

Cleaning and Closing a Skin Laceration

Trauma wounds

- For trauma wounds:
 - History
 - Full wound review
 - Order investigations
 - Decide on management
-] [see OSCEstop wound management notes](#)

Introduction

- Wash hands, Introduce self, Patients name & DOB & wrist band, Explain procedure, risks and get consent
- Check neurovascular status and tendon patency before and after (document it)
- If wound is bleeding, give patient gauze and ask them to apply pressure over opposed edges and elevate while you get equipment ready (if still bleeding, inflate BP cuff around elevated limb for short time)
 - Venous bleeding: can go ahead and close wound
 - Arterial bleeding: pressure bandage and elevate limb for 30mins, then review

Preparation

- Wash hands
- Apply apron and eye goggles
- Clean trolley
- Gather equipment onto bottom of trolley (think through what you need in order)
 - Sterile pack
 - Sterile drape
 - Sterile tray
 - Cotton gauze swabs
 - For cleaning:
 - 20ml syringe with green needle
 - Cotton gauze swabs x3 packs
 - 10ml syringe and 2 needles (1 orange, 1 green) – for local anaesthetic
 - Suture pack
 - Scissors
 - Toothed forceps (for skin)
 - Needle holder
 - Non-toothed forceps (for needle assistance)
 - Sutures (see table – *Novafil or nylon 4-0 with curved needle is most commonly used for skin wounds) or steri-strips or glue or staple gun
 - Equipment to be kept outside of the sterile field:
 - Sterile gloves (+ spare pair)
 - 1% lidocaine ~1ml per cm of laceration (maximum 3mg/kg lidocaine – note 1ml 1% lidocaine = 10mg)
 - Sterile saline 10ml sachets x5 (or more depending on amount of cleaning needed)
 - Sterile non-adherent absorbent dressing and bandage/Hypafix film (leave closed until ready to use)
- Walk to patient
- Wash hands
- Open sterile pack to form a sterile field on the top of the trolley
- Open packets (without touching the instruments themselves) and drop sterile instruments neatly into the sterile field
- Fill the sterile tray with saline from the saline sachets

Positioning

- Position patient into comfortable position
- Place Inco pads under body part to collect spillage
- If area is hairy, try to wet hairs and part them to keep them away. If it is necessary, hairs can be cut or shaved with razor (but try not to if possible because there is a chance this can introduce foreign bodies).

Types of sutures for skin

Size

- 3-0 (thick) – foot, over big joints, scalp
- *4-0 (medium) – hand, body, limbs
- 5-0 (fine) – face
- 6-0 (very fine) – child's face, delicate structures

Materials

Non-absorbable – for superficial sutures

- *Novafil™ (synthetic monofilament polybutester)
- *Nylon e.g. Ethilon™, Dermalon™, Monosof™ (synthetic monofilament polyamide)
- Prolene™ (synthetic monofilament polypropylene)

Absorbable – for deep sutures

- *Vicryl™ (synthetic polyfilament polyglactin)
- Monocryl™ (synthetic monofilament polyglactone)

Polyfilaments are stronger but cause more inflammation and infection

Needles

- *Curved cutting needle – sharp tip and sharp edges, used for skin

Initial clean

- Wash hands
- Apply sterile gloves (but note, it's not a sterile procedure) – use the sterile gloves packet to create a 2nd sterile field right next to the limb to rest instruments on while suturing for ease of access
- Using multiple gauze soaked in sterile saline, clean the wound and a large area around the wound using a scrubbing circular motion

Anaesthetising

- **Anaesthetise** subcutaneously around wound edges with 1% lidocaine
 - Snap open lidocaine bottle and hold open upside-down
 - Draw up lidocaine using 1st green needle on 10 ml syringe
 - Change to the orange needle and anaesthetise the surrounding skin subcutaneously via the wound (you do not need to make new holes through intact skin)
 - Aim to make subcutaneous blebs of the surrounding skin (inject about 5mm deep from wound edges)
 - Always aspirate before injecting lidocaine (to check you are not in a vessel)
 - Use about 1ml per cm of laceration
 - Check effectiveness and completeness by gently touching needle tip on the skin around the wound and checking if the patient can feel it (apply more lidocaine anywhere it is needed)

Cleaning, inspecting and debriding

- **Mechanical cleansing (debridement):** remove any debris/contamination/foreign bodies/dead tissue if required – use sterile cotton gauze swabs soaked in saline to scrub, forceps to grab things and a scalpel edge to scrap/excise (wound edges can be excised if needed)
- **Pressure irrigation:** - can omit if wound is superficial, clean and low risk
 - Squirt sterile saline from 20ml syringe with green needle into the wound many times (drawn up without the needle on from the sterile bowl/tray filled with saline)
 - Use a large volume (100ml/cm) and pressure
 - *Alternative if the wound is very large, contaminated or high risk:* use a 1L normal saline infusion bag (hung with pressure infuser cuff applied) and squirt it throughout the wound via a standard giving set ± orange cannula tube on end. Ensure a disposable cardboard bowl is below the wound to collect the spillage.
- **Deep inspection:** thoroughly **re-inspect** the whole of the wound (may need wound edge retraction), look at **deep structures** and get them to do a **full range of movement** to help look for tendon damage
- Perform any further cleansing/irrigation if required

Closure

Note, as per [wound management](#) notes:

- Use delayed primary suture on: dirty/contaminated/infected wounds, wounds >12hours old (>24hours for face), contused/bruised wounds
- Allow healing by secondary intention if: edges won't come together well

If your sterile gloves (or the 2nd sterile field you created with their packet) have become dirty, then you can apply a new pair at this point and use their packaging to replace your '2nd sterile field' (but note, it's not a sterile procedure)

Suturing - if wound is >5cm, needs tension or is deep

- Suture wound – see [OSCEstop suturing technique](#) notes, tips:
 - Use interrupted sutures
 - Start in centre
 - Dab with a dry gauze as you go
 - When not using suturing instruments, place them on the 2nd sterile field you created with the gloves packaging right next to the limb for ease of access
 - Note: some gaping, deep wounds will need deep absorbable sutures placed before closing the skin

Steri-stripping – can be used for superficial, low tension lacerations which are not bleeding and on dry areas

- Dry wound thoroughly
- Degrease surrounding skin with alcohol wipes
- Oppose wound edges
- Apply steri-strips → start with central one, then bisect the remaining sections until there is 2-5mm between strips
- You can apply two perpendicular steri-strips over then ends of the steri-strips closing the wound to secure them

Gluing – can be used for short lacerations with minimal tension and easily opposable edges, often used in paediatrics

- Dry wound thoroughly
- Oppose the wound edges meticulously (use forceps if necessary)
- Express adhesive through tip of applicator

- Apply 1st thin layer of glue along length of wound by gently brushing tip of applicator over wound surface (and ~5mm each side).
NOTE: do not let glue go in the wound or between edges (it goes on top)
- Hold together while it dries (for around 30 seconds)
- Now apply 2-3 more layers if required, waiting 10 seconds between layers

Stapling – straight proximal lacerations without inverting edges

- Oppose wound edges and evert edges slightly
- Using staple gun, slowly apply staples along length of wound
- Give patient staple remover tool

Dressing

- Use a non-adherent absorbent dressing and secure in place with bandages or Hypafix film
- If the wound is over a joint or a high tension area, splint the joint

To complete

- Dispose of all sharps in sharps bin (including all suturing instruments), dispose of other waste and clean trolley
- Give...
 - Give **tetanus booster** for any wound if patient is not up to date with tetanus vaccines (should have 5 total)
 - Give **tetanus immunoglobulin** if wound is heavily contaminated with tetanus prone material, **or** if patient is not up to date with tetanus vaccines **and** the wound is tetanus-prone (require surgery >6h after injury; significant degree of devitalised tissue; puncture injuries, especially if any soil contact; wounds with foreign bodies; compound fractures; wound with sepsis)
 - **Antibiotics:** if infected, contaminated, high risk wound (e.g. bites) or joint/tendon exposed
- Suture removal (practice nurse)
 - Face - 3-5 days
 - **Limbs/trunk/abdomen/scalp** - **7 days**
 - High tension/diabetic/immunocompromised - 10-14 days
- Arrange follow up (24-48 hours) with you if:
 - Dirty wounds for delayed primary closure (to close)
 - Patient is diabetic or immunocompromised (to review healing)
 - Burns (to look for infection)
- Advice
 - Patient can shower after 48 hours (re-dress wound after with simple dressing) but must not allow pressurised water to contact the wound, scrub it or immerse the wound in water until sutures removed/wound fully healed
 - Return if any redness/warmth/swelling/discharge
 - Give chloramphenicol ointment for uncovered facial sutures (to be used twice a day for 5 days)
- Document full procedure, detailed wound examination findings, neurovascular status (before and after), tendon patency (before and after) and advice given