



# Finger Lacerations

- ▶ A 14 year old female with no significant past medical history presents to the ED for evaluation of a finger laceration. While playing a card game with her family, she lost her balance and fell onto a glass vase, shattering the vase on impact. She has several small abrasions on the palmar aspect of her right hand and a 3 cm laceration on her right 2<sup>nd</sup> digit.



The patient has normal sensation and range of motion of the hand, with no tendon injuries. The most important step prior to wound repair is:

- ▶ A Consult orthopedic surgery for evaluation
- ▶ B Obtain a radiograph of the hand
- ▶ C Apply topical anesthetic to ensure adequate analgesia
- ▶ D Review the patient's immunization status

## B. Obtain a radiograph of the hand

- ▶ When evaluating patients with lacerations, it is critical to take the mechanism of injury into account and consider the possibility of a foreign object or bone fracture
- ▶ To be sure there is no neurovascular, tendon, or bone injury, do a thorough examination of the hand.



## D. Review the patient's immunization status

- ▶ It is always advisable to review tetanus immunization status in patients presenting with abrasions and lacerations, especially when there is a concern for a contaminated wound.
- ▶ It should not, however, change or delay the management of a laceration



## A. Consulting orthopedic surgery

- ▶ Indications for subspecialty consultation or surgical referral for a finger laceration include
  - ▶ Fingertip injury with associated tendon injuries
  - ▶ Finger fractures
  - ▶ Complicated digit dislocations
  - ▶ Infected wounds



## C. Apply topical anesthetic

- ▶ Topical anesthetics are an excellent option for most pediatric lacerations
- ▶ Can be used prior to lidocaine injections to numb patients to the sensation of the needle stick
- ▶ While it is important to ensure adequate analgesia prior to wound repair, digital nerve blocks are the standard for finger lacerations and ruling out presence of foreign body is highest priority



## LET: Lidocaine (4%), Epinephrine (1%) and Tetracaine (0.5%)

- ▶ Anesthetics block conduction of action potentials by reversible inhibition of axonal sodium channels
- ▶ Epinephrine causes vasoconstriction, delaying the absorption of the anesthetics to produce lasting anesthesia



# Is epinephrine safe to use on fingers?

- ▶ Common mantra: do not inject epinephrine to areas with an end arterial supply
  - ▶ Fingers
  - ▶ Penis
  - ▶ Nose
  - ▶ Ears



# Evaluating the Safety of Epinephrine

- ▶ Comprehensive review of the use of local anesthetic with epinephrine
- ▶ Reviewed medical records from 1880 to 1966 and computer records from 1966 to 2000
- ▶ Findings
  - ▶ 21 cases of digital gangrene with epinephrine, 17 unknown concentrations
  - ▶ 0 cases of digital gangrene using commercial lidocaine with epinephrine, which was introduced in 1948

Denkler, 2001  
Elicki, 2015

# Evaluating the Safety of Epinephrine

- ▶ 2,787 documented cases of digital nerve blocks with epinephrine
  - ▶ No cases of digital necrosis
- ▶ Conclusion
  - ▶ Epinephrine 1:1000,000-200,000 )5-10 ug/mL is safe for digital nerve blocks in healthy patients
  - ▶ Epinephrine induced vasoconstriction is transient

Denkler, 2001  
Elicki, 2015

# Does the laceration need to be sutured?

Suturing versus conservative management of lacerations of the hand: randomised controlled trial. (Papers)

James Quinn, Steven Cummings, Michael Callaham, and Karen Sellers.  
British Medical Journal.

325.7359 (Aug. 10, 2002) p299. Word Count: 1528.

The authors discuss methods of caring for simple hand lacerations. These are wounds to the flesh which do not involve tendons, joints, nerves, or bone fractures. They compared the use of sutures with a conservative...

- ▶ Uncomplicated lacerations of the hand
  - ▶ Full thickness <2 cm
  - ▶ No tendon, joint, fracture, or nerve complications
  - ▶ Injury occurred within past 8 hours
- ▶ Suturing vs. conservative management

Quinn et al. 2002

## Outcome Measures

- ▶ Cosmetic appearance after 3 months
- ▶ Duration of treatment
- ▶ Pain during treatment
- ▶ Time for patients to resume normal activities

## Findings

- ▶ No difference in time to resume normal activities (3.4 d)
- ▶ No significant difference in cosmetic appearance (83 mm vs 80 mm. Difference 3 mm (95% CI -1 to 8) mm)
- ▶ Conservative treatment associated with less pain (difference 18) and shorter treatment times (mean treatment time difference of 14 minutes)

## Conclusion

- ▶ With uncomplicated hand lacerations <2 cm, reasonable to allow the laceration to heal by second intention

Quinn et al. 2002

# References

[Suturing versus conservative management of lacerations of the hand: randomised controlled trial. \(Papers\)](#)

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BMJ. 2002 Nov 9; 325(7372): 1113. » [Hand lacerations should be explored before conservative treatment](#)

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## Hand lacerations should be explored before conservative treatment

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BMJ. 2002 Nov 9; 325(7372): 1113.

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## Suturing v conservative management of hand lacerations

All lacerations need to be examined thoroughly

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[Denkier K<sup>1</sup>](#).



# References

- ▶ Ilicki, J. Safety of Epinephrine in Digital Nerve Blocks: A Literature Review. *The Journal of Emergency Medicine*. 49(5), November 2015. 799-809

