CHAPTER 14
Surgical Wound Care

Phases of Wound Healing

1. Hemostasis
   - Termination of bleeding
   - Clotting soon after the injury occurs

2. Inflammatory Phase
   - An initial increase in blood elements and water flow out of the blood vessel into the vascular space
   - Causes cardinal signs and symptoms of inflammation: erythema, heat, edema, pain, and tissue dysfunction
Wound Healing

3. Reconstruction Phase
   - Collagen formation occurs—a glue-like protein substance that adds tensile strength to the wound and tissue.
   - Appearance changes to an irregular, raised, purplish, immature scar.

Wound Healing

4. Maturation Phase
   - Fibroblasts begin to exit the wound.
   - The wound continues to gain strength, although healed wounds rarely return to the strength the tissue had before surgery.

Review the Phases of Healing

1. Hemostasis
2. Inflammatory Phase
3. Reconstruction Phase
4. Maturation Phase
Process of wound healing

- **Primary Intention**
  - Wound is made surgically with little tissue loss.
  - Skin edges are close together.
  - Minimal scarring results.
  - It begins during the inflammatory phase of healing.

- See page 334 in text

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3 TYPES OF WOUND HEALING
First type is called Primary Intention

<table>
<thead>
<tr>
<th>Incision with blood clot</th>
<th>Edges approximated with suture</th>
<th>Fine scar</th>
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Example of Primary Intention Wound

Wound closure with staples.

2. Secondary Intention
Skin edges are not close together
The necrotized (dead) tissue decomposes and escapes.
The cavity begins to fill with granulation tissue.

Another Example of Secondary intention
Cavity Type Wound, Significant drainage, Left Open to heal

3. Tertiary Intention
- Occurs when a surgically contaminated wound is left open and sutured closed after the infection is controlled
- Or a primary wound becomes infected, is opened, allowed to drain and granulate, then sutured.
Factors that Effect Healing

- **Nutritional Needs**
  - If the patient cannot tolerate food or fluids, total parenteral nutrition or nasogastric feedings can be provided.

- **Fluids**
  - Offer hourly; encourage 2000 to 2400 ml in 24 hours.

Factors that Affect Wound Healing

- **Rest and Activity**
  - Rest is vital to facilitate healing
  - Activity is also encouraged to decrease venous stasis.

Surgical Wound Care Principles

- The PT should inspect dressings PRN or as ordered.
- **Exudate**: term to describe broadly any fluid drainage
  - Exudate can be described as small, medium to large amounts.
  - **Sanguineous exudate**: Bright red, indicates active bleeding
  - **Serosanguineous exudate**: pale, light red, pinkish, watery
  - **Serous**: clear and watery
- See page 337 in text
Figure 14-3

Types of dressings.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills [3rd ed.]. St. Louis: Mosby.)

Care of the Incision

• **Dry Dressings (primary wound)**
  • May be chosen for management of a wound with little exudate/drainage
  • Protects the wound from injury, prevents introduction of bacteria, reduces discomfort, and speeds healing
  • Most commonly used for abrasions and nondraining postoperative incisions

Care of the Incision

• **Wet-to-Dry Dressing (secondary & tertiary wounds)**

  • Primary purpose is to debride a wound. (debridement)
  • The moistened contact layer of the dressing increases the absorptive ability of the dressing to collect exudate and wound debris.
  • As the dressing dries, it adheres to the wound and debrides it when the dressing is removed.

Care of the Incision

• **Transparent Dressings**

  • Advantages
    • Adheres to undamaged skin to contain exudates and minimize wound contamination
    • Serves as a barrier to external fluids and bacteria yet still allows the wound to breathe
    • Permits visualization of the wound

Skill 14-3

Applying a transparent dressing.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills [3rd ed.]. St. Louis: Mosby.)
**Care of the Incision**

**Irrigations**

- A cleansing solution is introduced directly into the wound with a syringe, syringe and catheter, shower, or whirlpool.
- Promote wound healing by removing debris from a wound surface, decreasing bacterial counts.

**Principles of Basic Wound Irrigation**

- **Cleanse** from the least contaminated area to the most contaminated area.
- **When irrigating**, all of the solution flows from the least contaminated area to the most contaminated area.

**Skill 14-4**

Performing sterile irrigation.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills [3rd ed.]. St. Louis: Mosby.)
Complications of Wound Healing

• Dehiscence
  • Wound layers separate.
  • It may result after periods of sneezing, coughing, or vomiting.
  • Patient should remain in bed and given reassurance.
  • Place a warm, moist sterile dressing over the area until the physician evaluates the site.

Wound dehiscence

Complications of Wound Healing

• Evisceration
  • Abdominal organs protrude through an opened incision.
  • The wound and contents should be covered with warm, sterile saline dressings.
  • The surgeon is notified immediately.
  • This is a medial emergency, and the wound requires surgical repair.
Complications of Wound Healing

- Wound Infection
  - CDC labels a wound “infected” when it contains purulent (pus) drainage.
  - A patient with an infected wound displays a fever, tenderness, and pain at the wound; edema; and an elevated _ _ _ count.
  - Purulent drainage has an odor and is brown, yellow, or green, depending on the pathogen.

Staple and Suture Removal

- Sutures and staples are generally removed within 7 to 10 days after surgery, or sooner if healing is adequate.
- The physician determines and orders removal of sutures or staples
- Replaced with a Steri-Strip as the first phase, with the remainder removed in the second phase.
Staple and Suture Removal

• Sutures
  • Sutures are threads of wire or other materials used to sew together body tissues.
  • Sutures are placed within tissue layers in deep wounds and superficially as the final means of wound closure.

Skill 14-5

Removing sutures.


Staple and Suture Removal

• Staples
  • Staples are made of stainless steel wire are quick to use, and provide ample strength.
  • They are popular for skin closure of abdominal incisions and orthopedic surgery when the appearance of the incision is not critical.
  • Removal of staples requires a sterile staple extractor and maintenance of aseptic technique.
Removing staples.


Exudate/Drainage: Need to know

- **Serous**
  - Clear, watery fluid that has been separated from its solid elements

- **Sanguineous**
  - Fluid that contains blood

- **Serosanguineous**
  - Thin and red; composed both of serum and blood

Figure 14-8

Jackson-Pratt drains have a wide, flat area brought through the stab wound with great force.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills. [3rd ed.]. St. Louis: Mosby.)
Exudate/Drainage

- **Drainage Systems**
  - **Requires close monitoring**
    - Note the color, consistency, and amount of drainage.
    - Note patency of tube; it should not be kinked or occluded.
    - If blood clots or exudate have slowed drainage, record and report.

Skill 14-6

Maintaining Hemovac/Davol suction and T-tube drainage.
Figure 14-11

Wound VAC system using negative pressure to remove fluid from area surrounding the wound.

(Courtesy of Kinetic Concepts, Inc. [KCI], San Antonio, TX.)

Skill 14-7

Wound Vacuum-Assisted Closure.

(Courtesy of Kinetic Concepts, Inc. [KCI], San Antonio, TX.)

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Wound Vacuum-Assisted Closure.

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**Skill 14-7**

Wound Vacuum-Assisted Closure.

(Courtesy of Kinetic Concepts, Inc. [KCI], San Antonio, TX.)

**Moist wound dressings**

- https://www.youtube.com/watch?v=jF5T8KOIoyE

**Documentation**

- After a bandage is applied, the PT should
  - Date, time and initial on the edge of the dressing
  - Assess comfort level of the client (use pain scale)
  - Document in the IDN’s (client’s chart) the following:
    - Status of the wound
    - Description of exudate and quantity
    - Type of dressings applied
    - Client’s response to the procedure
    - Patient teaching
  - Immediately report changes in circulation, skin integrity, comfort level, or accidental removal of a drain.
End of lecture