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METHODS OF POSTOPERATIVE WOUND MANAGEMENT

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Abstract: This article presents opinions of domestic and international researchers regarding modern methods of postoperative wound closure.

Keywords: Sutures, silk sutures, adhesive closure, wound-closure strips, tapes, dressings and bandages, compresses and impregnations, laser closure, biomaterials for wound closure, 3D-printed bio-needles, wound-edge approximation, absorbable sutures.

Introduction

Postoperative wounds require special attention and care to ensure successful healing and to minimize complications. Closure of postoperative wounds is an essential step in recovery and in preventing possible infections. Below are the main methods of postoperative wound closure:

1. Suturing

- **Thread sutures:** One of the most common methods of wound closure. A surgeon uses special surgical needles and threads to approximate tissues.
- **Absorbable sutures:** These dissolve on their own after a certain period, eliminating the need for a follow-up visit for suture removal.

2. Adhesive Closure

- **Medical adhesive:** Instead of sutures, a special glue is used to bond wound edges. This method is convenient, especially for small wounds, and provides an aesthetically pleasing outcome.

3. Wound-Closure Strips

- **Special adhesive strips:** These are used to temporarily hold wound edges together and reduce tension on the forming scar.

4. Dressings and Bandages

- **Medical dressings:** Applied to protect the wound from infection and to accelerate healing. Some dressings contain therapeutic agents.

5. Compresses and Impregnated Materials

- **Medical compresses:** Sterile compresses soaked in medicated solutions are used to enhance healing and maintain sterility.

6. Laser Closure

- **Laser therapy:** Laser technologies are used to stimulate tissue regeneration and disinfect the wound.

7. Biomaterials for Wound Closure

- **Collagen and hydrogels:** These materials promote faster healing and tissue formation.

8. Modernized Closure Techniques

- **3D-printed bio-needles:** Sterile, 3D-printed materials that allow for more precise and efficient wound closure.

Proper postoperative wound closure using modern approaches helps speed up healing, reduce risks of complications, and ensure a better cosmetic outcome.

Additional Modern Methods of Postoperative Wound Closure

Postoperative wounds require special care and effective closure techniques to promote rapid healing and prevent infections. Modern medicine offers various methods and technologies for wound closure. Some of them include:

1. Standard Closure Methods

- **Suturing:** Using different types of sutures (thread sutures, adhesive sutures) to approximate tissues and maintain proper wound position.
- **Wound-edge approximation devices:** Staples, clips, or skin closure tapes can be used to secure wound edges.

2. Modernized Closure Methods

- **Medical adhesive:** Used to bond wound edges without sutures, ensuring faster healing and better cosmetic appearance.
- **Absorbable sutures:** These dissolve naturally after a certain period, eliminating the need for removal.

3. Use of Biomaterials

- **Biocompatible coatings:** Collagen sponges, polymer materials, and gels that enhance healing and protect the wound from infection.
- **Tissue-regeneration matrices:** Matrices that promote tissue regeneration and accelerate wound healing.

4. Laser Closure

- **Laser therapy:** Used to stimulate healing, inactivate microbes, and improve the cosmetic outcome.

5. Advanced Technologies

- **3D-printed bio-needles:** Enable precise and personalized wound closure.
- **Nanotechnologies:** Nanoparticles that accelerate healing and prevent infection in postoperative wounds.

Modern wound-closure methods aim to accelerate healing, minimize complications, and improve cosmetic results. When choosing a closure technique, it is essential to consider the patient's individual characteristics and the nature of the wound.

Key Aspects of Effective Postoperative Wound Closure

1. Hygiene

- **Cleanliness and sterility:** Ensuring sterile conditions during wound closure helps prevent infections and reduce complications.
- **Hand hygiene:** Surgeons and staff must thoroughly wash hands and use antiseptics before the procedure.

2. Precision and Accuracy

- **Proper tissue alignment:** Accurate alignment during closure prevents deformities and compression after surgery.
- **Even and neat sutures:** Sutures should be even and not overly tight to ensure proper healing.

3. Use of Appropriate Materials

- **Correct selection of sutures and materials:** Depending on the wound type and location, suitable materials must be chosen to ensure strength and patient comfort.
- **Use of biomaterials:** Some modern closure methods use biomaterials that promote faster healing and minimize scarring.

4. Monitoring Healing

- **Regular check-ups:** Postoperative wounds should be monitored to track healing and detect complications early.
- **Wound care:** Patients receive instructions on hygiene, dressing changes, and the use of medical products.

5. Comfort and Cosmetic Result

- **Minimizing pain and discomfort:** Effective closure should reduce postoperative pain.
- **Cosmetic outcome:** Even, careful sutures and proper healing contribute to a good aesthetic result and reduce scarring.

Effective postoperative wound closure requires attention, professionalism, and modern materials and techniques to achieve optimal healing, patient comfort, and minimal risk of complications.

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