



## Suturing and Injection Notes



### Injections

- Using a syringe, we are required to know how to perform an intramuscular (IM) and intravenous (IV) injection
  - IM injection
    - 3 common sites for this is the deltoid muscle, gluteus medius muscle and the vastus lateralis (mid-thigh).
    - We are required to learn to perform the gluteus medius one
      - Make sure the patient knows what is about to happen
      - Make the patient uncover his/her buttocks
      - Make the patient lie on his/her side with top knee flexed 
      - Wear gloves and fill syringe with drug
        - Make sure there is no air
        - Make sure it is the right drug, right dose, not expired, right route
        - Make sure the patient DOESN'T have any allergies to drugs
      - Two methods to find injection site:
        - Palpate for posterior superior iliac spine and greater trochanter of femur and imagine a line between them; inject above the midpoint
        - Divide the buttocks into 4 quadrants by imagining a horizontal and vertical line intersecting in the middle; inject in the UPPER OUTER quadrant
      - The point is to avoid hitting an artery AND the SCIATIC NERVE (largest nerve, artery runs with it and supplies it)
        - Pain by damaging this nerve is severe
      - Wipe over potential injection site with gauze/wipe
      - Pinch skin of injection site and use the tip of your injecting finger to support your hand by placing it on the buttocks (Also indicates to the patient to expect the needle)
      - Inject needle perpendicular to site (90 degrees) and in one swift move insert the whole needle inside
      - Perform a negative blood aspiration
        - Pull to see if there's any blood coming in
        - If yes, remove needle and replace and try again
        - If no, continue
      - Inject whole components into buttocks

- Pull needle carefully and apply gauze and pressure
  - Dispose of needle carefully (throw in hazard bin)
- IV injection
  - Greet patient
  - Wear gloves
  - Ask patient for name
    - Make sure it is the right person
    - Make sure of the SIX RIGHTS
      - Right drug
      - Right dose
      - Right route
      - Right documentation of time
      - Right expiration date (not expired)
      - Right patient (or frequency?)
  - Warn patient about impending pain
  - CHOOSE THE NON-DOMINANT ARM (Left handed person, do it on his right arm)
  - Apply tourniquet on upper arm and ask patient to make fists
  - Meanwhile, prepare the needle and firmly attach it to syringe
  - Take the correct amount of whatever you're injecting (6 rights)
  - Find your injection site
    - Palpate for bouncy veins instead of visible ones
    - Cephalic vein is the one on the same side as your thumb
    - Basilic vein is the one on the other side
    - They are joined in the antecubital fossa by a median cubital vein (optimal site for IV injection)
  - Wipe gauze or wipe on the potential injection site
    - Make sure you wipe ONCE in ONE direction
    - If you need to do it again, take another wipe/gauze
    - DO NOT wipe in circles ("spreading bacteria like butter")
  - Support his/her elbow if you can 
  - When injecting
    - Make sure there is no air bubbles in syringe by tapping it on the side and injecting a bit into air
    - Make sure bevel (the tip of needle that is slanted) is facing upwards
    - Stretch adjacent skin near injection site
    - Slowly insert needle at 30 – 40 degrees
    - When you feel resistance STOP
    - Negative blood aspiration to see if you're in the vessel
    - If you see blood, continue
  - Remove tourniquet BEFORE injecting
    - You want the drug you're injecting to flow with venous blood in the direction proximal to your injection site

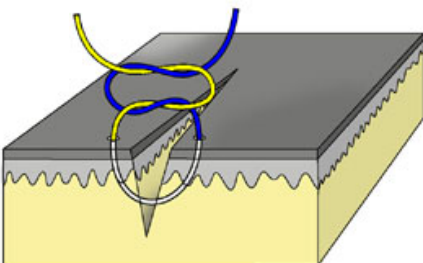
- Inject contents fully
- Slowly remove needle while your other hand prepares a swab or gauze over the injection site
  - DO NOT APPLY PRESSURE NOW
- Once the needle is out, APPLY PRESSURE on injection site
- Venepuncture (taking blood)
  - Everything same as above, with few exceptions
  - Remove tourniquet AFTER taking blood
    - You want the blood to pool so you can collect blood
  - Make sure to stabilize the injection so that you do not cut across the vein

## Suturing

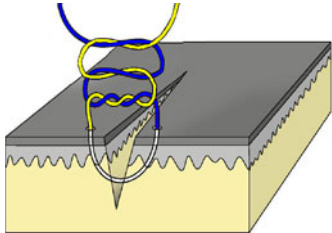
- Materials
  - Basic rule:
    - Holding scissors/forceps/needle holder is done thumb and RING finger with your MIDDLE finger STABILIZING the body of the scissors
    - Sometimes you can stabilize the tool with the index finger of your other hand (like a pistol when you want to aim)
  - Forceps
    - Toothed (For tough tissue like skin)
    - Non-toothed (For non-tough tissue like bowels)
    - Hemostat
      - IT DOESN'T LOOK LIKE A FORCEP
      - IT LOOKS LIKE A SCISSOR
      - IT IS AIMED TO STOP BLOOD FLOW TO PLACES YOU'RE WORKING IN 
  - Needle holder
    - Must be differentiated from hemostat forceps
    - Needle holder has a depression on its inside ("DIAMOND" shaped) 
  - Scissors
    - Looks like normal scissors
    - Used to cut thread
  - Scalpel
    - Blade to make incisions where necessary
    - Held with index on top of blade for support NOT like a knife or a murderer
- Method of suturing (Interrupted suture)
  - Make sure you're wearing gloves

- Try your best to avoid using your hands, though it depends on your doctor
- Hold the semi-circle needle using your needle holder
  - It needs to be held at its proximal 1/3<sup>rd</sup> (beginning 1/3<sup>rd</sup> of needle)
  - It needs to be held PERPENDICULAR to your needle holder
  - It needs to be held at the TIP of your needle holder
  - Always use forceps to help fix your position (don't take it for granted, it can be very useful)
- Once you get the needle in place, LOCK the needle holder (push down)
- Now hold the needle holder like a stick with index finger stabilizing its body
- Put the incision in front of you (up to down, not side to side)
- Inserting needle into skin
  - It should be done with movements of your WRIST alone
  - Insert it 90 degrees to the skin (think about it)
  - The needle insertion site distance from the incision (X) should be equal to the distance of needle extraction site (X)
    - You can use your forceps to guide the needle
    - Trust me, it's useful
  - Once you see the tip outside, unlock your needle holder and pull it out in one swift move
  - Place the needle down, and start pulling the THREAD out until only a small portion of it remains on the site of insertion
    - We do this to avoid hurting anyone in the operation room!
- Tying the knots
  - Best done WITHOUT using your hands
  - Place needle holder parallel and above the incision
  - One handed reef knot method (Square knot)
    - Wrap the needle holder from side A to side B back to side A in ONE turn
    - Hold the TIP of the little thread from the incision
    - Pull thread ("FIRST THROW")
      - Now, carefully understand, your long string side (the one with the needle) will be on side A
      - Pull the long thread from side A to side B
      - Pull the short thread from side B (where the incision is) to side A
    - Wrap the needle AGAIN, but this time, the direction of wrapping will be from side B to side A to side B again ("SECOND THROW")
      - Do the same method by pulling on the tip of the thread

They didn't do a secure knot here



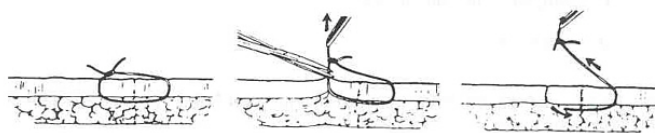
They did the surgeon and secure knot



- Now you'll pull the long thread from side B to side A and the short thread from side A to side B
- One more knot for secure (secure knot – "THIRD THROW")
  - You can do it as many times as necessary (fourth throw, fifth throw, sixth throw, etc.)
- Other knots to know
  - The **surgeon knot**
  - Instead of doing 1, 1 + 1 (securing), you do 2, 1 + 1
    - As in, wrap it twice the first time, not just once!
    - Come on, it makes sense
- When you're done, make sure the knot is placed on the **SIDE** of the incision and **NOT** on top of it
  - Do the same for **ALL** the sutures you made
  - **ALL** should be on the **SAME** side
- Cutting the excess thread
  - Hold the two pieces of thread (long and short ends) by the forceps and cut both thread a little above the knot

- Removing sutures

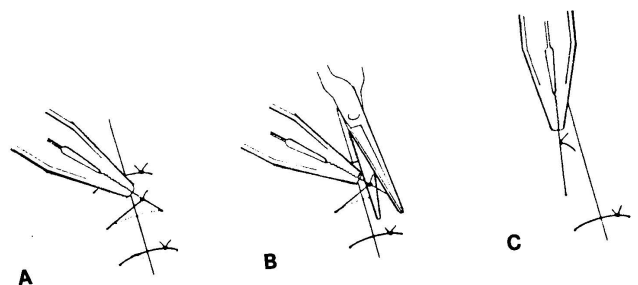
- The exposed suture part is most probably contaminated
- You **DO NOT** want to cut the suture in a way that the exposed part of it will follow the route into the skin and out from the other end
  - What do I mean?
  - You don't want to pull the thread from one hole's side and pull the whole thread out of the skin from the other hole's side
    - This means the whole thread will go through the tunnel you made with the thread!
    - So the part of the thread that was outside will go inside and can cause an infection
- Instead, cut it from the end with the knot
  - Make sure to cut it as close to the skin as possible so that the part of thread exposed will not go through the tunnel
  - Once you cut it, pull the thread from the **SIDE YOU CUT THE THREAD, NOT THE OTHER SIDE**



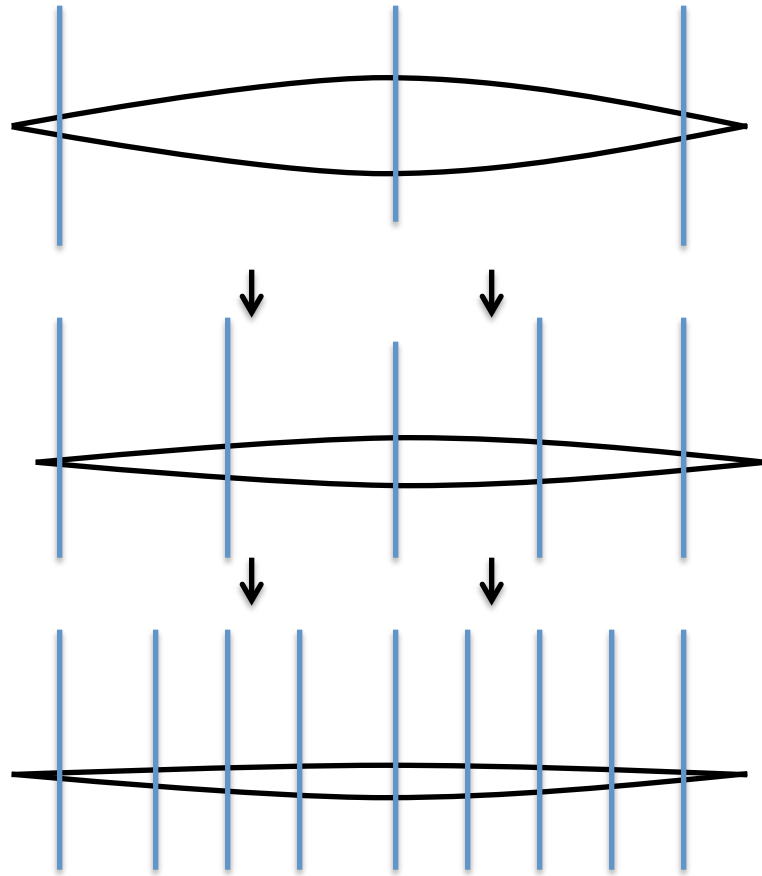
STEP 1. NOTE THAT THE SUTURE KNOT IS LOCATED TO ONE SIDE OF THE INCISION LINE. THE SUTURE IS CUT BELOW THIS KNOT ON THE SAME SIDE.

STEP 2. GRASP ONE END OF THE SUTURE WITH THE FORCEPS AND PULL UP. MAINTAIN GENTLE TRACTION UPWARD TO EXPOSE A SMALL PORTION OF THE SUTURE THAT HAS BEEN JUST BELOW THE SKIN SURFACE. CUT THE SUTURE BELOW THE PORTION ORIGINALLY EXPOSED AT THE SURFACE. PLACE THE ROUNDED TIP OF THE SCISSORS NEXT TO THE SKIN SURFACE. (SUTURE SCISSORS HAVE ONE ROUNDED AND ONE SHARP TIP.)

STEP 3. PULL THE CUT SUTURE UP AND OUT OF THE SKIN.



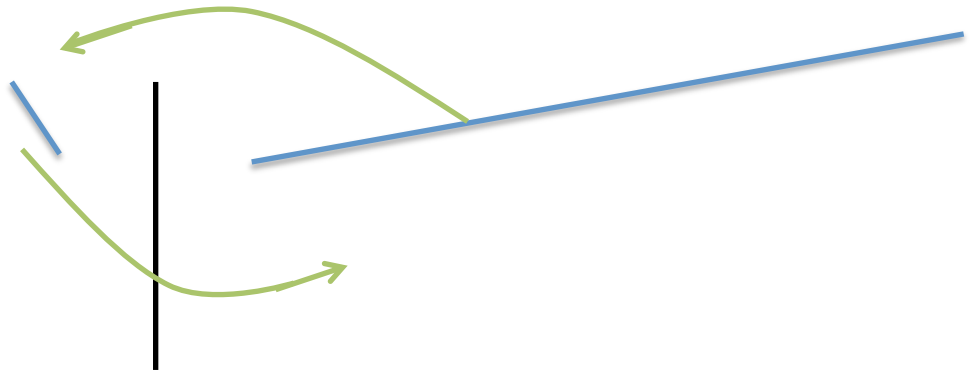
- Other principles of sutures
  - If the wound/incision is elliptical or huge that its center is very wide, you can start your suture in the MIDDLE of the wound
  - Once you do that, do another suture in between your first suture and the edge of the wound/incision (on either side)
  - Now you have 3, and all you have to do is keep filling the spaces with sutures by halving the space



SUTURING TECHNIQUE

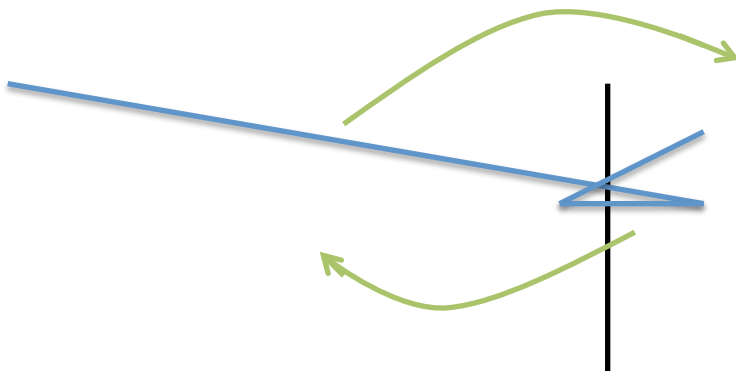
Side A

Side B



“FIRST THROW”

The **first throw**, you're wrapping the needle from the side A (the right) and moving the long thread to side B.



“SECOND THROW”

The **second throw**, you're wrapping the needle from the opposite direction (left or side B) and moving the long thread back to side A.

