Excisional Biopsies & Elliptical Excisions

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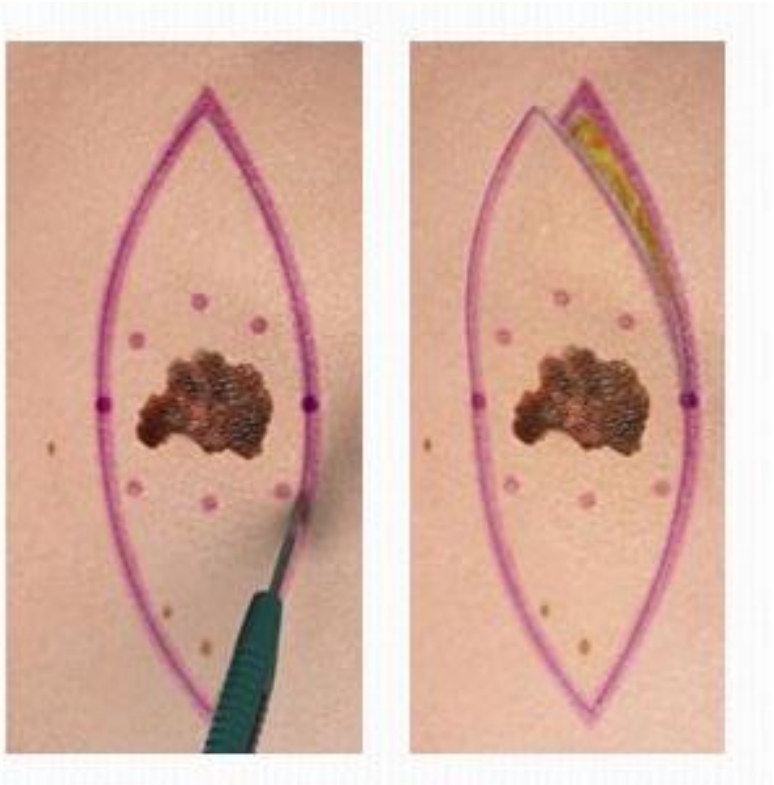
Disclosure

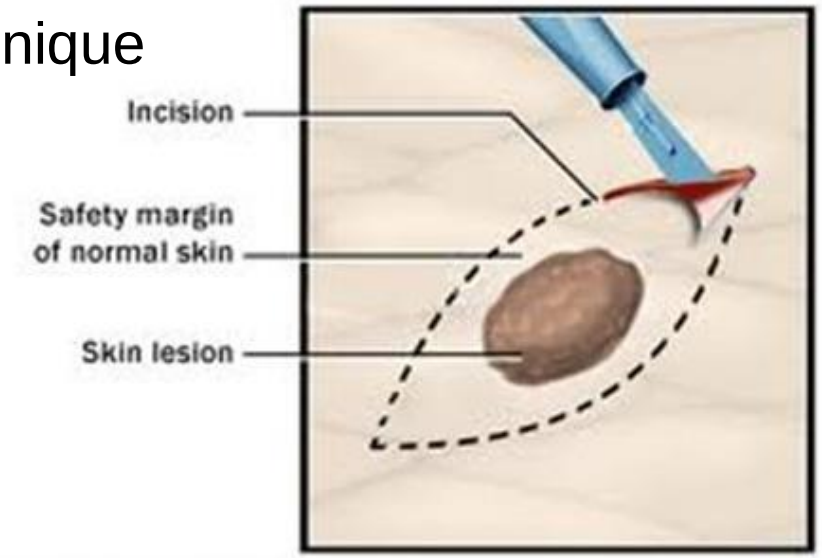
- Nothing to disclose

EXCISIONAL BIOPSY

WHAT IS AN EXCISIONAL BIOPSY?

- A biopsy technique used to “remove an entire lesion in a manner that obtains a full-thickness specimen of skin”
- One method to perform excisional biopsy is the elliptical excision technique





Pfenninger & Fowler p. 224 (2013)

EXCISIONAL VS INCISIONAL BIOPSY

- An excisional biopsy differs from an incisional biopsy in that the entire mass is removed
- With an incisional biopsy only a piece or a part of the mass is removed

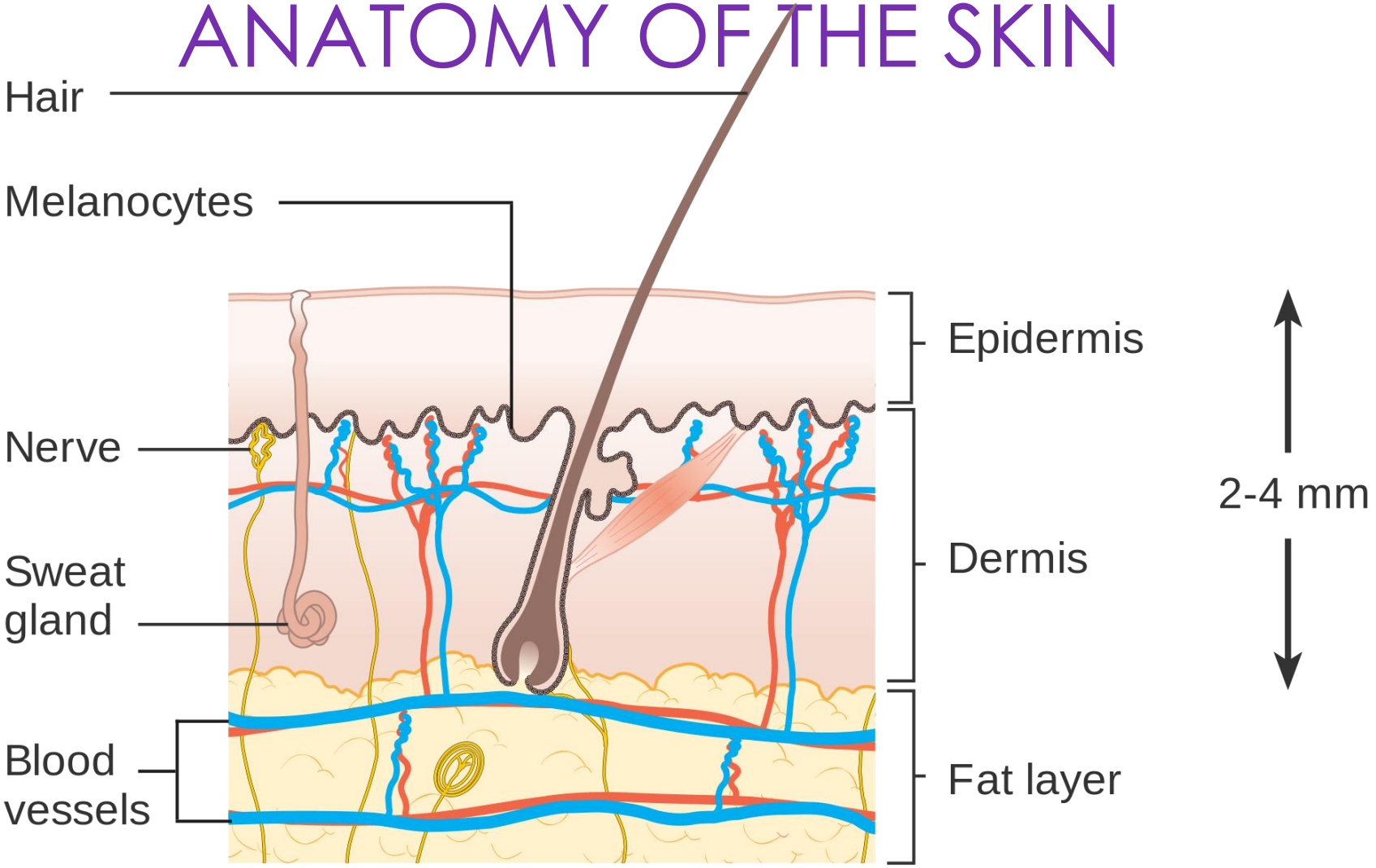
Medicine.net (2012)

WHAT TYPES OF LESIONS MIGHT BE EXCISED?

- Deep tissue that needs diagnostic testing
- Deep tissue that needs to be cultured
- Lesions that require removal for cosmetic or curative reasons
- Tissue that is suspicious for melanoma

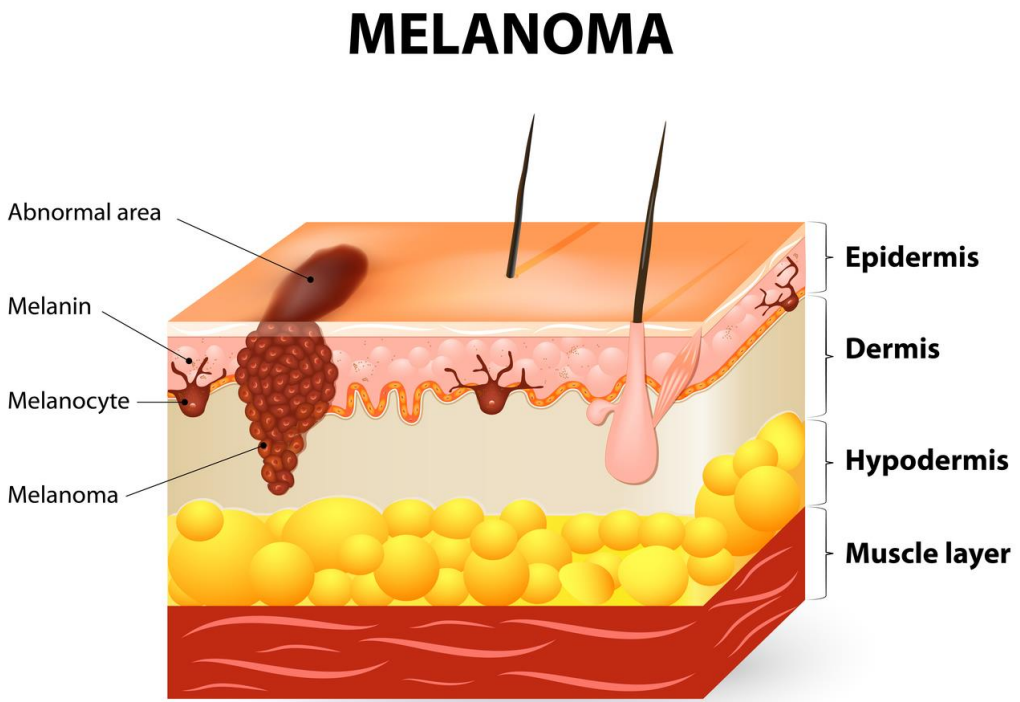
Tuggy and Garcia (2011)

ANATOMY OF THE SKIN



THE IMPORTANCE OF MARGINS

- A melanoma-in-situ should have at least 0.5 cm margin removal around it.
- A thicker melanoma may need 3 cm margin removal around it.
- It is not unusual for malignant lesions to need a second removal of surrounding skin.



Zuber (2003)

COMPLICATIONS

- Pain
- Infection
- Bleeding
- Scarring (hypertophic/keloid)
- Seroma
- Damage to nerves and/or arteries
- Dehiscence
- Inability to remove entire lesion
- Improper diagnosis
- Allergies to materials/medications

Tuggy & Garcia (2011)
Zuber (2003)

SUPPLIES FOR EXCISION

- Clean gloves
- Sterile gloves
- Antiseptic agent and local anesthetic (lidocaine 0.5-2% with or without epinephrine)
- Syringe with 18g needle and 25, 27, or 30g needle
- Formalin container
- Scalpel and surgical marking pen (have several scalpels on hand)
- Forceps
- Tissue Scissors
- Sterile gauze
- Hemostatic agent
- Sutures and suture supplies
- Dressing supplies

Tuggy & Garcia (2011)
Zuber (2003)

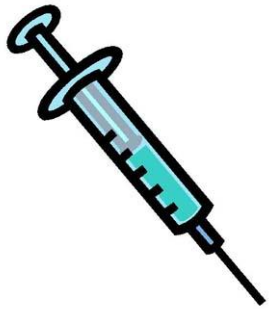
CONTRAINDICATIONS

- Significant coagulopathies
- Allergy to any medication or material being used

Tuggy & Garcia (2011)

LOCAL ANESTHESIA

- The local anesthetic is injected into the subcutaneous layer.
- The anesthetic can also be injected into the dermis but this is more painful than injecting into the subcutaneous layer.
- The infiltration of the anesthetic blocks pain transmission from the free nerve endings that are in the epidermal and dermal layers.

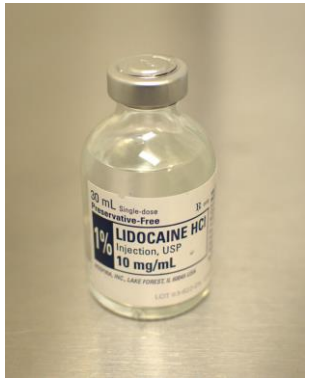


Hsu (2016)

LOCAL ANESTHESIA

- Local anesthetics block sodium channels that are in the nerve fibers. This in turn disrupts depolarization of the nerves, preventing transmission of pain signals.
- Pain fibers are not as myelinated as afferent fibers which transmit touch and temperature, and this is why the person can still feel pressure but not pain. They also do not experience paralysis as a result.

ANESTHESIA



Most common anesthetic is lidocaine

- Concentration: 0.5-2%*
- Onset: fast
- Duration: 30-120 min or .5 to 2 hrs (plain) and 60-400 min or 1-5 hrs (w/ epi)
- Lidocaine toxicity is determined by the total dose (usually 4.5 mg/kg) in addition to the rate of absorption, which is dependent on the blood flow of the tissue.
- Epinephrine can be used to reduce rate of absorption, effectively increasing the toxic dose up to 7 mg/kg.

*Evidence demonstrates that concentrations higher than 1% do not improve onset or duration and may increase the risk of toxicity.

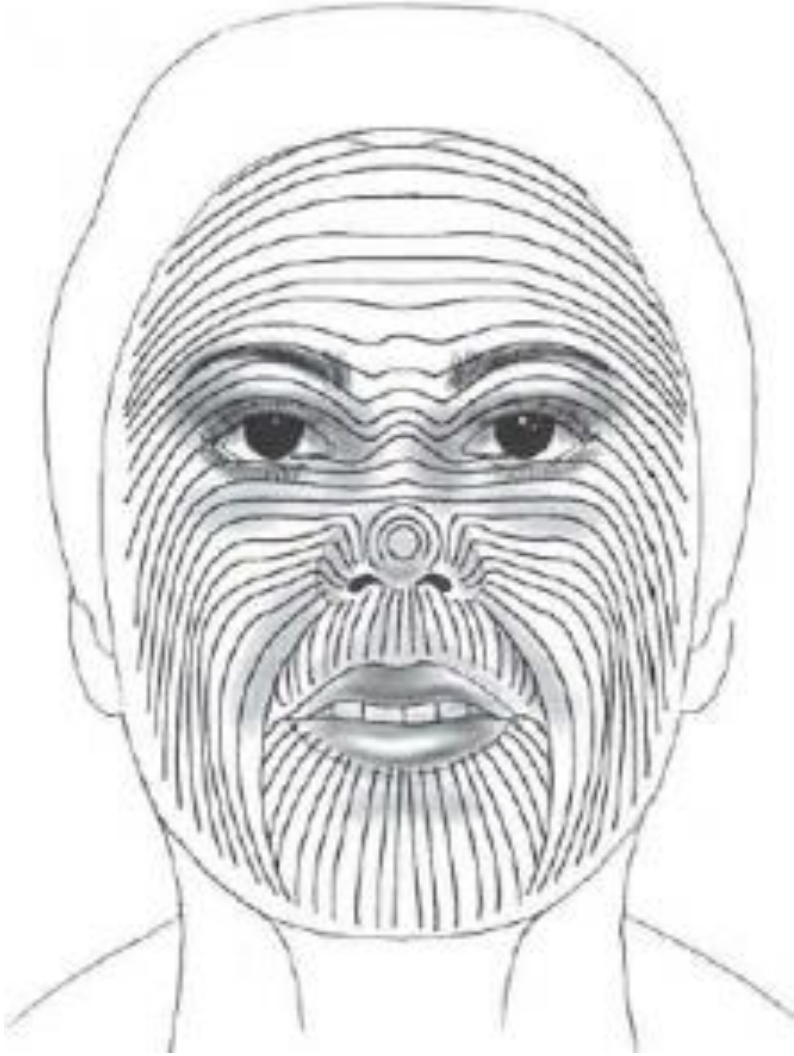
Hsu (2016)

WHEN TO AVOID EPINEPHRINE

- Large wounds in those with conditions that can be exacerbated by the effects of epinephrine
- Digital anesthesia (especially in those with compromised circulation)
- Periorbital areas in those individuals with narrow angle glaucoma
- Individuals with catecholamine sensitivity
- Individuals taking lurasidone (can cause hypotension).
- Individuals taking ergot alkaloids (can lead to hypertension; vasoconstriction)

LANGER'S LINES

- Langer's lines are skin tension lines
- These can be revealed by compressing the skin.
- For elliptical excisions, the incisions can be made parallel to these lines. Incisions performed this way will close more easily and provide a better cosmetic result.



Aguirre and Mathes (2015)

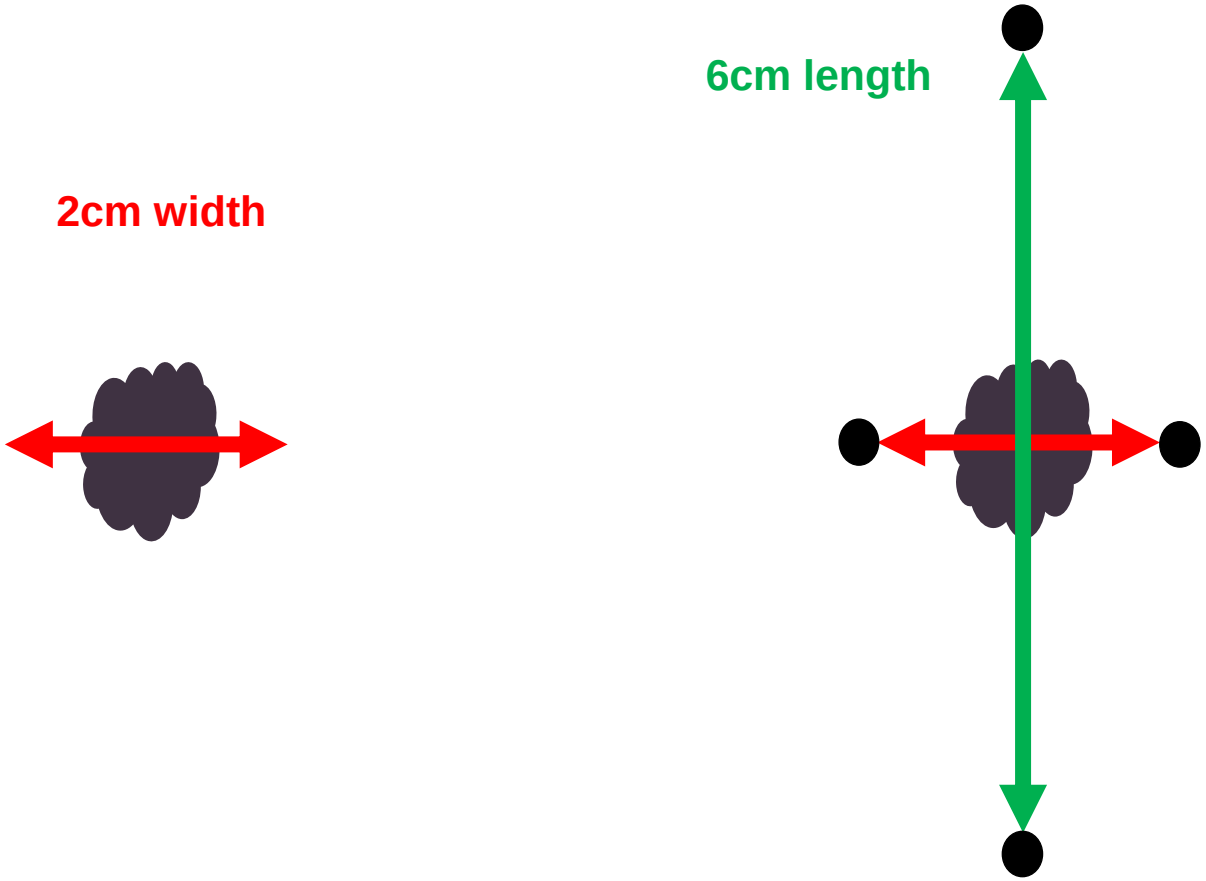
ELLIPTICAL EXCISION METHOD

3:1 L:W RATIO FOR ELLIPTICAL EXCISIONS

Measure width, including adequate margin for excision of lesion (W)

Multiply (W) by 3 to obtain total length, using lesion as the midpoint

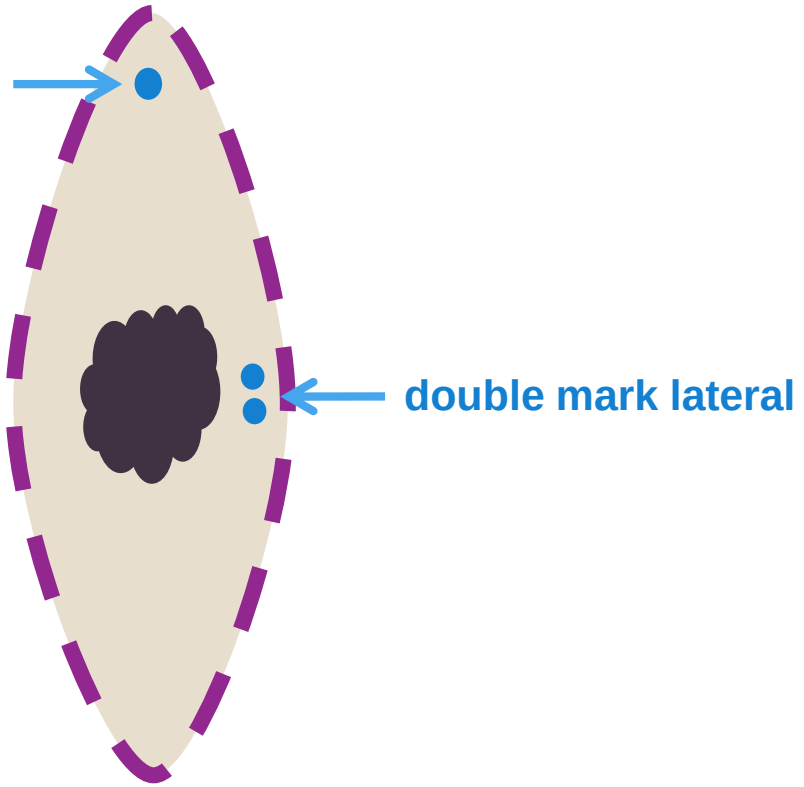
Draw line, connecting 4 points to form ellipse



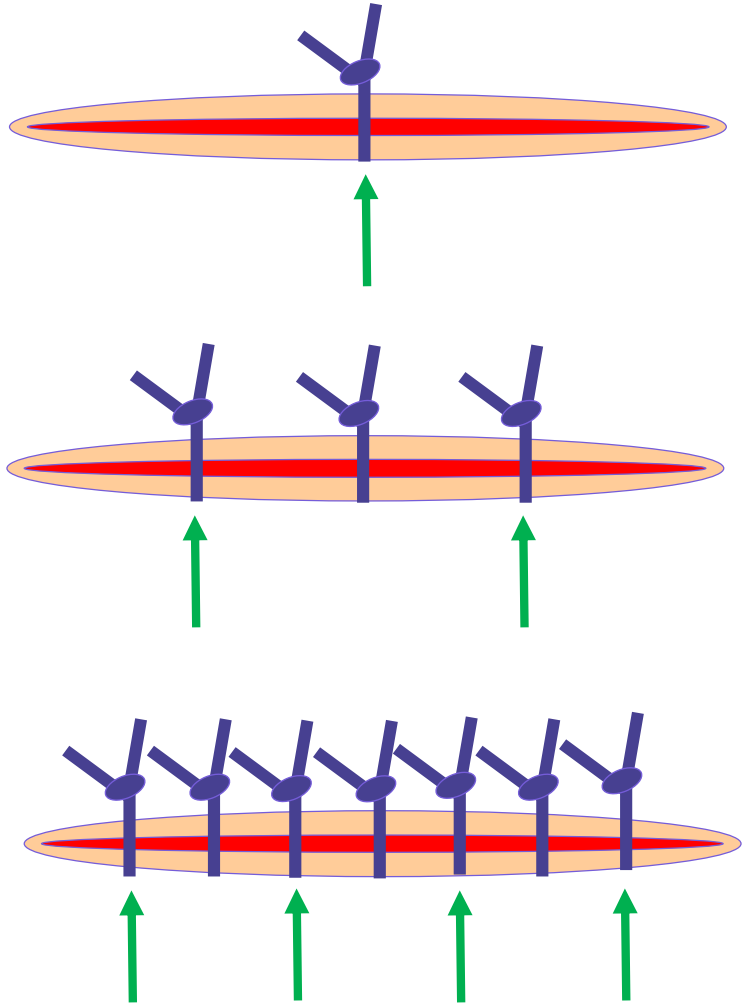
Skin Cancer Surgery (2011)

SPECIMEN MARKING

- May use surgical marker or suture to mark specimen.
- Ensure two directions are marked, so that if malignant etiology returns on pathology report and the margins are not clear, it will be easy to determine which side of the site requires re-excision.
    - If using suture, place a simple interrupted and cut one marked area with a short tail and the other with a notably longer tail (example: short stitch superior, long stitch lateral)
    - Ensure this information is on the pathology report!

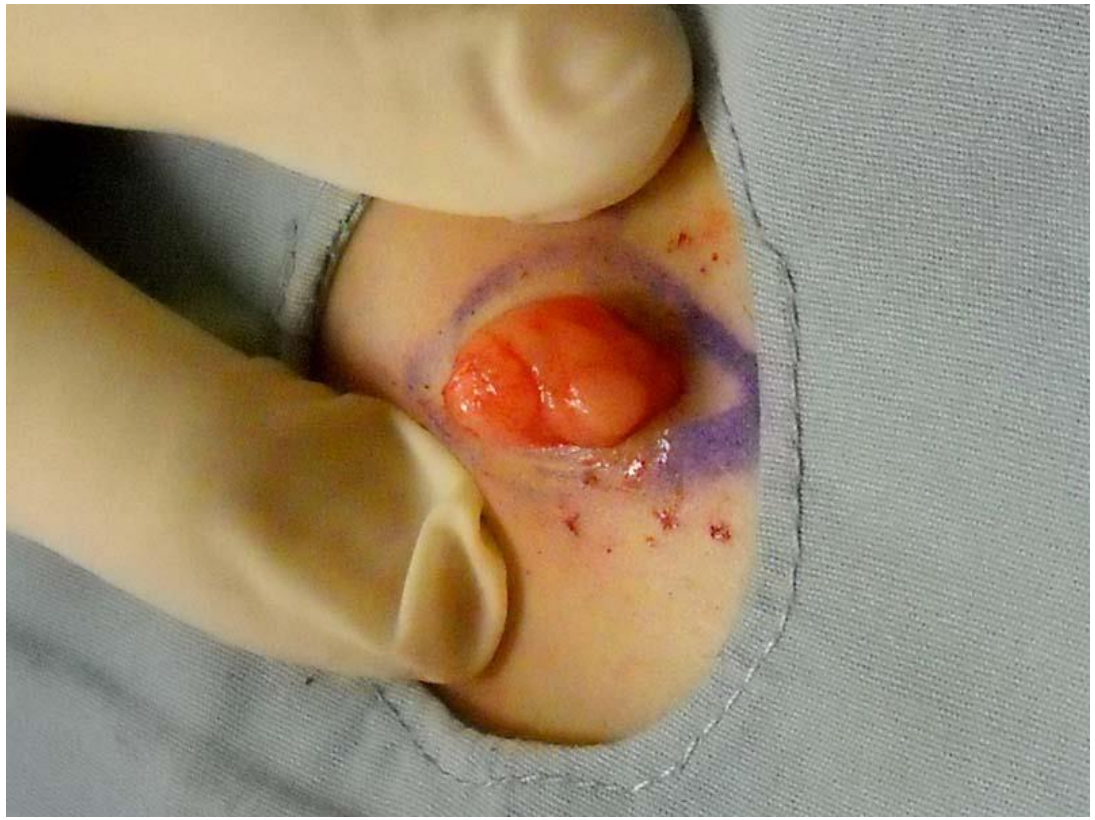


WELL ALIGNED CLOSURE

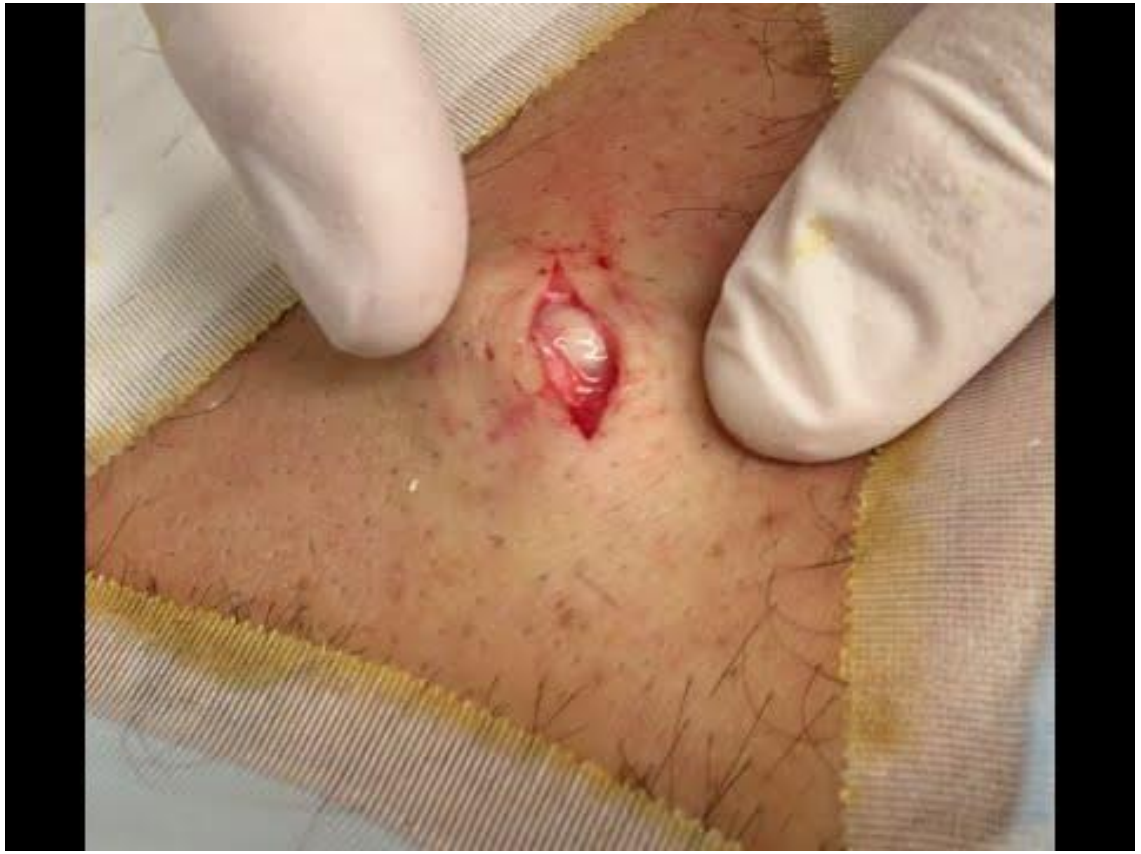


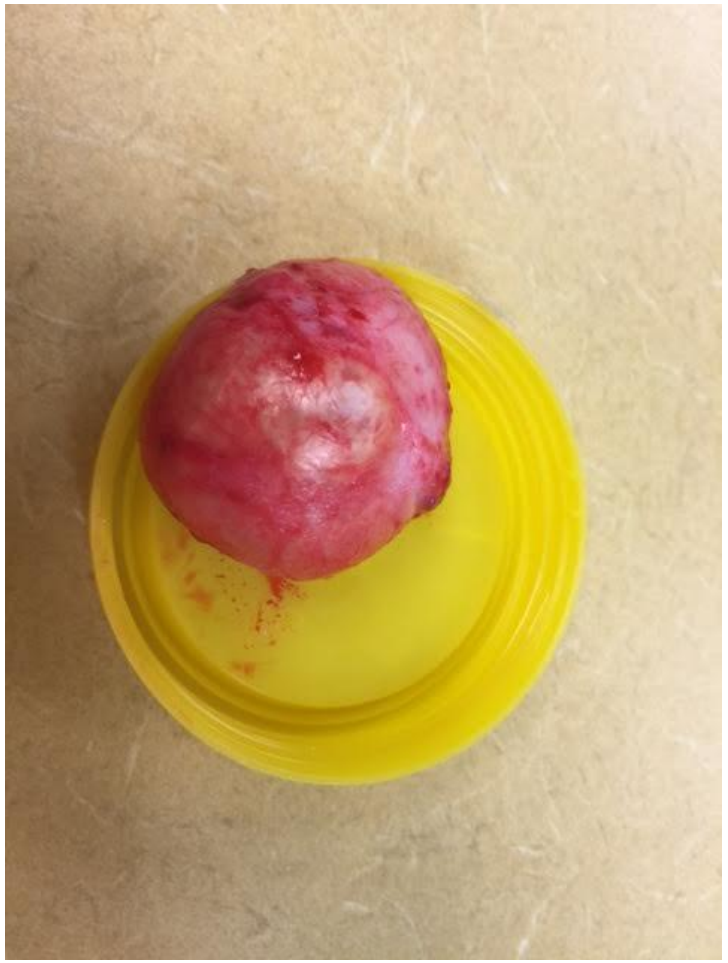
- When utilizing an interrupted suture technique, start in the center of the wound
- Bisect each portion of the wound after the initial suture is placed in the center
- Simple interrupted sutures are typically about 0.5 cm apart, 0.5 cm deep, and 0.5 cm back from wound edge (0.25 cm on face)

LIPOMA REMOVAL



EPIDERMOID CYST REMOVAL





Wells, M. (2017)

POSTPROCEDURE EDUCATION

- Cover wound with moist dressing for 24-48 hours
- Teach patient signs of infection and when to seek care
- Return for suture removal
- Schedule patient follow up for pathology results

Tuggy & Garcia (2011)

CODING/BILLING

- Benign lesions are coded differently than malignant lesions, so it may be necessary to wait for pathology report to submit claim.
- Benign lesions excisions:
  - CPT is 11400-11446 (depending on location and size)
- Malignant lesions excisions:
  - CPT is 11600-11646 (depending on location and size)

Kirkic (2009)

Demo & Practice: Elliptical Excision

Using non-live models, practice local anesthesia, the 3:1 method of elliptical excision, appropriate tissue handling, correct suture placement, and ergonomic use of instrumentation.

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