Protocol: Laceration Repair

Purpose:
To describe the criteria and procedure for repair of lacerations as a treatment to avoid infection, promote good wound healing, minimize scarring, obtain good cosmetic results, repair loss of tissue integrity due to trauma

Indication:
Simple or intermediate laceration to the skin after assessment to rule out artery, bone, ligament, nerve, or tendon involvement.

Contraindications/Consultation Required:
1. Complex & deep lacerations - consult with physician prior to closure.
2. Involvement of artery, bone/joint capsule, ligament, nerve, or tendon – refer to physician.
3. Do not suture infected or contaminated wounds, missile wounds, human or animal bites, without physician consultation.
4. Obtain physician consultation prior to suturing lacerations greater than 6 hours old.

Considerations:
1. Obtain x – ray of wound prior to suturing if suspect foreign body (metal, glass, etc…) or suspected fracture.
2. Consider tetanus history and prophylaxis if needed.
3. Never use local anesthetics with epinephrine to anesthetize wounds on fingers, toes, ears, penis, or tip of nose.
4. Use local anesthetics with epinephrine cautiously in patients with cardiovascular disease, hypertension, hyperthyroidism, diabetes mellitus or narrow angle glaucoma.

Procedure:
A. Equipment
1. normal saline sterile solution (irrigation bottle)
2. betadine solution
3. laceration repair suture kit (needle holder, forceps with teeth, iris scissors)
4. 4 x 4 gauze pads
5. sterile towels
6. sterile gloves
7. local anesthetic (lidocaine 1% with or without epinephrine)
8. syringes with 18g & 25g needles
9. appropriate suture material

B. General Guide in Choice of Suture Material
1. Face 6 – 0 nylon
2. Hands 5 – 0 nylon
3. Trunk, extremities, foot, sole 4 – 0 nylon
4. Scalp and knee 3 – 0 nylon
5. Absorbable (Vicryl) for subcutaneous 4 – 0, 3 – 0, 2 – 0
6. Oral cavity beyond mucosal border 5 – 0 chromic gut or vicryl

***Trauma service uses monofilament suture material (non – braided) for outer skin sutures (cosmetic and infection control issues)

C. Procedure
1. position patient with are of laceration easily accessible
2. irrigate wound with normal saline – for average – sized wounds, 100 – 300 mL should be used (greater volumes may be required for larger or heavily contaminated wounds) – use 35 cc syringe and 18 Ga. angiocath for irrigation or irrigate via holes punched with 18 Ga. Needle through saline irrigation bottle top (25 – 40 psi); irrigation should continue until all visible, loose particulate matter has been removed
3. betadine prep and sterile drape wound
4. anesthetize wound via direct infiltration of wound edges with local anesthetic – lidocaine 1% with or without epinephrine (check allergy history prior to administration); maximum allowable dose at one time of lidocaine 1% without epinephrine is 4 mg/kg (20 cc per average adult), with epinephrine is 7 mg/kg.
5. reassess wound for nerve, vessel, and /or tendon injury, joint capsule involvement, foreign body, and extent / depth of wound
6. debride devitalized tissue as needed with iris scissors or #15 blade
7. place sutures using appropriate suture material and suture technique (interrupted, running continuous, vertical mattress, horizontal mattress, buried, subcuticular, flap repair); for deep lacerations, place deep layered sutures with Vicryl or lessen dead space and provide less tension on skin sutures; place skin sutures with good approximation and eversion of wound edges, and with minimal tension
8. may use skin staples to approximate long, linear lacerations involving the scalp or areas of less cosmetic importance (never use staples on the face)
9. apply antibiotic ointment (Bacitracin if not allergic), and dressing if needed.
10. write procedure note in patient’s medical record documenting: length of wound, type of laceration – complex or simple, local anesthetic used and amount, amount of saline used for irrigation, type of suture material used, suture techniques used to repair laceration, how the procedure was tolerated and if any complications

D. NP will only repair lacerations requiring a single layer and will not repair lacerations proximal to the hairline or over joints.

E. NP must perform 5 successful lacerations repairs under the direct supervision of a resident/fellow/attending before performing individually. As well, NP must perform at least 10 successful lacerations repairs per year in order to maintain competency.

F. Document procedure on skill check off sheet
G. Patient Teaching
   1. Keep wound dry for 24 – 48 hours
   2. May shower / keep clean with Dial soap and water 48 hours after procedure
   3. After 48 hours, observe wounds for signs of infection and return if: fever, redness, pus or odorous drainage, red streaks, swelling, or increased pain.

H. Follow – up
   1. Hand injuries, complicated lacerations, and infection – prone wounds should be re-evaluated in 24 – 48 hours.
   2. Return to clinic for suture removal as indicated

Guide for Length of Time Sutures Should be Left in Place

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Length of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>3 – 4 days</td>
</tr>
<tr>
<td>Neck</td>
<td>5 days</td>
</tr>
<tr>
<td>Scalp</td>
<td>6 – 7 days (sutures or staples)</td>
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<tr>
<td>Arms and back of hands</td>
<td>7 days</td>
</tr>
<tr>
<td>Chest and abdomen</td>
<td>7 – 10 days</td>
</tr>
<tr>
<td>Legs and top of feet</td>
<td>10 days</td>
</tr>
<tr>
<td>Back</td>
<td>10 – 12 days</td>
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<tr>
<td>Palms of hands, soles of feet</td>
<td>14 days</td>
</tr>
</tbody>
</table>

References
