and 2-octyl cyanoacrylate as the main components.

After surgery, the wound was disinfected with povidone-iodine, and the incision was carefully cleaned. The subcutaneous dermal layer was sutured with absorbable sutures, and the skin surface of the incision was aligned and coated with the skin wound adhesive. Once the adhesive had solidified, the incision was uncovered. After drying, the wound could be covered with a dressing. Patients were observed and followed up for 1–2 weeks postoperatively.

2.3. Observation indicators

(1) Time taken for the adhesive application, adhesive film formation time, film appearance, and incision closure post-film formation.
(2) Pain sensation during adhesive application.
(3) Film detachment condition.
(4) Observation of any wound reopening post-closure.
(5) Presence of infection or allergic reaction at the wound site.
(6) Observation of any other adverse reactions in patients.

3. Results

The entire process took about 2 minutes, with the adhesive forming a film within approximately 1 minute. The adhesive film was well-adhered to the wound surface, ensuring a tight incision closure. Patients did not report any pain during the application process. The adhesive film naturally detached along with the stratum corneum between days 5 and 7. Follow-up observation indicated that all wounds healed well, with no incidences of reopening, infection, or allergic reactions at the wound site. Additionally, no other adverse reactions were observed during the follow-up period.

4. Discussion

Suturing skin incisions is an indispensable part of surgical procedures. Using suitable suturing techniques and materials can reduce the risk of complications, promote wound healing, and improve patients' quality of life. Traditional medical sutures have strong mechanical strength and controllability, making them suitable for most routine surgical incisions. However, the suturing process is relatively complex and requires specific skills and experience. Additionally, the removal of sutures adds extra steps, increasing the risk of infection and scar formation.

With advancements in medical adhesive technology, cyanoacrylate-based adhesives have been developed, containing strong electron-withdrawing groups (e.g., cyano groups) in their monomer composition. Upon

contact with weak nucleophilic substances (e.g., water), these groups trigger a rapid anionic polymerization reaction, instantly transforming the liquid adhesive into a solid, thus achieving adhesion. This polymerization reaction completes within 6–15 seconds. Once solidified, the adhesive forms a waterproof bond that securely closes the wound, reduces inflammation and tissue necrosis, and promotes local tissue growth and repair. Clinicians have begun using these adhesives for small superficial skin incisions or in emergency situations.

In this study, surgical incisions measuring 3–5 cm in length and reaching the fat layer depth were treated with a skin wound adhesive containing n-butyl cyanoacrylate and 2-octyl cyanoacrylate. The application of this adhesive in breast surgery simplified the suturing process, reducing both the surgical time and technical difficulty. The close adhesion of the skin facilitated faster healing, and the adhesive film naturally detached along with the stratum corneum, eliminating the need for additional procedures. Throughout the follow-up, no allergic reactions, infections, or adverse effects were observed, confirming the safety and effectiveness of this product.

5. Conclusion

In summary, this type of skin wound adhesive is suitable for incisions reaching the fat layer depth. It simplifies the process of adhering superficial incisions, eliminates the need for suture removal, reduces operative and hospitalization time, and minimizes infection risk, with good wound healing outcomes. The adhesive demonstrates high clinical applicability.

Disclosure statement

The author declares no conflict of interest.

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