REPAIR OF LACERATIONS

LOCAL INFILTRATION
OFFICE PROCEDURES

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OBJECTIVES

- PRACTICE USE OF SUTURING TECHNIQUES: SIMPLE INTERRUPTED, MATTRESS, CONTINUOUS AND STAPLING.

- DISCUSS APPROPRIATE USE AND TECHNIQUE FOR WOUND ANESTHESIA: LOCAL AND DIGITAL BLOCK.

OBJECTIVES CONT

- DISCUSS WHAT WOUNDS TO REPAIR OR REFER.

- DISCUSS AND PRACTICE I & D OF AN ABSCESS, SUBUNGUAL HEMATOMA

- EVACUATION AND BASICS FOR CRYOTHERAPY, SKIN BIOPSY.
PURPOSE

- Bring wound edges together
- Stop bleeding
- Preserve function of tissue
- Prevent infection
- Restore cosmetic appearance
- Promote rapid healing

GENERAL RULE

- Any laceration may be closed primarily up to 12 hours
- Facial lacerations may be closed primarily up to 72 hours
- Secondary healing (granulation) to wounds that have been: grossly contaminated infection late medical attention

REFER TO SPECIALIST

- Excessive length/depths results in difficulty in obtaining analgesia
- Severe contamination requiring extensive cleaning/debridement
- Open fractures, tendons, nerve or major vessel injury
- Complex structures requiring meticulous repair i.e. eyelid, vermillion border of lip
**PREPARATION**

- Inform patient of procedure – all sutured wounds
  - scar/maturity @ 1 year/sunscreen & vitamin E to scar
- Tetanus immunization status
- Assess wound: deep fascia – dissolvable suture/gaping > 5 mm indicates significant tension resulting in wider scar

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**WOUND PREPARATION**

- Cleanse – soap, water, cleaning agents
- Irrigation – normal saline
  - Tendon involvement may repair within 3 weeks

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**CLEANSING AGENTS**
### TYPE | EFFICACY | RECOMMENDATION
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PROVIDONE-IODINE SURGICAL SCRUB | STRONG BACTERICIDAL AGAINST GRAM POSITIVE AND GRAM NEGATIVE | NO-TOXIC TO THE WOUND TISSUE, PAINFUL TO OPEN WOUNDS
PROVIDONE-IODINE SOLUTION | STRONG BACTERICIDAL AGAINST GRAM POSITIVE AND GRAM NEGATIVE | MINIMALLY TOXIC TO WOUND TISSUE
CHLORHEXIDINE | STRONG BACTERICIDAL AGAINST GRAM POSITIVE AND GRAM NEGATIVE | MINIMALLY TOXIC TO WOUND TISSUE

### POLOXAMER 188
- **NO ANTIBACTERIAL ACTIVITY**
- **NO TISSUE TOXICITY**
- **WELL USED ON THE FACE**

NORMAL SALINE OR LACTERATED RINGERS
NO ANTIBACTERIAL ACTIVITY
GREAT FOR IRRIGATION OF WOUNDS AND DECONTAMINATION

### MATERIALS
- Personal Protection Equipment
- Suture set: needle driver, toothed forceps, suture scissors
- Lidocaine – 1% or 2% with or without epinephrine
- 10cc syringe – 25 gauge needle for infiltration
- Sutures/staples
- Wound preparation materials
LACERATION REPAIR

SUTURE SELECTION

- NON ABSorbABLE
  - FACE
  - EXTREMITIES
  - SCALP

STAPLES WORK BEST ON SCALP

SUTURES

Non-absorbable sutures
- Tinsel strength 60 days
- Non-reactive
- Outermost closure
**ABSORBABLE SUTURES**

- CATGUT  
  VARIES IN SIZES

- VICRYL  
  VARIES IN SIZES

FOR INTERNAL REPAIR

**FILTRATIONS OF WOUNDS**

- LOCAL AND DIGITAL BLOCKS

  SHORT ACTING (1 TO 2 HOURS)
  - XYLOCAINE 1%
  - XYLOCAINE 2%
  WITH AND WITHOUT EPINEPHRINE

  LONG ACTING
  - MARCAINE
  - SENSORCAINE

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Sewing techniques

- Simple interrupted
- Vertical mattress
- Continuous
VERTICAL MATTRESS

USED FOR GAPPING LACERATIONS THAT MAY HAVE A LOT OF TENSION

GREAT FOR CYST REMOVALS DUE TO TENSION
CONTINUOUS SUTURES

**PRO:**
- FOR LONG LACERATIONS
- SAVES TIME

**CON:**
- COMPLICATION IF WOUND HAS NOT HEALED PROPERLY OR WOUND INFECTION HAVE TO REMOVE COMPLETELY

**PEARLS**
- Avoid tension on suture lines – wound margins should barely touch
- Suture knots to one side – diminished tissue damage due to tension & compression resulting in inflammation/ischemia
- Limit use of absorbable sutures – act as foreign body which increases risk of inflammation, infection, and scarring

TETANUS PROPHYLAXIS

- Clean wound – booster if last Td is > 10 Years (patient had primary series in past)
- Contaminated wound – consider booster if last Td > 5 years
- Not immunized – requires tetanus immune globulin and initiate primary immunization series
- Consider Tdap – control of pertussis in adolescents & adults
**Wound Care**

- Wound clean & dry (except antibiotic ointment) with daily dressing change for first 48 hours
- May shower, no dressing or antibiotic ointment

**Suture Removal**

<table>
<thead>
<tr>
<th>Area</th>
<th>Removal Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>3-5 days</td>
</tr>
<tr>
<td>Neck</td>
<td>4-6 days</td>
</tr>
<tr>
<td>Scalp</td>
<td>7-12 days</td>
</tr>
<tr>
<td>Upper Extremity</td>
<td>8-14 days</td>
</tr>
<tr>
<td>Trunk</td>
<td>6-14 days</td>
</tr>
<tr>
<td>Extension surface of hands</td>
<td>10 days</td>
</tr>
<tr>
<td>Lower extremity</td>
<td>14-28 days</td>
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</tbody>
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**Stapling**
STAPLING

- GOOD FOR SCALP LACERATIONS
- ABDOMINAL WOUNDS
- EXTREMITIES, BUT NOT OVER JOINT SURFACES.

APPROXIMATE EDGES

FIG. 22.6 Patients are asked to approximate and most wound edges during stapling.
Abscess
Subungual Hematoma
Cryotherapy of Skin Lesions
SPECIAL CYSTS

- Sebaceous cyst – drain, allow to heal completely, then excise the cyst. Fragments of cyst wall will result in a new abscess/cyst formation.
- Bartholin cyst – requires Word catheter inserted 4 to 6 weeks to prevent reoccurrence.
- Perianal abscess – requires consultation.

FOLLOW UP

- Packing removed after 2-3 days
- Daily wound soaks for 20-30 minutes for 1 week
- Oral antibiotics if cellulitis is present, systemic toxicity, comorbid conditions, abscess of face, or cardiac valve disorder
- Keflex, Cleocin, or Erythromycin usually provide coverage
**SUBUNGUAL HEMATOMA**

- Painful accumulation of blood under the nail secondary to trauma
- Evacuation relieves pain
- > 50% of nail bed involvement suggests significant laceration and possible fracture
- Assess neurovascular function prior to procedure

**CRYOTHERAPY**

- Liquid nitrogen
- Applicator tip is pressed firmly against the lesion until freezing extends 2-3 mm beyond base of lesion
- Time of freezing depends on type of wart and its size
- Can be used on skin tags
PUNCH BIOPSY

- 1. Most important diagnostic test for skin disorders.
- 2. Primary technique for full thickness skin specimens
  - a. inflammatory dermatoses.
  - b. cutaneous neoplasms, malignancy

Not recommended for commonly reported rashes.

BASIC TECHNIQUE

1. Circular blade attached to a pencil-like handle. They come in different sizes.
2. Instrument is rotated down through the epidermis to the subcutaneous fat.
3. The tissue is carefully removed with a needle not to crush the specimen.
4. May close puncture site with a suture.

FIGURE 1. Orienting a punch biopsy. (A) Just before performing the biopsy, the lines of least skin tension are determined. (B) The skin is stretched 90 degrees perpendicular to the lines of least skin tension using the nondominant hand. The punch biopsy is performed. Following relaxation of the distending hand, (C) the wound has an elliptical shape that can be closed with sutures parallel to the lines of least skin tension.
FIGURE 2. Punch biopsy technique. (A) The punch biopsy instrument is held perpendicular to the surface of the lesion. The instrument is pressed down into the lesion while it is rotated clockwise and counterclockwise, cutting down into the subcutaneous fat. The punch biopsy instrument is removed. (B) The biopsy specimen is gently lifted with a needle to avoid crush artifact. Scissors are used to cut the specimen free at a level below the dermis. Small punch biopsy defects do not require suturing, while larger wounds (4 to 5 mm) should be closed to reduce healing time and scarring.

REFERENCES