SUTURING 101

Andrea Chymiy, MD

INSTRUMENTS

Forceps (aka tweezers)
Needle holders
Scissors

INSTRUMENT TECHNIQUE

When holding instruments:

- Use three point control: have 3 points of contact between hand, instrument to increase precision
- Extend index finger along instrument to provide extra control, stability
- Place only fingertips through handle loops,

rotation comes from wrist
greater control
quicker to pick up, put down

WOUND MANAGEMENT

Surgical wound classification:

Clean: Close immediately to allow healing by primary intention
Contaminated: contains foreign (dog or cat bite, dirt/gravel) or infected material. Never close, leave open to heal by secondary intention.
Infected: obvious pus present. Never close. Closure of a contaminated wound will promote infection and delay healing

SKIN PREPARATION

Before suturing, wash surgical site, surrounding area with soap, water; particularly wash debris from injuries
Prepare skin with antiseptic solution; start in centre, move to periphery
Chlorhexidine gluconate and iodine preferable to alcohol as less irritating to skin

** Solution should remain wet on skin for at least two minutes before you suture**

TIMING OF WOUND CLOSURE

Less than 24 hours from injury, cleaned properly: primary closure
Greater than 24 hours, contaminated or animal bite: do not close
If wound infected, pack lightly, heal by secondary intention
Wounds not closed primarily should be packed lightly with damp gauze
If clean after 48 hours, delayed primary closure

SUTURE TECHNIQUES

Aim of all suturing techniques: approximate wound edges without gaps or tension

Size of suture "bite" and interval between bites should be equal in length, proportional to thickness of tissue being approximated

Suture is foreign body: use minimal size, amount of suture necessary to close wound

SUTURE MATERIALS

Sutures are made of variety of materials with variety of properties

* *Non-absorbable*

- Use when possible
- Braided suture not ideal for contaminated wounds
- May sterilize polyester thread or nylon line when commercial suture unavailab

* *Absorbable:*

- Degrades, loses tensile strength within 60 days
- Option when not possible for patient to return or for children for whom suture removal difficult.

* *Choosing suture size:*

Size 3-0:

Skin of Feet

Deep wounds on Chest, Abdomen, Back

Size 4-0:

Skin of Scalp, Chest, Abdomen, Foot Leg

Deep wounds on Scalp, Foot, Leg

Size 5-0:

Skin of Scalp, Eyebrow, Tongue, Chest, Abdomen, Hand, Penis

Deep wounds of Eyebrow, Nose, Lip, Face, Hand

Size 6-0:

Skin of Ear, Eyelid, Eyebrow, Nose, Lip, Face, Penis

SUTURE TECHNIQUES

Use tip of needle driver to hold needle between half - two thirds way along needle

Hold needle driver so that fingers are just within rings so possible to rotate wrist

Pass needle tip through skin at 90^{o}

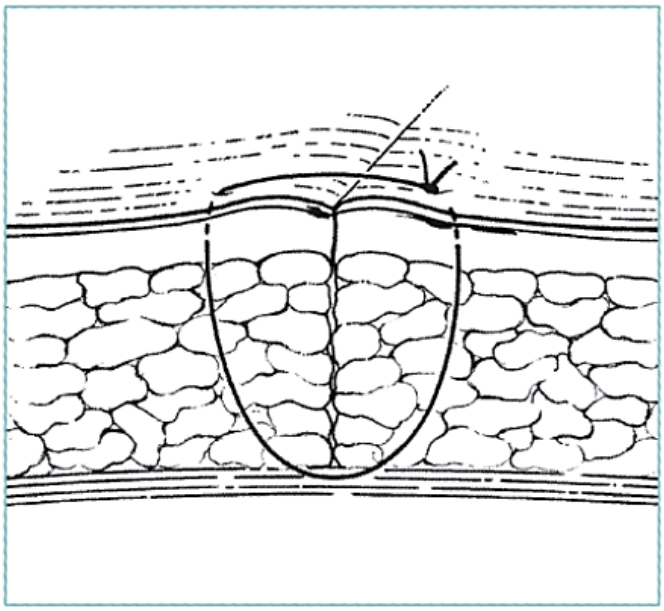
Use curve of needle by turning needle through tissue

Close deep wounds in layers with either absorbable or monofilament non-absorbc

TYPES OF SUTURE

Interrupted sutures

Most commonly used to repair lacerations
Permits good eversion of wound edges
Use only when minimal skin tension
Ensure bites are equal volume
If wound edge is unequal, bring thicker side to meet thinner side to avoid putting e
Use non-absorbable suture, if possible

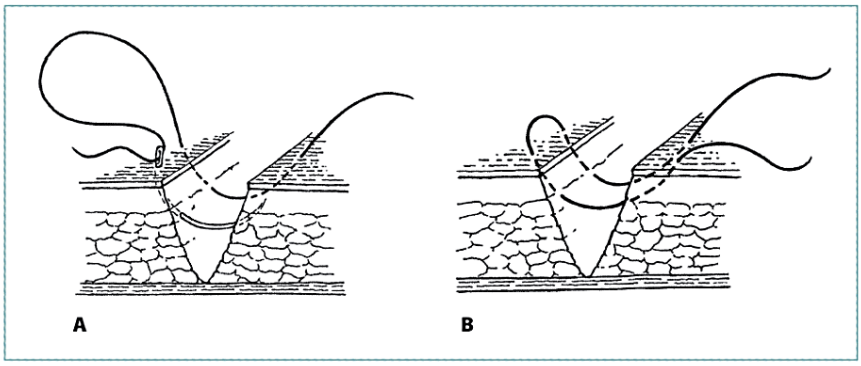


Continuous/running sutures

- Less time-consuming than interrupted sutures;
- Fewer knots tied
- Less suture material used
- Less precise in approximating wound edges
- Poorer cosmetic result than other options

Mattress sutures

– Provides relief of wound tension
– Provides precise wound edge apposition
– More complex, therefore more time-consuming

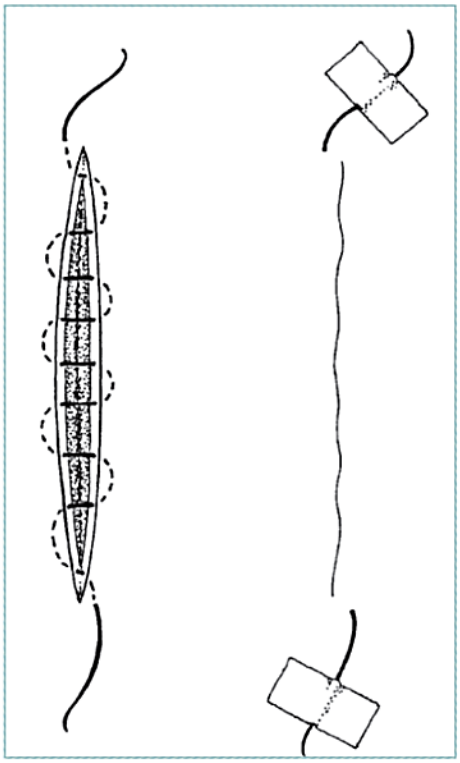


Horizontal mattress suture

Continuous subcuticular sutures

- Excellent cosmetic result
- Use fine, absorbable braided or monofilament suture
- Does not require removal if absorbable sutures used
- Useful in wounds with strong skin tension, especially patients prone to keloid forma
- Anchor suture in wound; from apex, take bites below dermal-epidermal border
- Start next stitch directly opposite preceding one

Subcuticular suture



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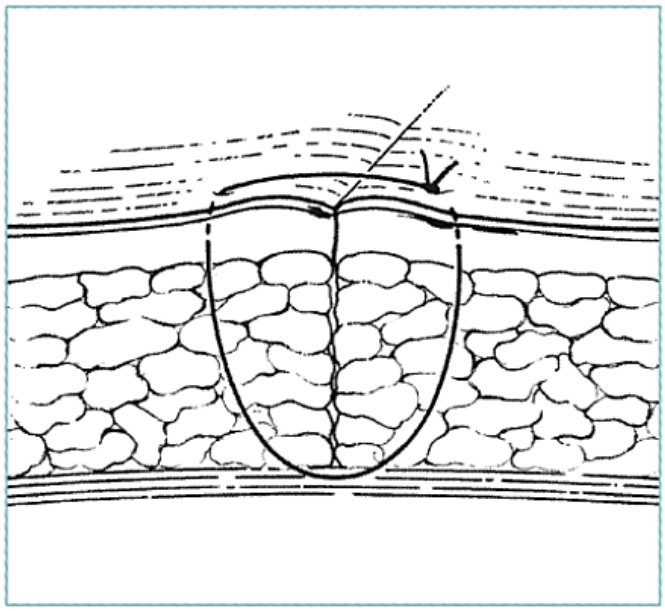

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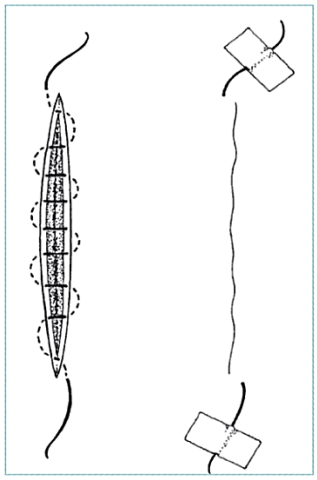

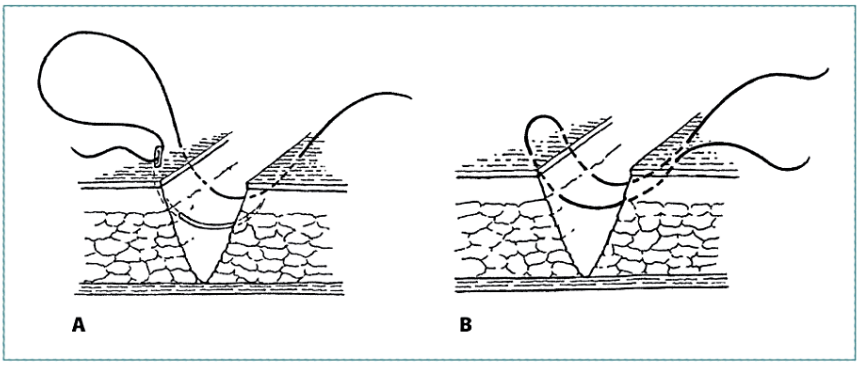

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