Surgical aids

Surgical Dressings

Definition

- Sterile coverings placed on wounds to **protect from contamination**, **absorb exudates**, **maintain moist environment**, and **promote healing**.



Types

1. **Gauze (woven/non-woven):**
   - Common, versatile, used for cleaning and dressing.
   - Limitation: Can adhere and damage granulation tissue.
2. **Films (polyurethane):**
   - Transparent, semi-occlusive, allow oxygen but block bacteria.
   - Useful for superficial wounds, IV sites.
   - Not suitable for heavy exudates.
3. **Foams:**
   - Absorbent sponges made of polyurethane/silicone.
   - Good for moderate to heavy exudate wounds.
4. **Hydrocolloids (gelatin, pectin, CMC):**
   - React with exudate to form gel, promoting autolytic debridement.
   - Best for pressure ulcers, shallow wounds.
   - Avoid in infected wounds.

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5. **Hydrogels:**
   - Contain 70–90% water, available as sheets or gels.
   - Provide moisture, rehydrate necrotic tissue, relieve pain in burns.
   - Poor absorbency.
6. **Alginates (seaweed fibers):**
   - Form hydrophilic gel on contact with sodium in exudate.
   - Highly absorbent, also aid in hemostasis.
7. **Hydrofibers (CMC fibers):**
   - Lock exudates in cohesive gel.
   - Prevent maceration, good for deep wounds.
8. **Antimicrobial dressings:**
   - Contain silver, iodine, honey, PHMB.
   - Used for infected/contaminated wounds.

Application Steps

1. Cleanse wound with sterile saline.
2. Protect periwound skin.
3. Apply selected primary dressing.
4. Secure with bandage/secondary dressing.
5. Change according to exudate level (daily–weekly).

Risks

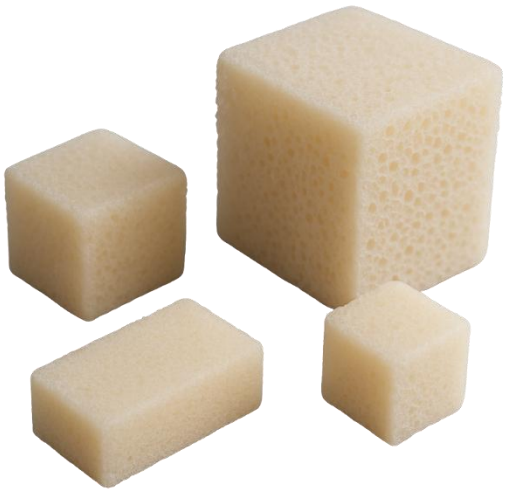
- Maceration of surrounding skin.
- Adhesion trauma.
- Allergic dermatitis.
- Delayed healing if inappropriate type used.

Absorbable Gelatin Sponge

Definition

- Sterile, porous, water-insoluble sponge made from **purified animal gelatin**. Used for **temporary hemostasis**. Absorbed in 4–6 weeks.

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Mechanism

- Provides **scaffold for platelets and fibrin** to form clot.
- Absorbs blood, swells, and exerts tamponade effect.
- Can be used dry or moistened with saline.

Uses

- General surgery: control bleeding from muscle, liver, spleen.
- Dentistry: placed in extraction sockets.
- ENT: epistaxis control, tonsillar beds.
- Orthopedic/neurosurgery: cancellous bone and epidural space (with caution).

Application

1. Trim to required size.
2. Apply dry or moisten with sterile saline.
3. Place on bleeding site with gentle pressure.
4. Remove excess; leave only minimal necessary amount.

Advantages

- Absorbable, moldable.
- Effective for diffuse oozing where sutures/cautery not feasible.

Limitations

- Not suitable for arterial bleeding.
- Avoid in infected wounds.
- May swell and compress nerves in narrow spaces.
- Excess in bone defects may hinder bone healing.

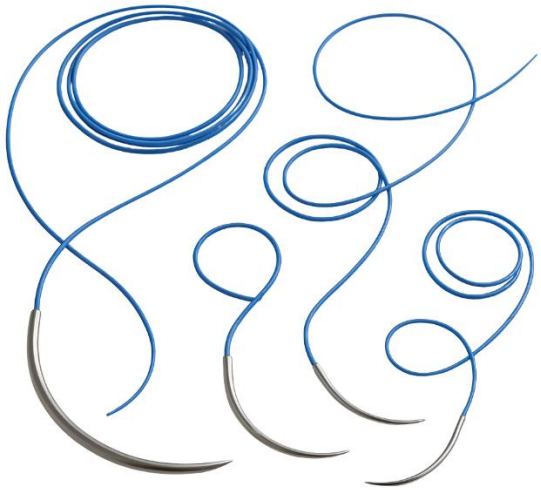
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- Animal origin (religious/cultural concerns).

Sutures

Definition

- Sterile threads used to **approximate wound edges** or **ligate vessels**. Provide support until tissue regains natural strength.



Classification

- **Absorbable:** Natural (catgut) and synthetic (vicryl, polyglycolic acid, polydioxanone). Degraded by enzymes/hydrolysis.
- **Non-absorbable:** Silk, nylon, polypropylene, polyester. Require removal or stay permanently.
- **Monofilament:** Single strand, smooth, less infection risk but harder handling.
- **Multifilament (braided):** Easier handling, good knot security, but harbor bacteria.
- **Coated/Uncoated:** Coatings (e.g., Vicryl coated) reduce tissue drag.

Ideal Properties

- High tensile strength.
- Predictable absorption (if absorbable).
- Minimal tissue reaction.
- Easy handling and knot security.

Uses

- Skin closure.
- Internal tissue repair (muscle, fascia).
- Cardiovascular and neurosurgery.
- Cosmetic surgery (fine sutures).

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