Welcome!

5 Tips That Will Change Your Practice

Speaker: Patrick O'Malley, MD, Course Director and Founder of *The Laceration Course*
Moderator:
Host:

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Presenter

- Patrick O’Malley, MD
- East Carolina University, Brody School of Medicine
- Carolinas Medical Center, Emergency Medicine Residency
- 16 years community emergency medicine and urgent care experience
- Urgent Care Association National Conference Presenter
- Board of Directors, College of Urgent Care Medicine
- Creator of The Laceration Course

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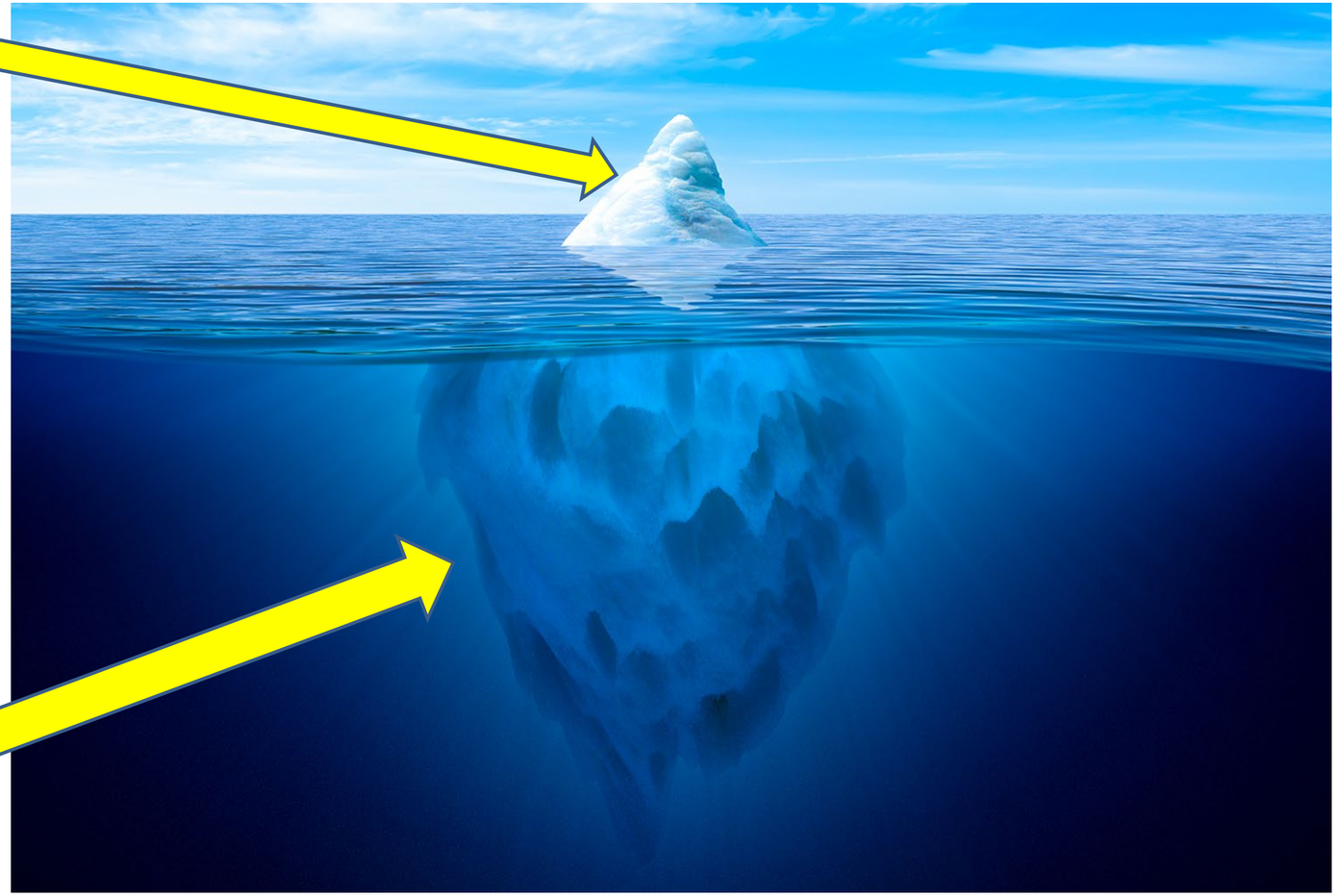
Topics and Objectives

- Goal-come away with 5 tips, regardless of experience level, that will change how you approach lacerations
- Intentionality-efficiency-medical decision making through case presentation
- Understand suture materials
- Instrument handling and knots
- A better digital block
- Bust a few myths
- Discuss must-have products
- Advanced techniques

Webinar interaction

- 45 minute discussion
- Educational product overview/demo
- Q/A
- Poll questions
- Chat

This webinar



Everything about lacerations

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Case 1 - Presentation

Elderly patient with large pretibial laceration from car door

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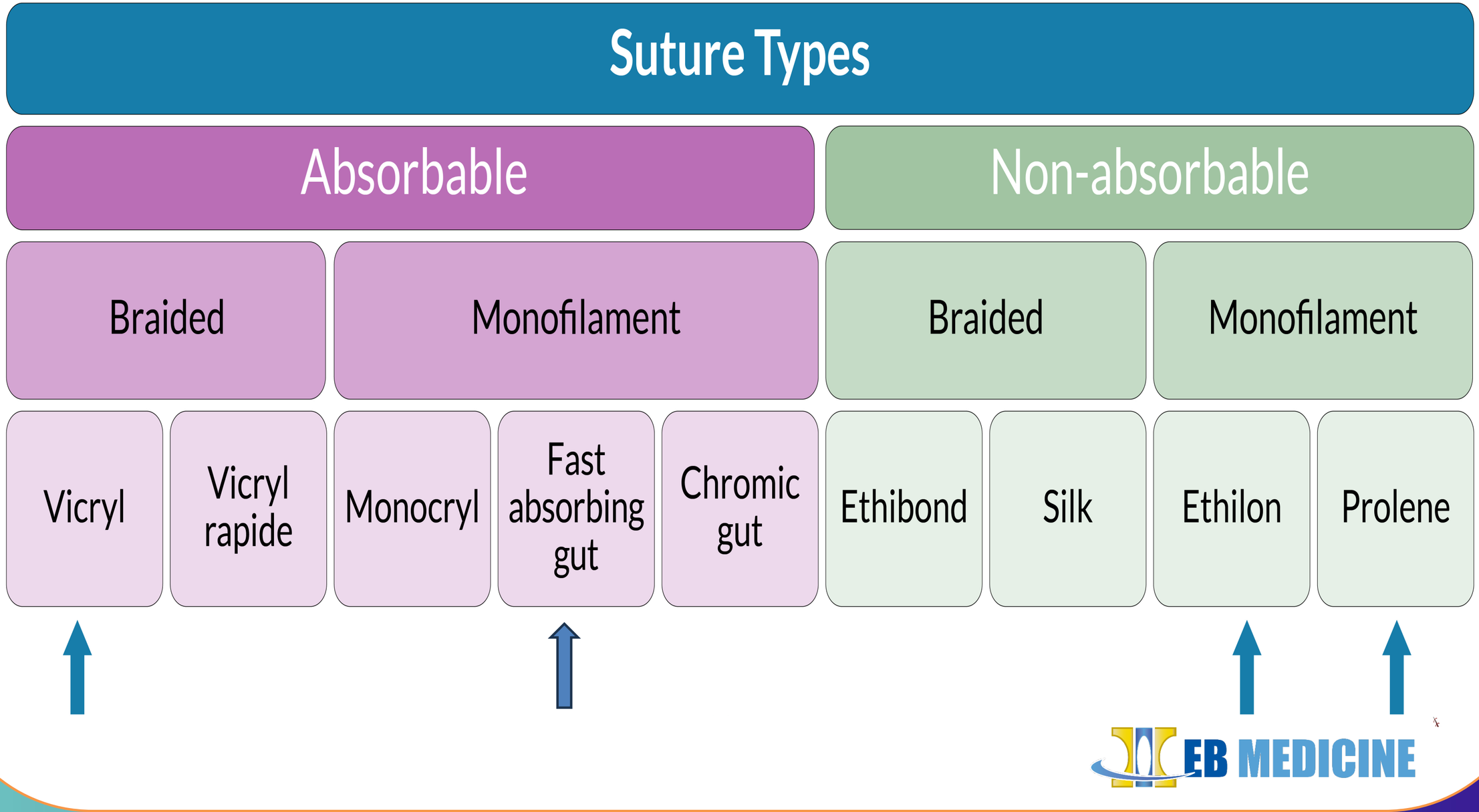
Basics

- Approach
- Sutures and instruments
- Digital block

Approach to Lacerations – Be Intentional!

- Patient in waiting room with a lac. Already start thinking about what I'm going to need and do
- Get in the room - ABCs, routine history taking. What happened? Tetanus status
- Look-superficial observation will tell me 95% of what I am going to need. Order X-rays. Gather supplies, set things up, draw up anesthetic
- Anesthetize. Go chart, see another patient. Come back-irrigate, sink vs stretcher. Repair. Talk about discharge instructions while repairing
- Wipe wound clean. Antibiotic ointment, bandage. Dispose of materials. Chart
- If busy, large complex laceration, may have to stop and go check on department
- Avoid unnecessary trips in and out of the room

Always think ahead and be mindful of your surroundings!!


Suture Types
Absorbable
Non-absorbable
Braided
Monofilament
Braided
Monofilament
Vicryl
Vicryl rapide
Monocryl
Fast absorbing gut
Chromic gut
Ethibond
Silk
Ethilon
Prolene
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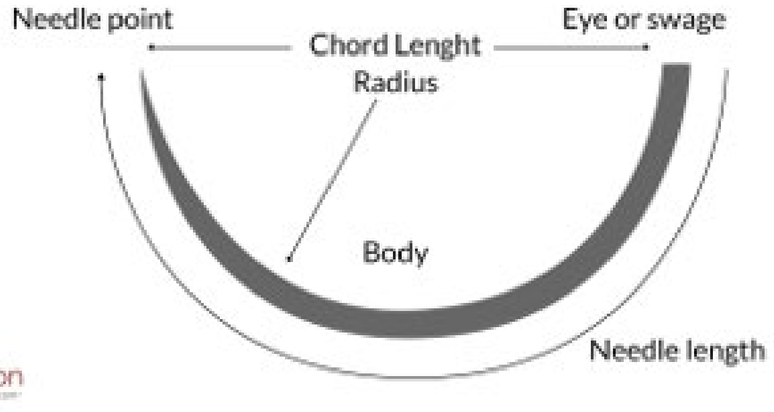
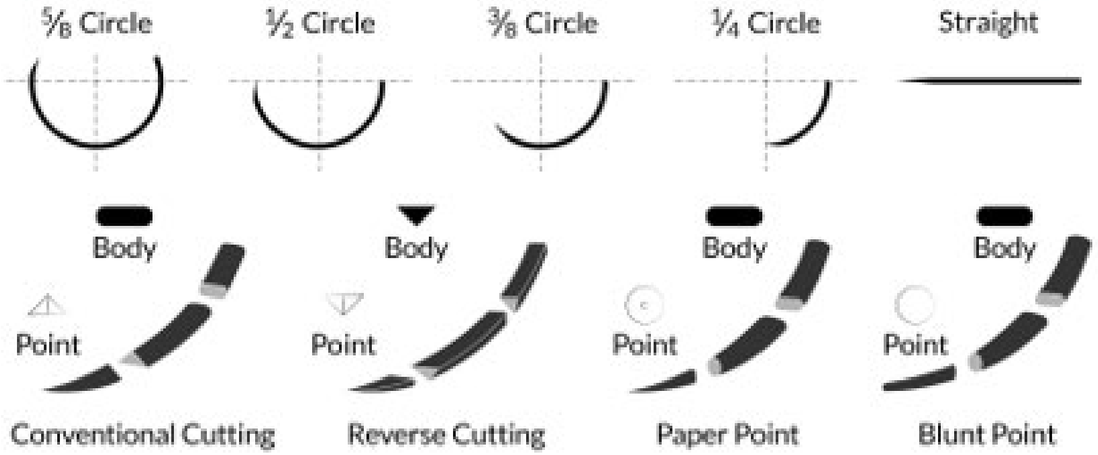
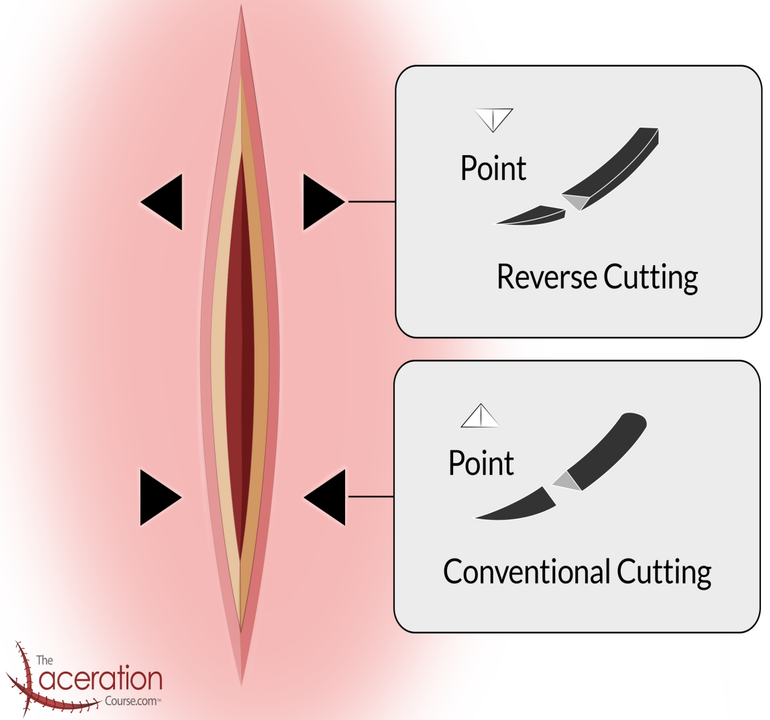
Needle Anatomy



Common Types of Needles



Cutting Needle Tissue Defects



Important Definitions When Describing Sutures

Knot strength	Amount of force needed for knot to slip, related to the friction and ability to strech
Elasticity	The ability of the suture to stretch and recoil
Plasticity	When the suture stretches but does not recoil
Memory	Ability to return to its shape after it is manipulated, less pliable
Coefficient of friction	Suture's relative resistance to being passed through a tissue, higher means more local tissue damage
Tensile strength	Suture's ability to resist breakage

Tip - straighten thread – cut short

Case 1 - Preparation

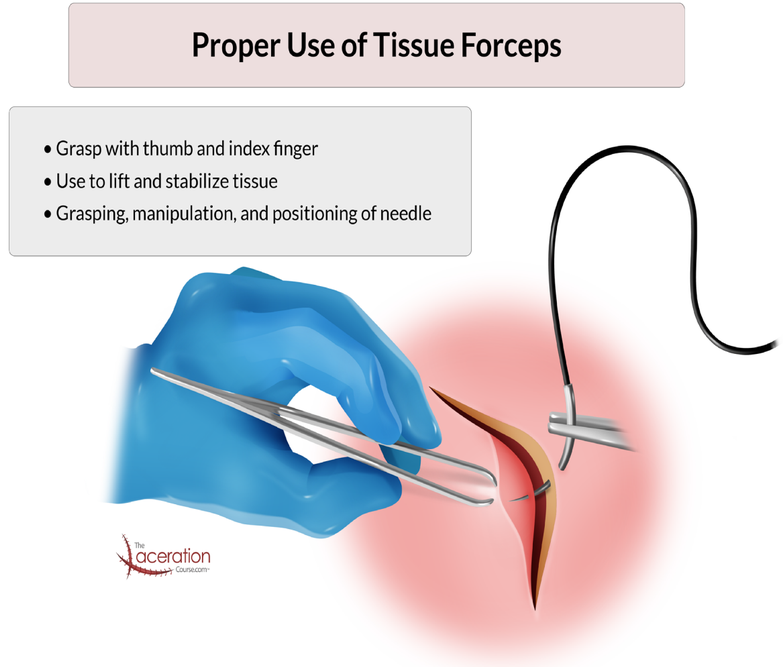
- How do you approach this?
- Associated injuries?
- Imaging?
- Anesthesia
- Irrigation
- Supplies

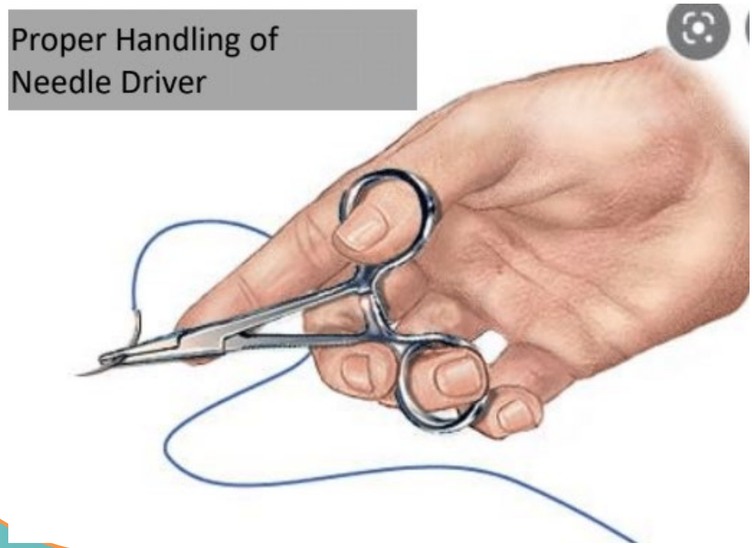
Instrument handling

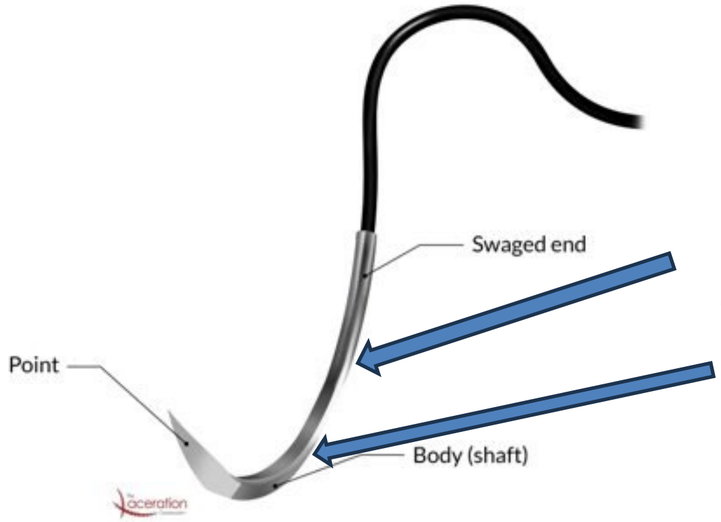
- Instrument handling and instrument tie
- Proper techniques
- Not touching needle with fingers

Instrument handling

- Instruments are an extension of your hand
- “Turning the doorknob”
- Needle driver to present tissue to the needle and facilitate proper needle placement in the tissue
- Body mechanics – make the instruments for <u>FOR</u> you







Hold needle between arrows with needle driver

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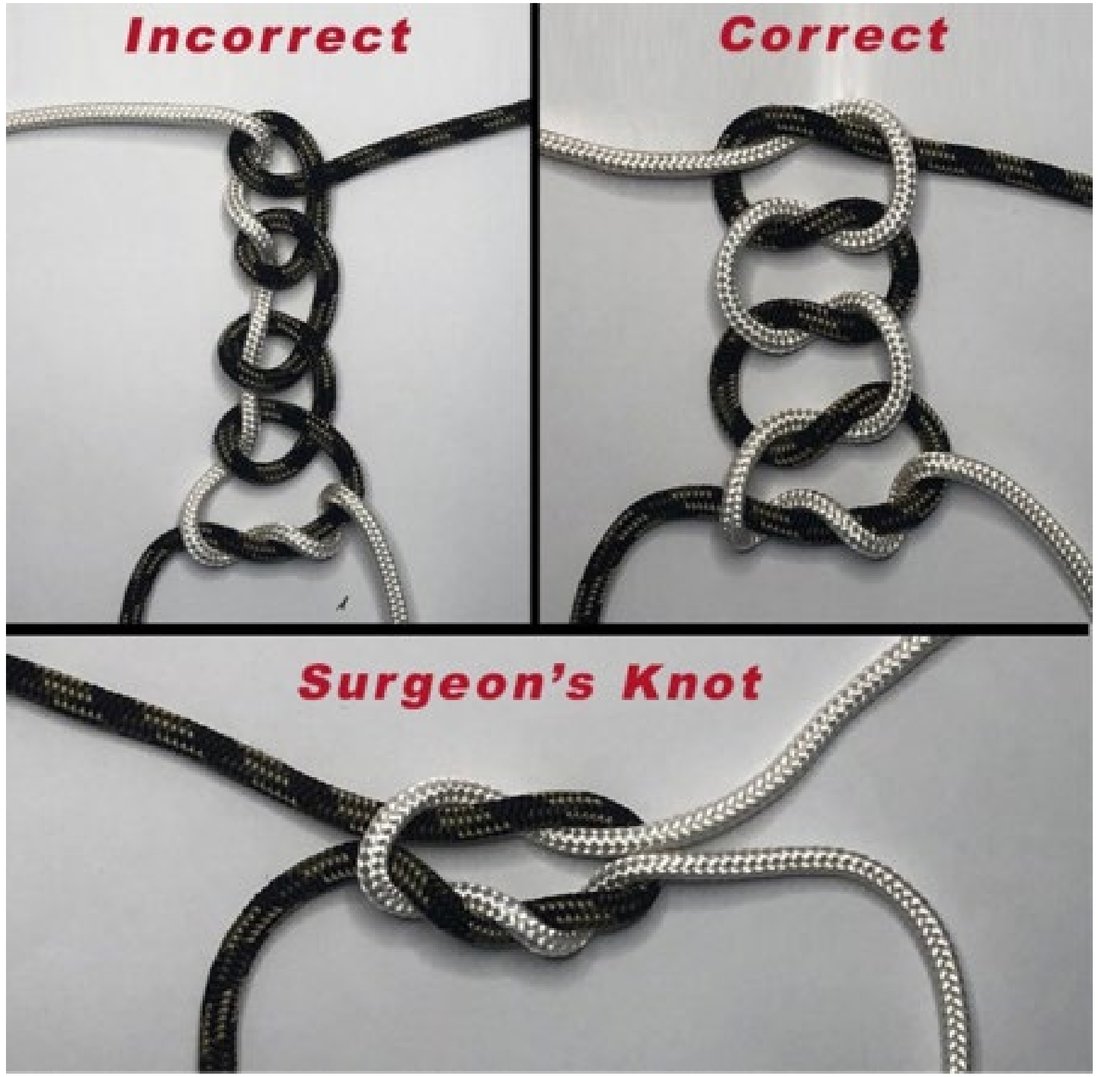
Knots

- **<u>Instrument tie</u>**
- Basic skill, you must master it
- **<u>Back and forth in opposite directions</u>** so the knots lay down nicely
- 2 throws followed by single throw, repeat... (surgeon's knot)
- Number of throws depends on suture material
- Thread "memory"

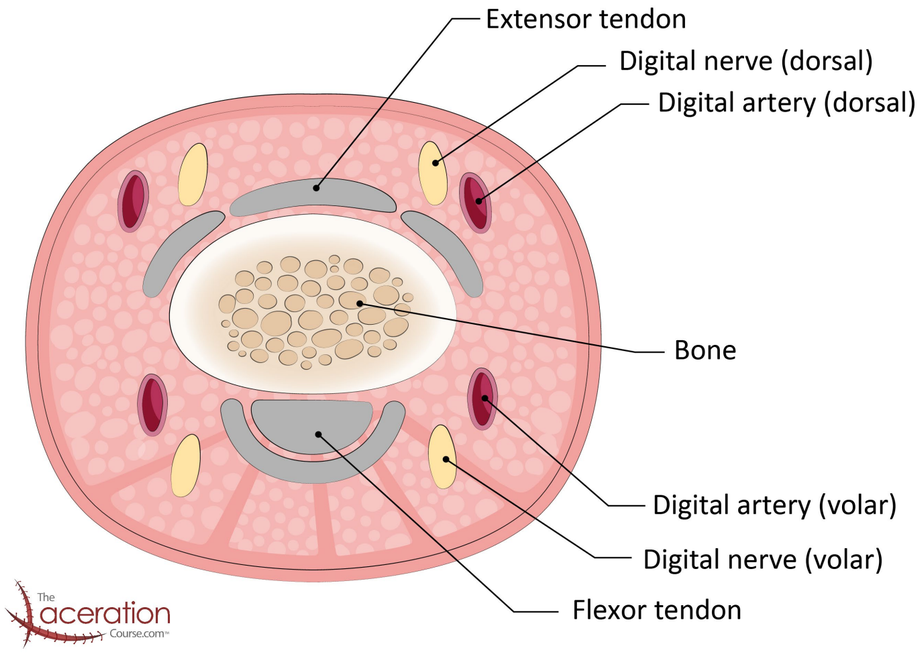


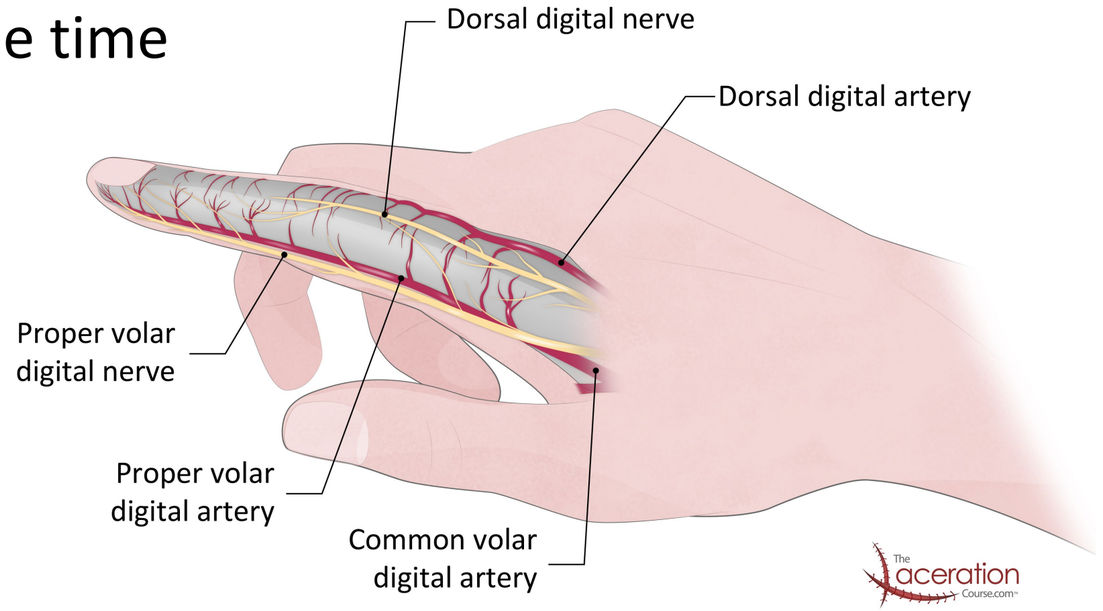
Knot tying

- Prone to unraveling

Digital Block

- Inject slowly
- Let sit for 5 minutes, inject more if needed
- If two adjacent fingers or toes injured, can inject in shared web-space to get two surfaces at one time





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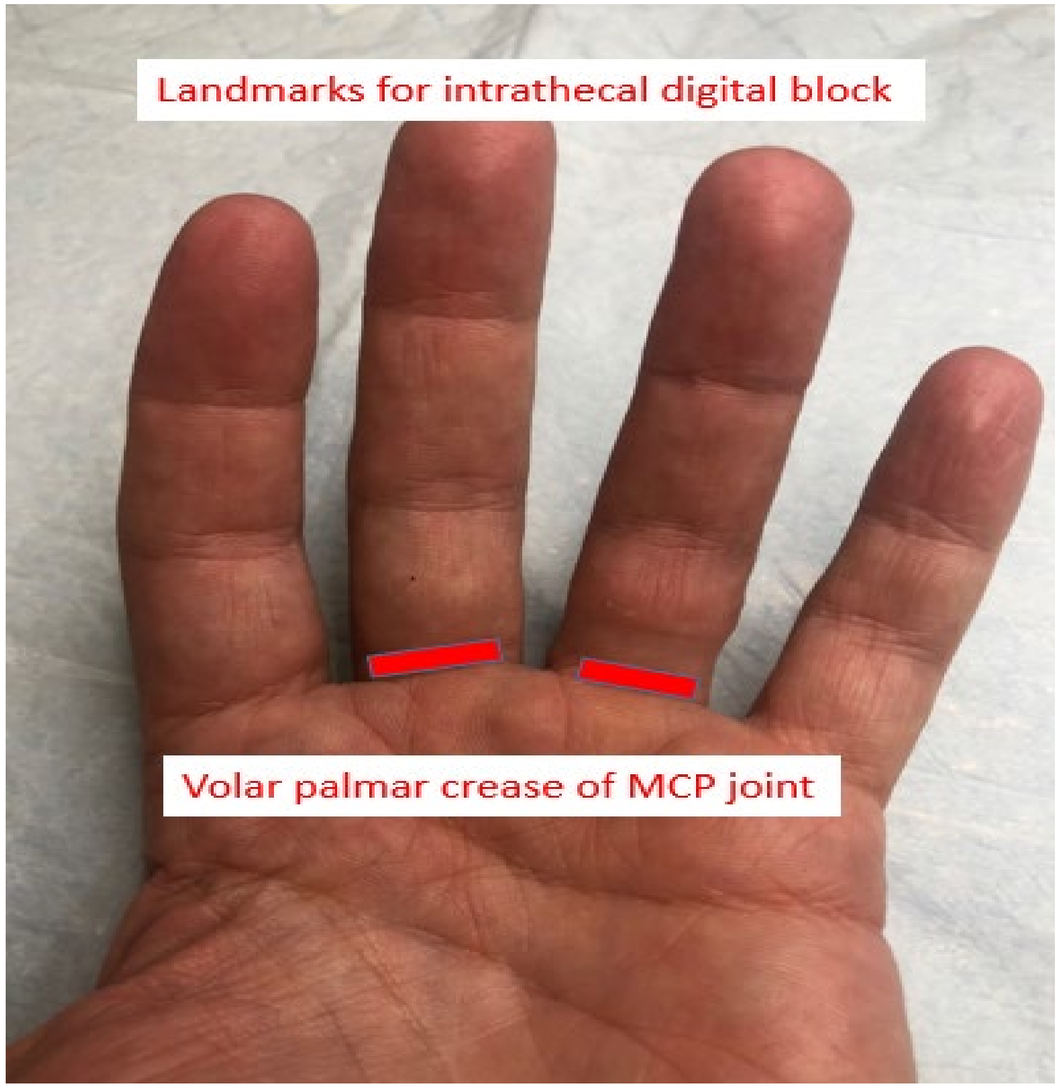
Transthecal nerve block

- Single injection
- Midline palmar/MCP crease
- Aim distal, go to bone, aspirate, withdraw and inject
- Great for multiple adjacent fingers

- YouTube video



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Closure

Myths and Bad Practice Habits

- Sterile water
- Sterile gloves
- Epinephrine in digits
- Betadine, chlorhexidine
- Irrigation

Sterile field

- It’s a dirty wound to start with
- Clean around the wound, use the sterile drapes for instruments and keep patient’s hands, clothing, hair away from your work

Sterile water

- Tap water is completely safe
- Cheaper - $1.50 for bottle of saline
- After anesthetized, consider having patient stand at sink to irrigate for a few minutes
- Can give them gauze and let them clean off dried blood
- Tap water in instrument basin for irrigation

Sterile gloves

- Not needed – it is NOT a sterile procedure
- Sterile gloves are more expensive - $2.30 vs $0.07
- Can SAFELY use the boxed gloves
- Some like the fit better…

Epinephrine in fingers

- Fingers, nose, penis, toes…
- WRONG!
- Orthopedists and plastics routinely use
- Longer action of anesthetic
- Helps control bleeding
- Consider avoiding in those with Reynaud’s, PAD

Povidone-Iodine, chlorhexidine, and hydrogen peroxide

- Controversial
- Lots of bad practices
- Betadine-10% povidone iodine. Iodine and a synthetic polymer
- No benefit in preventing infection

- https://pubmed.ncbi.nlm.nih.gov/27269416/

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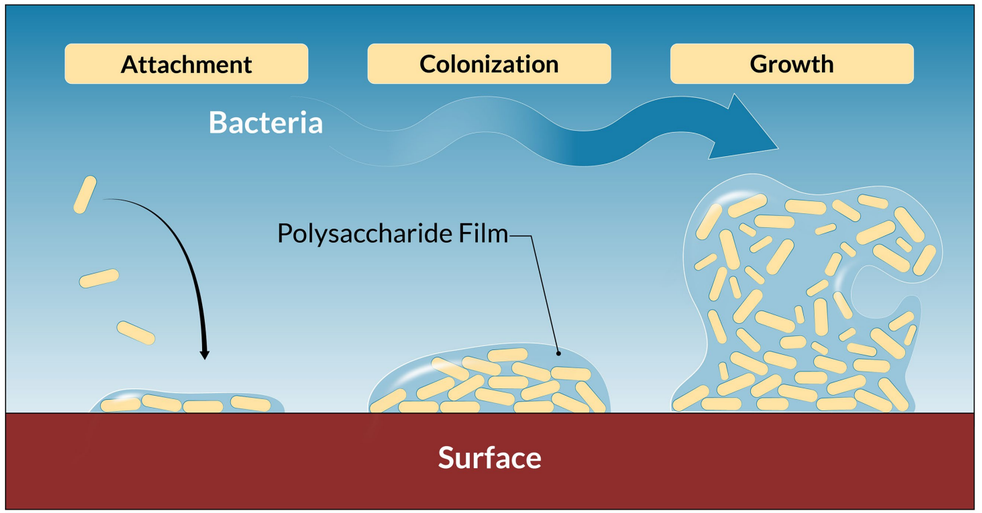
Povidone-Iodine, chlorhexidine, and hydrogen peroxide

- Chlorhexidine?
- Felt to be safe but no strong recommendations that it is better than water
- Water to loosen dried blood
- Hydrogen peroxide-NEVER

Irrigation

- You can’t punch holes in a bottle and squeeze or use bulb syringe
- 50-100cc per cm of laceration
- Must generate 12-15 psi**
- Syringe and splash guard is the way to go, or tap water at sink if appropriate
- Use a 60cc syringe (more efficient)

Biofilm Formation



Case 1 - Documentation

This 10cm gaping laceration to the anterior aspect of the left tibia was anesthetized with 1% lidocaine and epinephrine. Then irrigated with 1L of saline. Benzoin was applied to the wound edges and steri-strips were adhered to the skin. 3.0 Prolene was used to place 7 horizontal mattress sutures and a single interrupted suture. The wound edges were closely reapproximated and the area was bandaged. She was given a long leg splint, crutches and close orthopedic follow-up was arranged.

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Must-have products

- Trauma shears
- Lighting
- Ruler
- Cyanoacrylate
- Stapler
- Steri-strips, benzoin
- Finger tourniquet

Finger tourniquet

- Life saver
- Must have bloodless field when repairing finger lacs
- Elastic band from glove, gauze and hemostat, Penrose drain
- Glove technique
- Several commercial options
- Don’t forget to remove!!

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Case 1 - Follow-up

2 weeks

4 weeks

6 months

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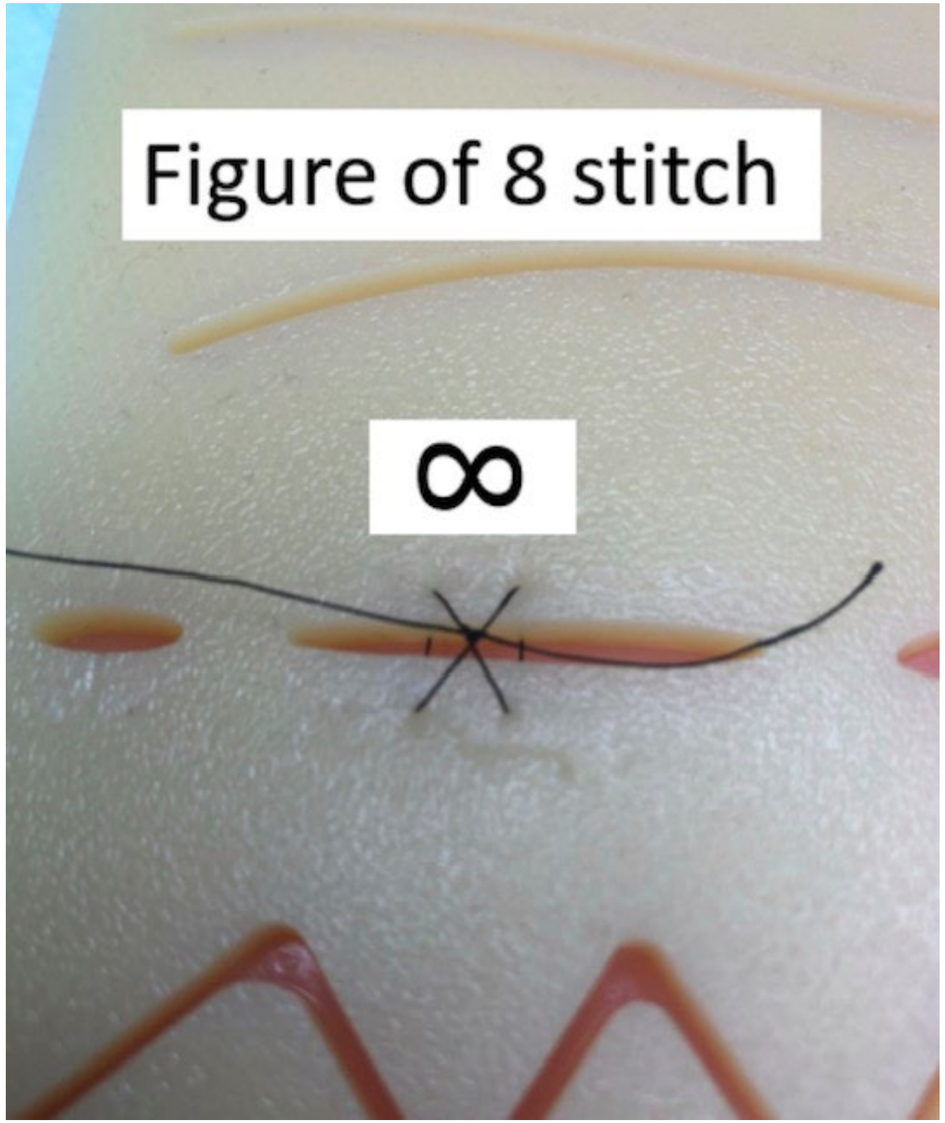
Advanced techniques

- Figure of 8
- Steri-strips
- Flaps, parallel
- Corner

Bleeding varicose vein

- TXA or lido/epi on a gauze-secure with bottle cap and Coban-pressure
- Figure of 8 suture
- Can be done with suture removal kit and suture
- Absorbable suture an option

- Also for post arterial catheter, dialysis puncture site bleeding, paracentesis leakage



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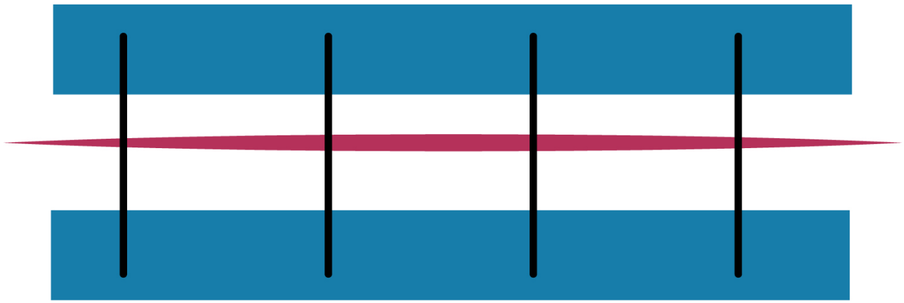
Closure Techniques - Steristrips

- Skin tears
- Wounds under low tension
- Can combine with glue, sutures



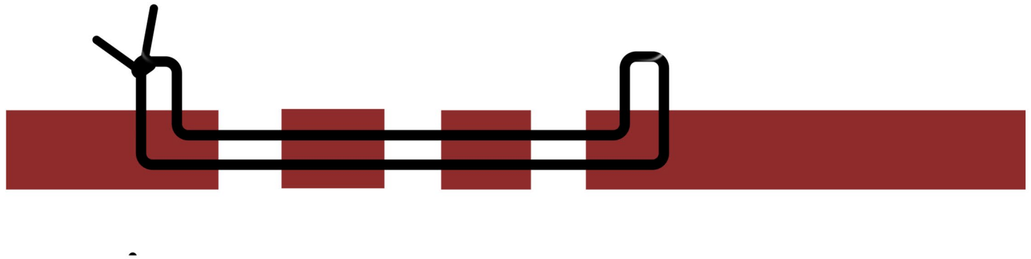
Large skin tear/laceration

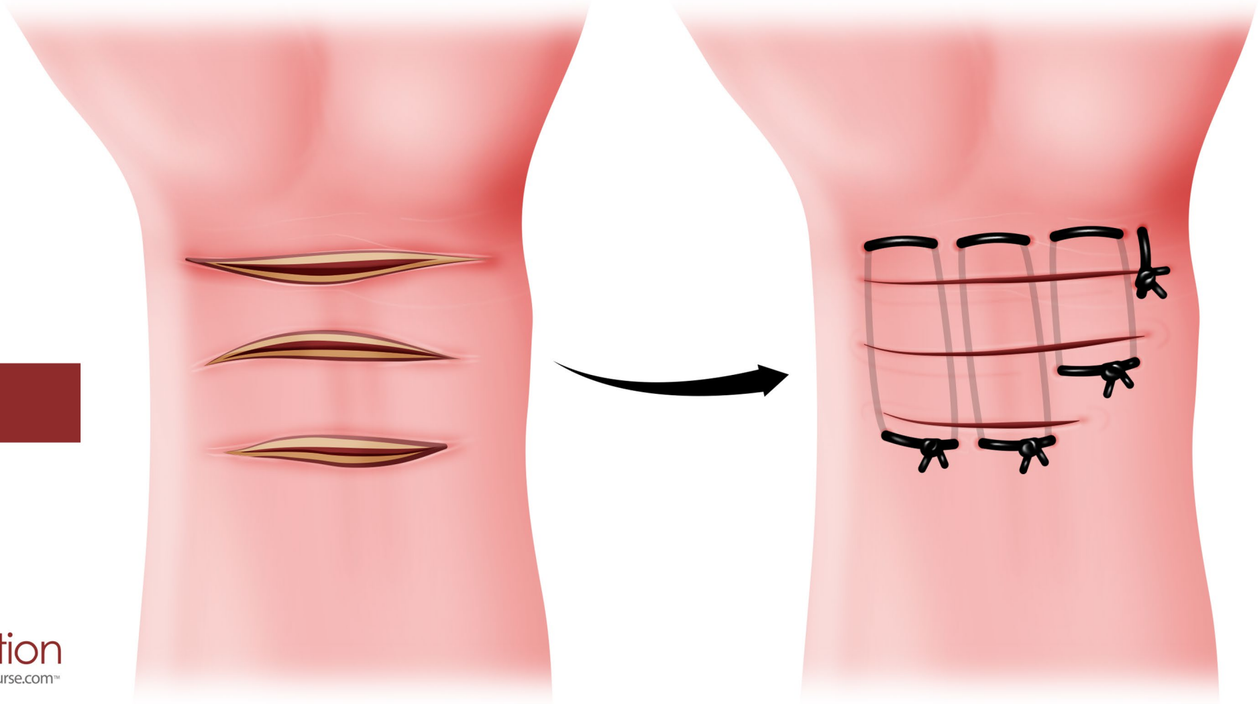
- Steri-strips, benzoin, horizontal mattress sutures

Tissue Bridges/Flaps, Parallel Lacerations

- Envision how the wound should come together
- Develop a plan or strategy before starting-may have to adapt as the wound comes together
- Draw it out!
- May require undermining or debridement
- Combination of interrupted, subcuticular, mattress techniques

Parallel Lacerations





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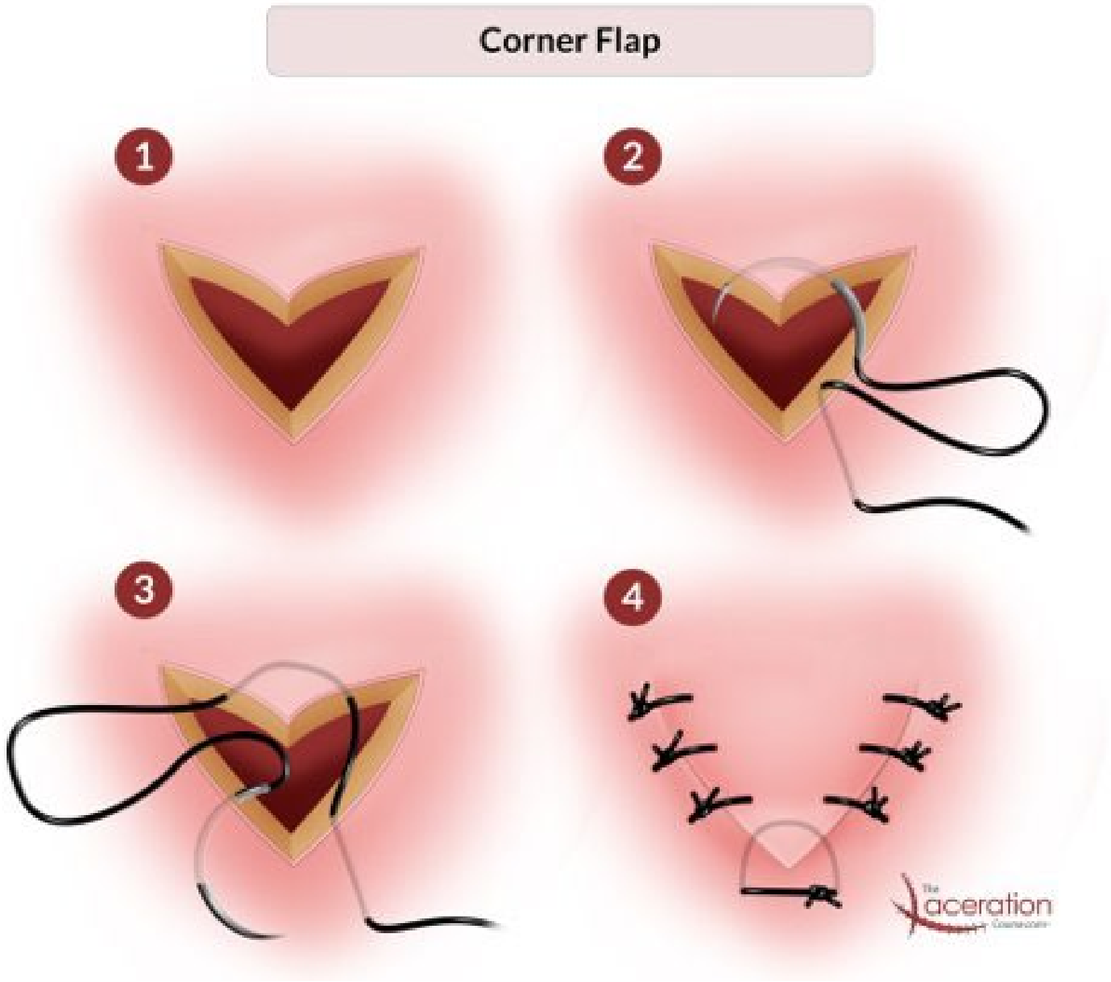
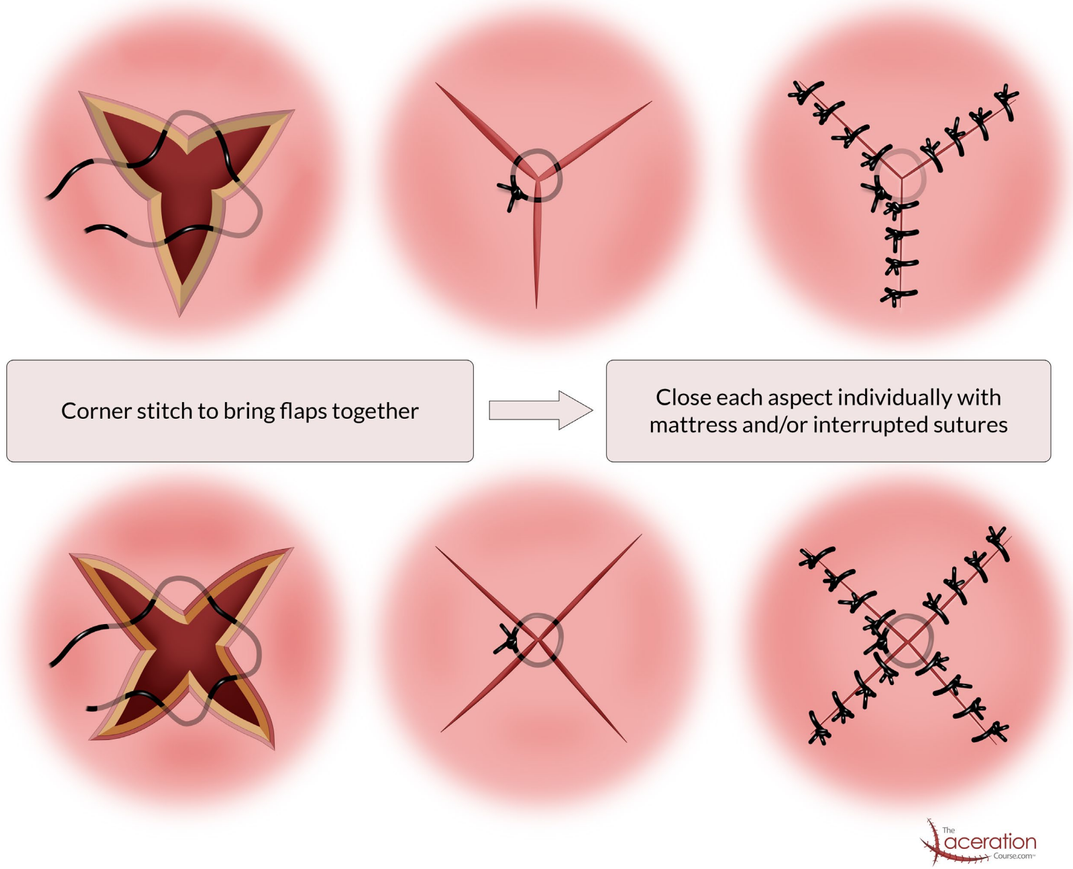
Corner flap – V and Y shaped



Closing Stellate or Multi-Flap Lacerations



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Case 1 - Discussion

- Need for imaging?
- What type of suture?
- Biggest concerns?
- Concern for infection - antibiotics?
- Close follow-up with orthopedics
- What could I have done differently, where could this have gone wrong?

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Question and Answer, Comments...

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THE LACERATION COURSE MODULES

- **Module 1:** Physical exam, mechanism of injury
- **Module 2:** Children, Prep, Anesthesia, Foreign Bodies
- **Module 3:** Irrigation, Closure, Concepts, Aftercare
- **Module 4:** Suturing Basics
- **Module 5:** Suture Techniques
- **Module 6:** Bites and other soft-tissue injuries
- **Module 7:** Face, Complex Wounds and Injuries, Fingers
- **Module 8:** Disposition, Transfers, Notes
- **Module 9:** Billing and Coding
- **Module 10:** Medicolegal
- **Module 11:** Case Presentations
- **Module 12:** Laceration Repair Videos
- **Module 13:** Suture Technique Videos
- **BONUS:** Practice Suture Kit

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Free Practice Suture Pad

- Pad
- Instruments
- Suture material
- Stapler
- QR Code menu
- Comes with course purchase-available for groups also

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Cheat sheet comes with course purchase

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THE LACERATION COURSE: HIGH-YIELD INFORMATION

Wound Irrigation

- "The Solution to Pollution is Dilution"
- Wound irrigation is felt to be most important step to reduce infection
- Irrigate wounds well
- 50-100ml of water per centimeter of laceration length
- Tap water is safe and effective as saline, no difference in infection rates
- Goal is to generate 10-15 psi to overcome biofilm, remove contamination
- Larger syringe (50-60cc) allows for more efficient irrigation
- Betadine and chlorhexidine do not show benefit in reducing infection compared to water alone

Time Frame for Staple and Suture Removal

Face: 3-5 days
Scalp: 5-7 days
Low-tension extremity: 6-10 days
High-tension extremity: 10-14 days
Abdomen: 6-12 days
Chest and back: 6-12 days

Sample Procedure Note

Laceration repair. Performed by me. Verbal consent obtained. This is a 3cm laceration to the volar aspect of the right forearm. After wiping the wound clean of dried blood, 5ml of lidocaine and epinephrine was used for anesthesia, injected into the wound margins. The wound was irrigated with 300cc of saline with syringe and splashguard. No neurovascular involvement. Several small foreign bodies were removed. Closure with 5 interrupted 3.0 Prolene sutures. There was good wound re-approximation. Topical antibiotic was applied and the wound was bandaged. Patient tolerated the procedure well. No complications. Follow-up or return in 10 days for suture removal.

Sample Discharge Instructions

Keep a close eye on the wound; come back if you have any fever, redness, pus, or streaks coming from the wound. You may wash the wound with soap and warm water, but do not submerge or soak in water; no swimming. You may apply a loose bandage with topical antibiotic ointment until the sutures are removed. Come back in 10 days for suture or staple removal. If indicated, you will be given a prescription for antibiotics. Not all lacerations require antibiotics. Ibuprofen or Tylenol for pain; other pain medications as prescribed.

Suture Types (And When to Use)

- Prolene or Ethilon: everywhere except inside the mouth
- Vicryl-absorbable: under the skin-layered closure; some advocate for children, face, if unreliable for returning for removal
- Chromic gut: inside the mouth, wet mucosa of the lip

Needle Types (And When to Use)

- Small needle (13mm): facial, fingers, small lacerations, finer work
- Large needle (24mm): extremities, trunk, larger lacerations, more "bite"
- Reverse cutting (cutting edge on outside; convex surface): tougher tissues, less risk of cutting through tissue
- Regular cutting (cutting edge on all three sides): most commonly used in acute setting, skin

Busting Common Myths

- Epinephrine is safe to use for digital blocks
- Sterile gloves are NOT needed
- Sterile field is not required
- Tap water is completely safe to use for irrigation
- Squeezing a saline bottle does not generate enough pressure to irrigate a wound

Go to www.ebmedicine.net/TLC for more information. Contact us at ebm@ebmedicine.net

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THE LACERATION COURSE: HIGH-YIELD INFORMATION

Billing and Coding Basics

- Provide as much detail as you can about the wound and the repair
- Location: be specific (left/right, fingers, crossing joints, etc.)
- Length in centimeters
- Complexity: accounts for layered closure, contamination, debridement

When Transfering

- YOU call and speak to the attending physician; do not have a nurse or medical assistant do this
- Make sure they have the proper service you are advising for the patient
- Provide a copy of any imaging and the urgent care notes
- If there will be a delay, consider irrigating the wound and bandaging, parenteral antibiotics if indicated/available
- Don't promise the patient as to what will or will not be done

When to Use What

Sutures

- More precise, better tissue control
- Time-consuming
- Suture costs less than a reliable stapler

Staples

- Fast, excellent hold
- Similar scarring to sutures
- SCALP! (Large trunk and extremity wounds where cosmetic outcome is less concerning; discuss with patient for shared decision-making.)
- Must have high-quality stapler!

Dermabond

- Can be used more than we think
- Wound must be dry, not oozing
- Careful around eyes; use erythromycin ointment to remove if gets in eyes

Steri-strips

- Must have benzoin!
- Low-tension wounds
- Good for skin tears
- Can combine with Dermabond or sutures for extra strength

Medicolegal Aspects

- Exclude foreign bodies: Look, feel, imaging; remove or refer appropriately
- Provide good discharge instructions, reasons for returning, going to ED
- Diagnosing tendon injuries
- Document neurovascular and tendon exam before and after
- Identify open fractures and treat/refer appropriately
- Document; if not charted, it didn't happen
- Antibiotics for dog bites if repaired
- Remove rings from fingers for any arm, hand, finger injuries

ABOUT THE LACERATION COURSE

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The Information You Need to Confidently Manage Lacerations.

All from a Board-Certified Emergency Physician.

Overwhelmed with the thought of managing lacerations on your own? Onboarding a lot of new clinicians and need to get them up to speed quickly? This course gives clinicians the knowledge and confidence to manage most wounds encountered in the urgent care setting.

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I can assure you...

- Deeper knowledge base
- Technical skill
- Increase confidence

- You will be better prepared!

Website demo

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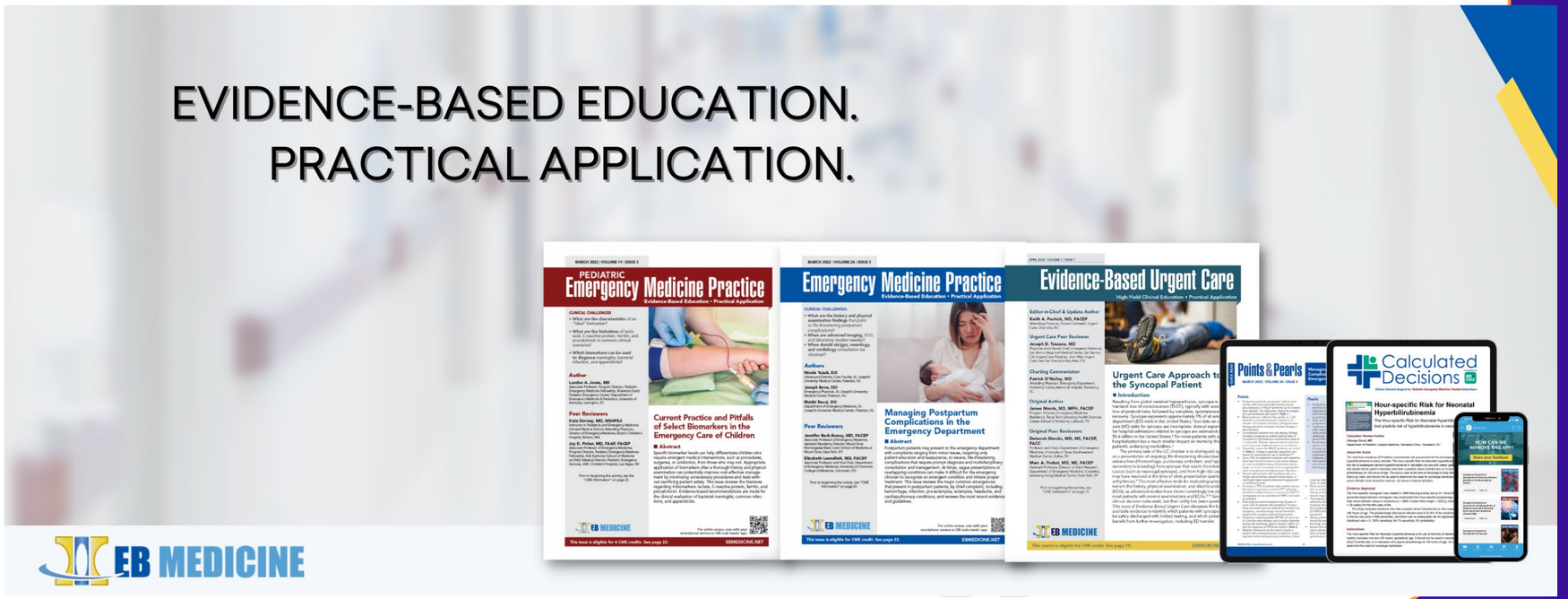
- *Emergency Medicine Practice*
- *Pediatric Emergency Medicine Practice*
- *Evidence-Based Urgent Care*

Onboarding Education:

- The Urgent Care EKG Course
- The Laceration Course

Contact us to learn more about group pricing!



Facebook Group – EBM Urgent Care Clinicians

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Follow-up

- Watch for an email from EB Medicine
- Replay link
- Discount code
- Contact information

Regional Urgent Care Associations

- CALUCA – www.caluca.org West Coast, not just California!
- NERUCA – www.neruca.org
- SERUCA – www.seruca.org

- You are already a member if you live in one of these regions!
- Visit their websites, contact them, get involved

- UC-PAC – https://urgentcareassociation.org/advocacy/urgent-care-pac/

Thank you!

- Contact information

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