

Look before you cut: Skin and Soft Tissue Ultrasound

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Objectives

- Describe the scanning technique for skin and soft tissue infections
- Understand the 'normal' appearance of abscesses on ultrasound
- Identify structures on ultrasound that may mimic an abscess
- Describe techniques to help differentiate an abscess from other mimics
- Want to start scanning your skin and soft tissue infections

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Scanning

- Linear, high frequency probe
 - May need a lower frequency probe for deeper structures
- Cover the probe
- Hold the probe correctly
- Use a lot of gel
- Water baths or stand-off pads may be helpful

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Scanning

- Always scan in two planes starting away from the area of interest on normal tissue
- Scan slowly all of the way through until normal tissue again
- Use the 'normal' contralateral side for comparison
- Use color flow to help distinguish from vessels
- Adjust the gain, frequency, and focal zone as needed

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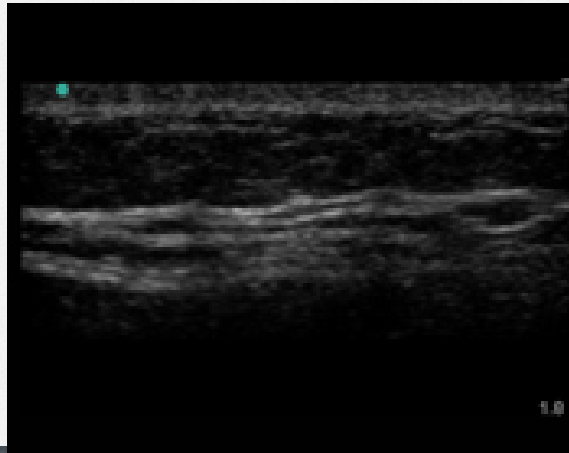
Normal Anatomy

- Dermis and Epidermis
- Hypodermis/Subcutaneous layer – fat
- Fascia
- Muscle

- Other structures: vessels, tendons/ligaments, nerves

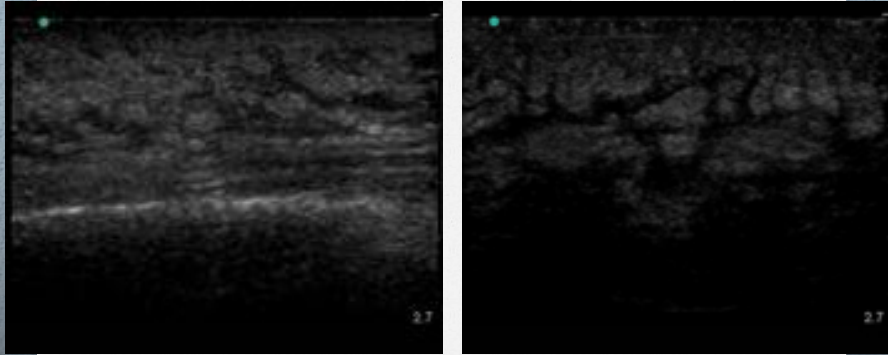
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Normal Tissue



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Cellulitis



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Cellulitis

- o vs CHF or DVT or lymphedema or renal failure or venous stasis
- o Color Doppler may show hyperemia in cellulitis

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Abscess

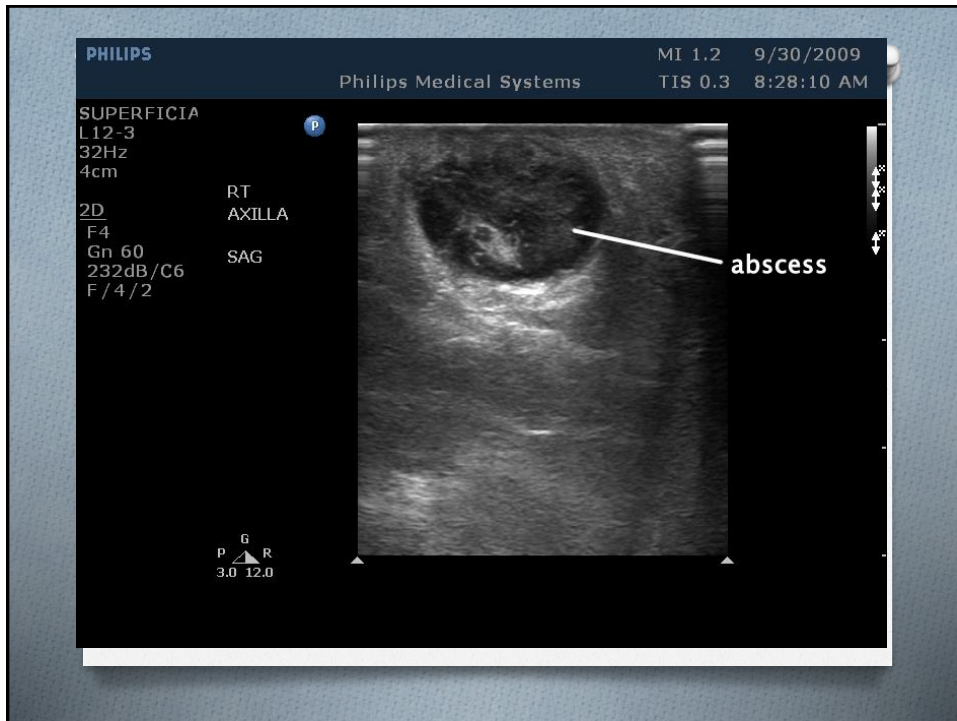
- Normal appearance...
- Somewhat spherical
- Irregular or lobulated borders that may be well demarcated or blend in with the surrounding tissue
- Anechoic to hyperechoic
- May have septations, sediment/debris within the cavity

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Abscesses

- Use color flow to help differentiate from vascular structures
- Swirling (PUSstalsis)
- Posterior enhancement

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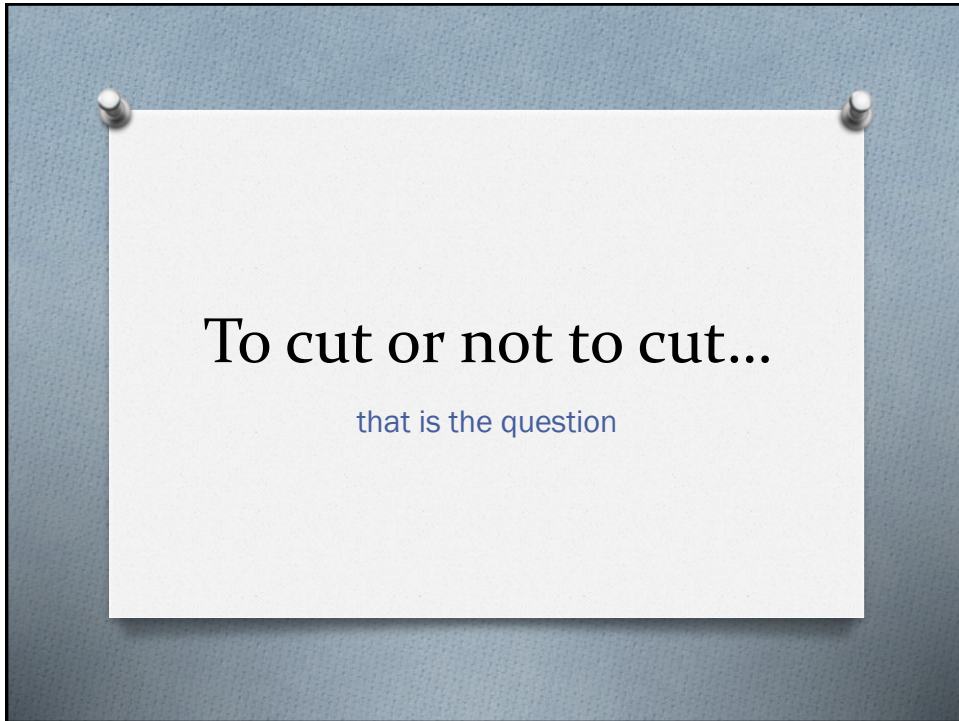


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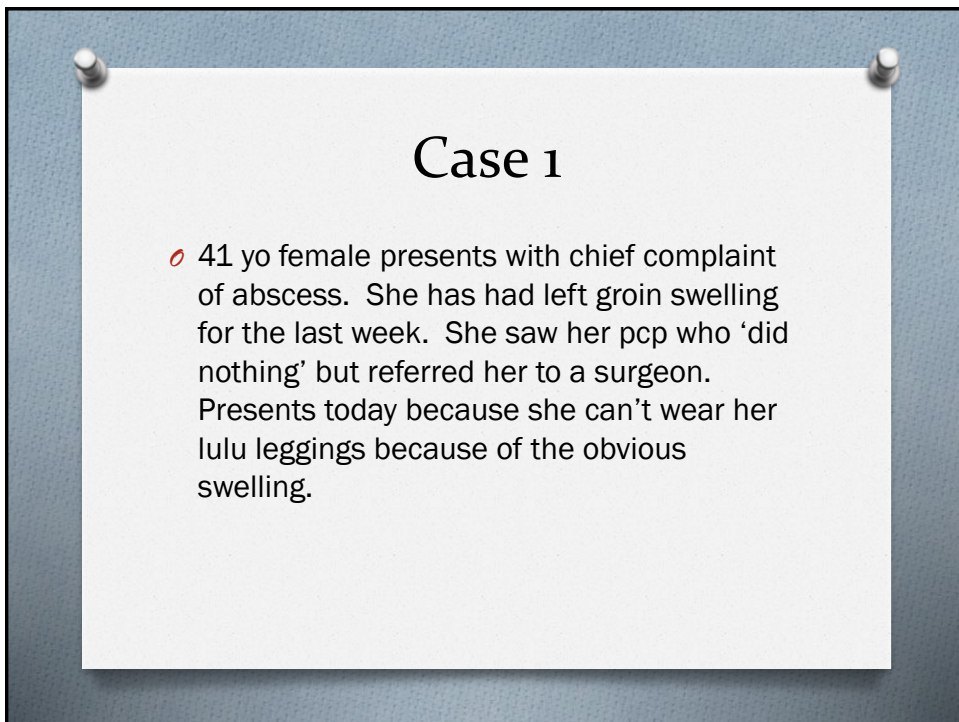
When and Why to scan

- Uncertain clinical exam
- Changes management in up to 50% of cases
- Pediatrics – may avoid an unnecessary sedation
- Good to practice on ones you're certain of to get an idea of what abscess can look like
- High risk areas – inguinal region, abdomen, neck
- To guide needle aspiration
- Better than CT too
- Decreased LOS compared to radiology scanning

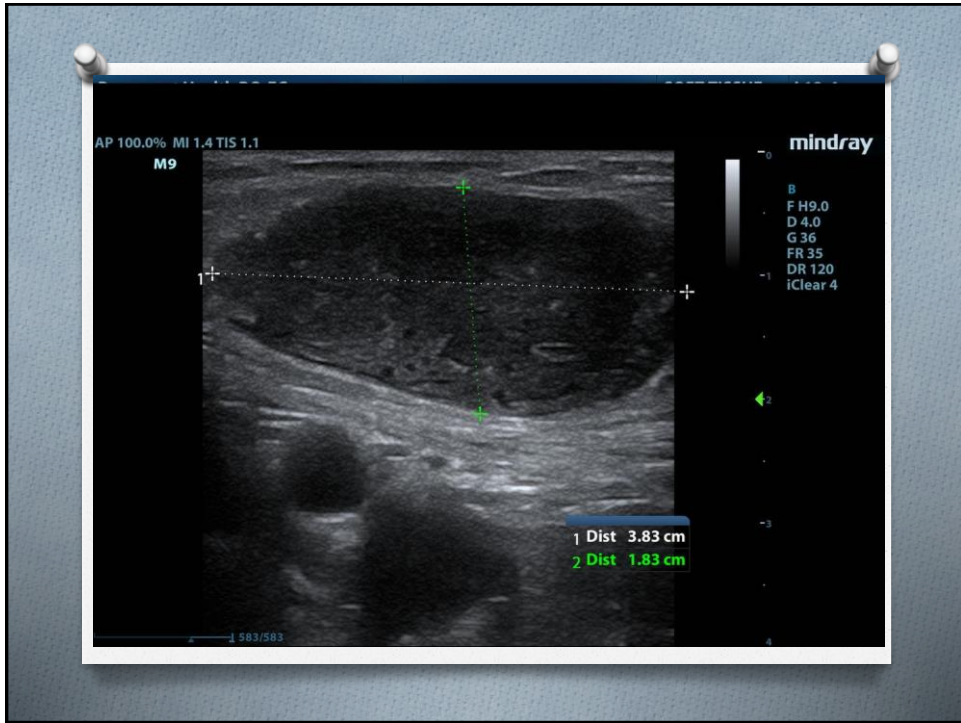
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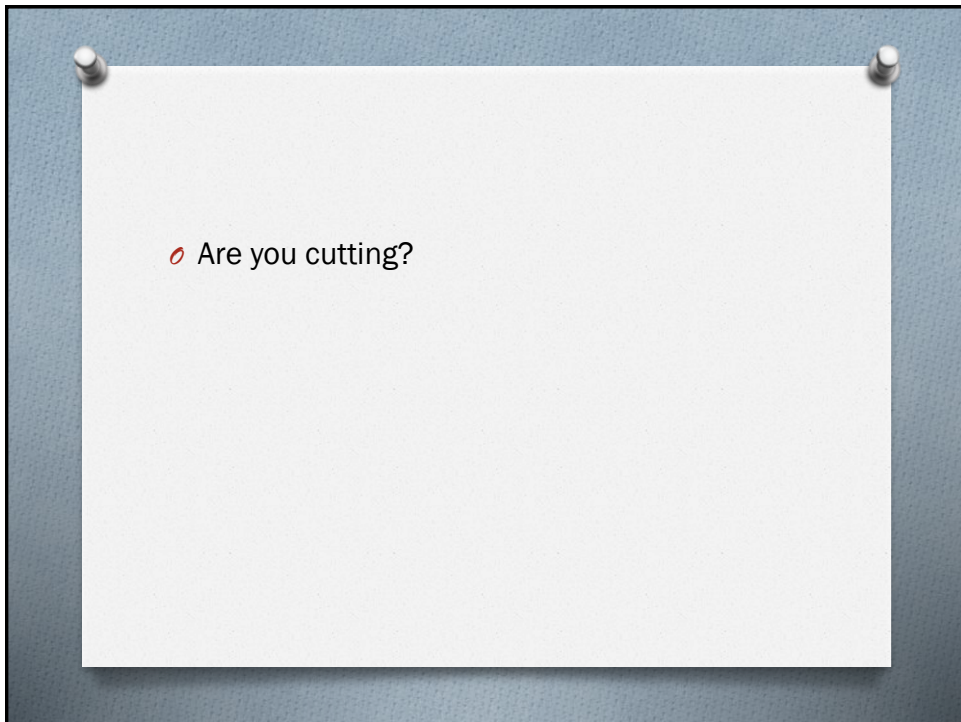
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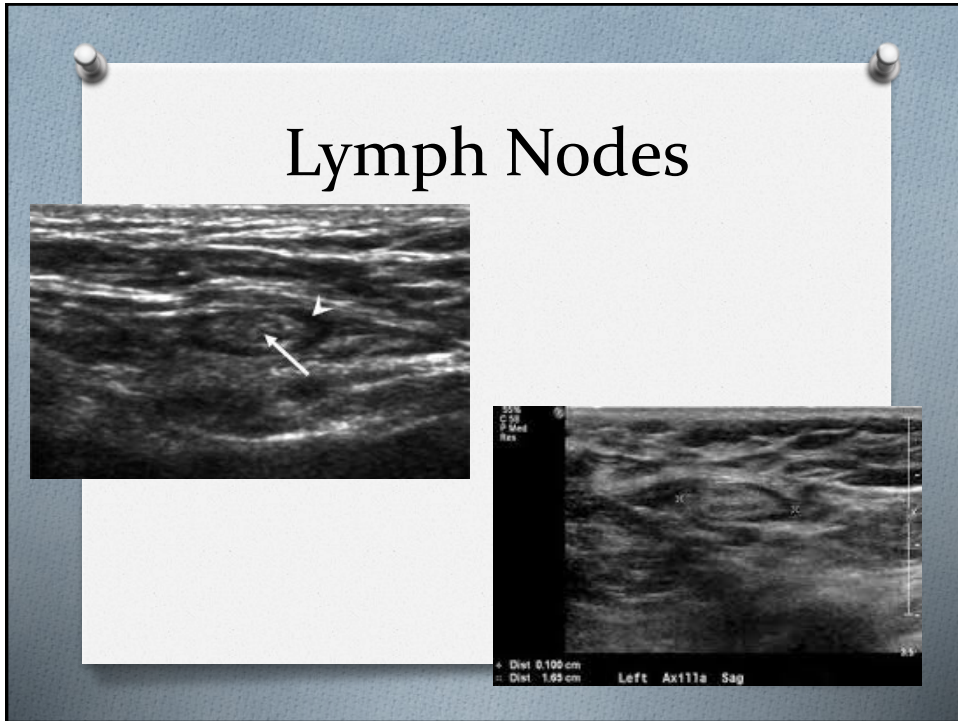
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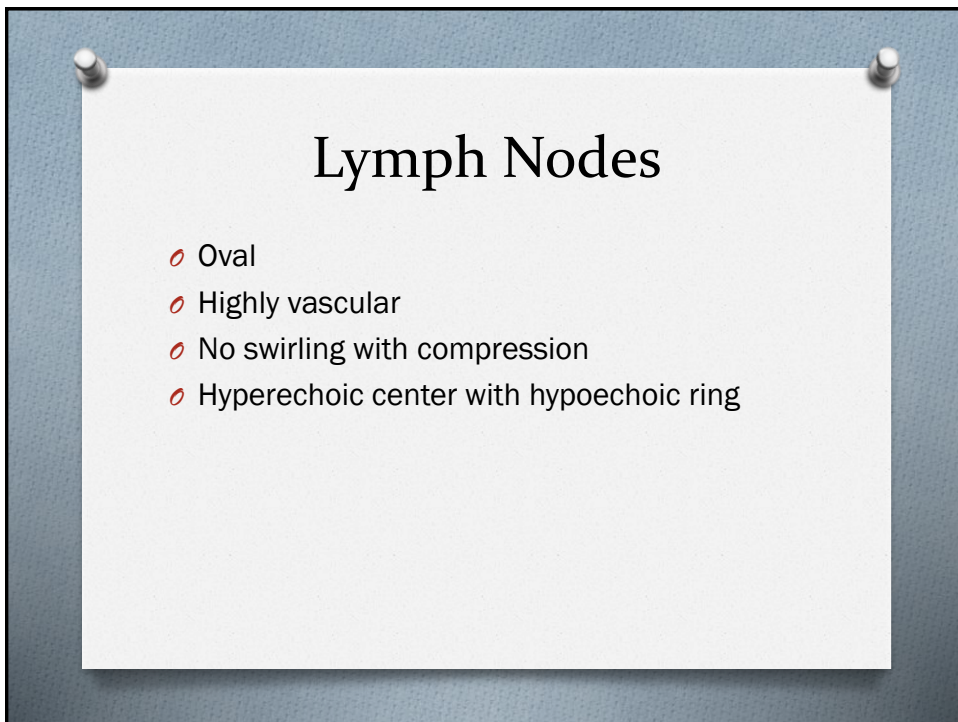
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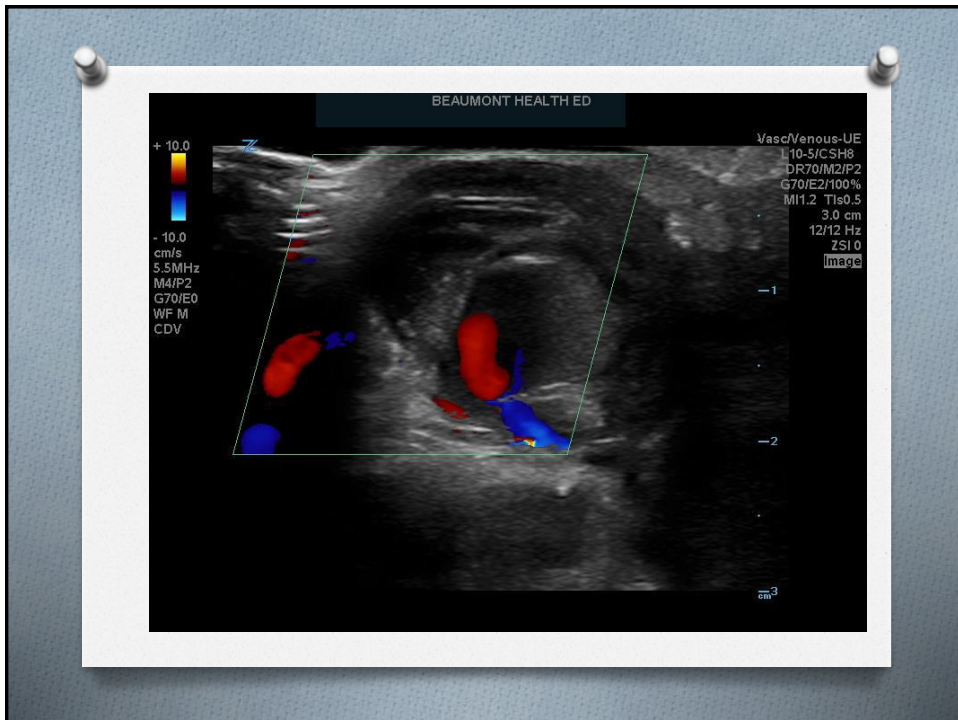


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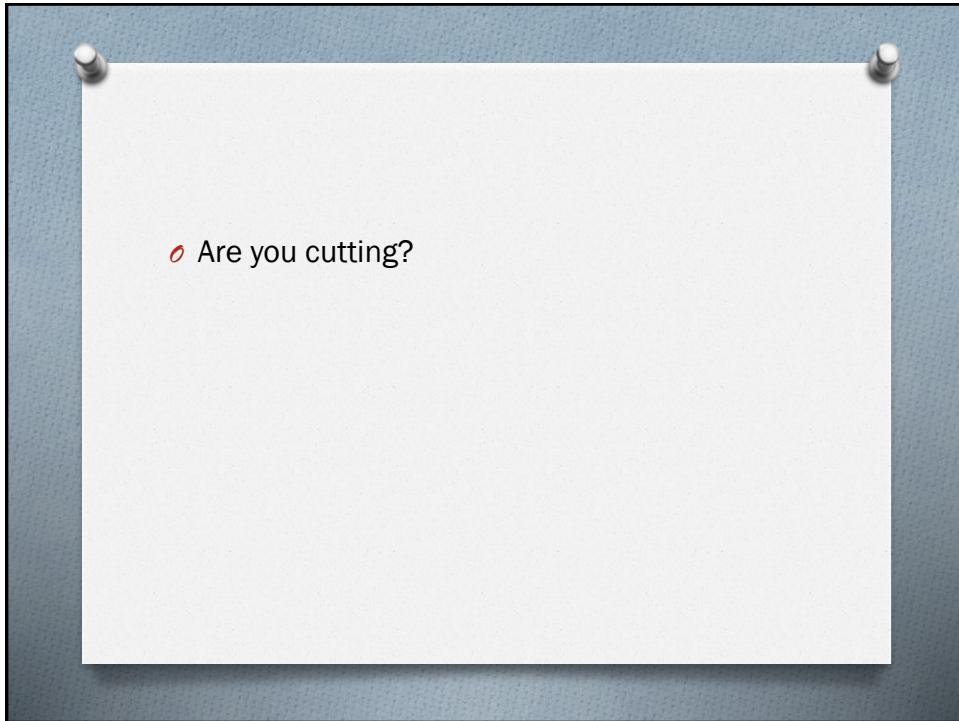
Case 2

- 26 yo male comes in with chief complaint of wound infection. He had a laceration to his hand repaired 4 weeks prior at an outside emergency department. He removed the stitches himself. Now complains of swelling and drainage at the site.

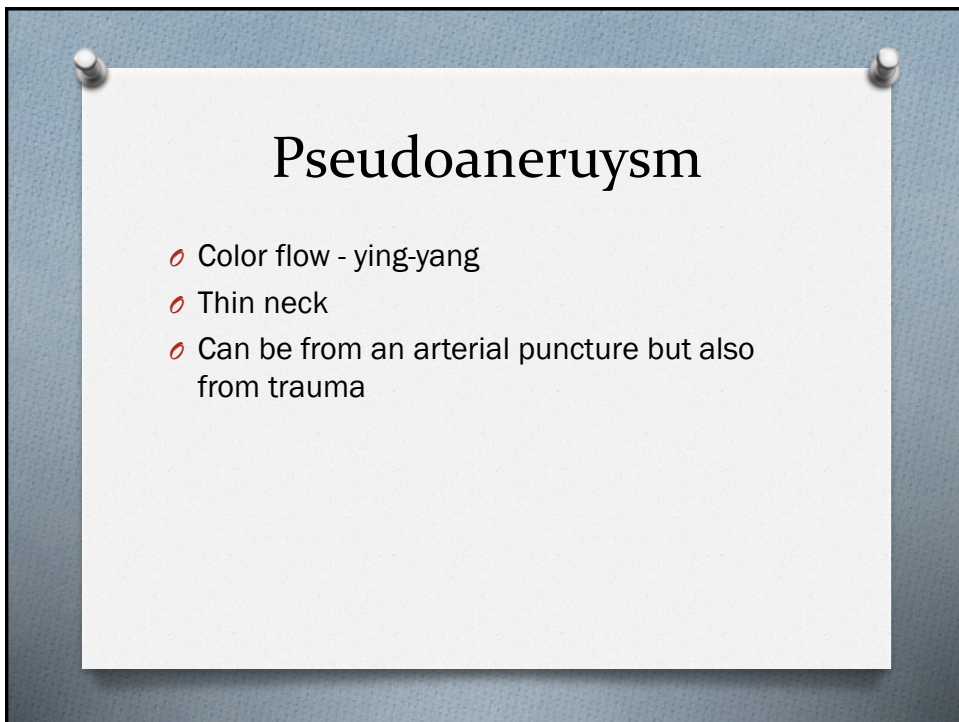
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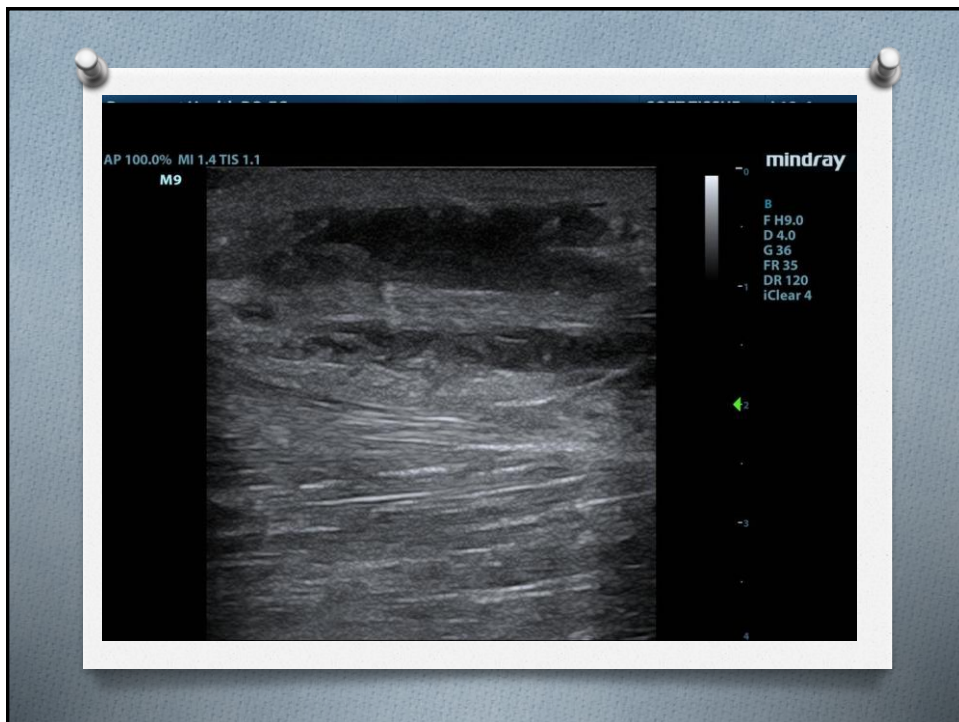


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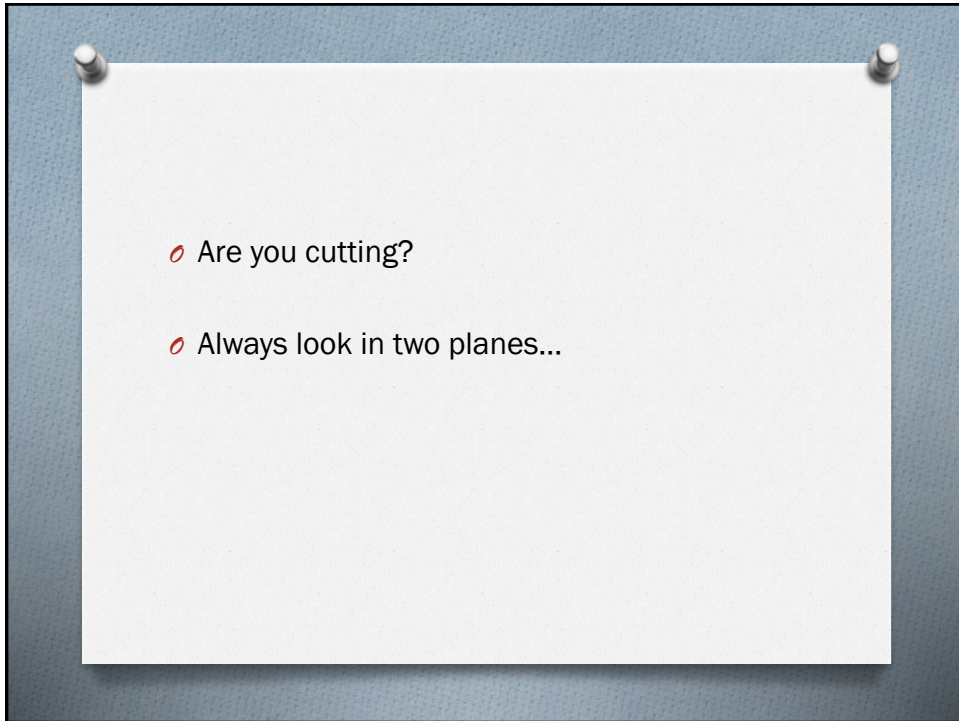
Case 3

- 32 yo male presents with chief complaint of arm infection. He has a history of IVDU but has been on suboxone for the last three months.
- Physical exam shows a large swelling in his antecubital fossa that is erythematous and tender.

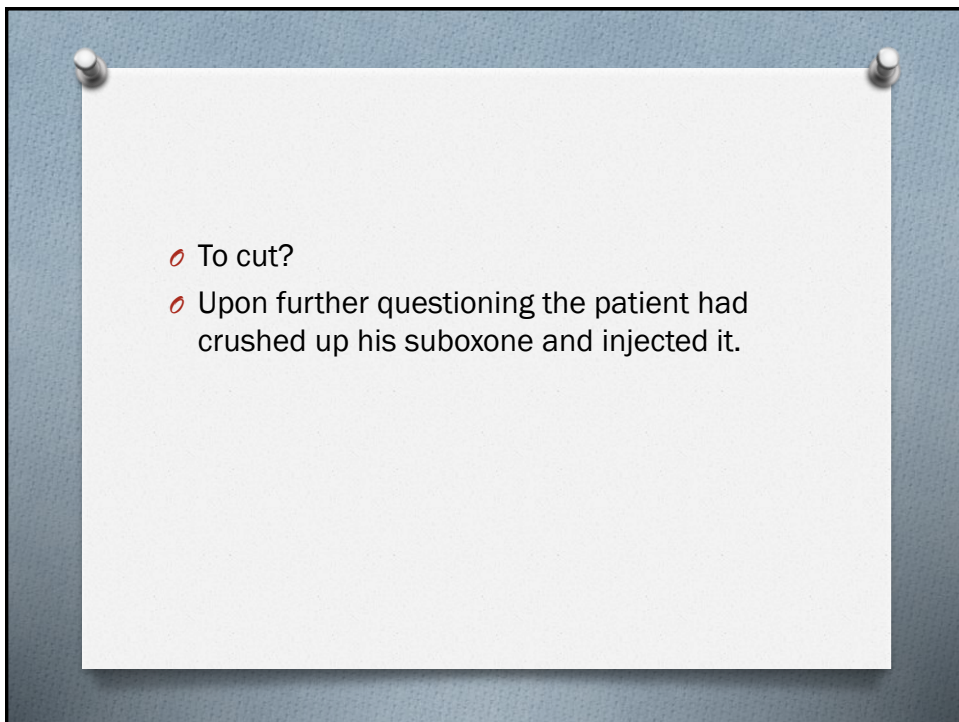
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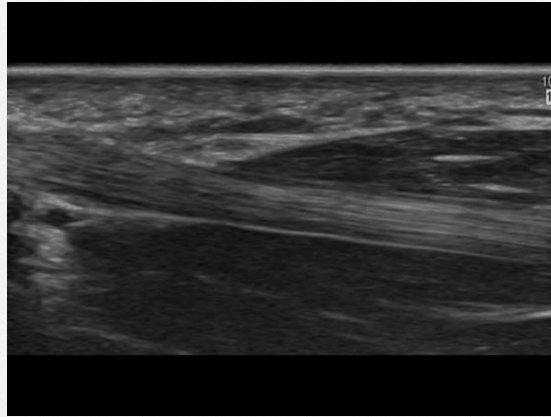


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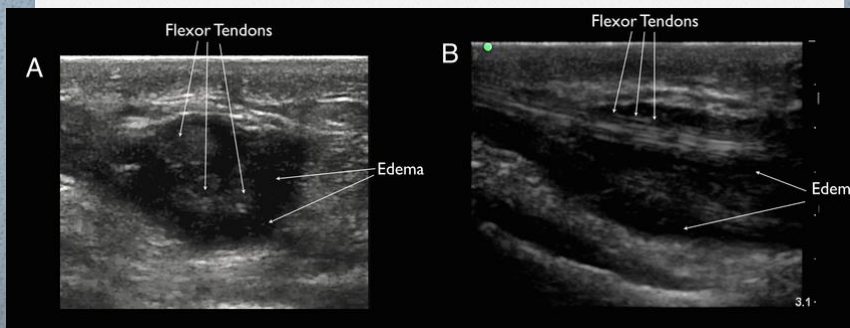


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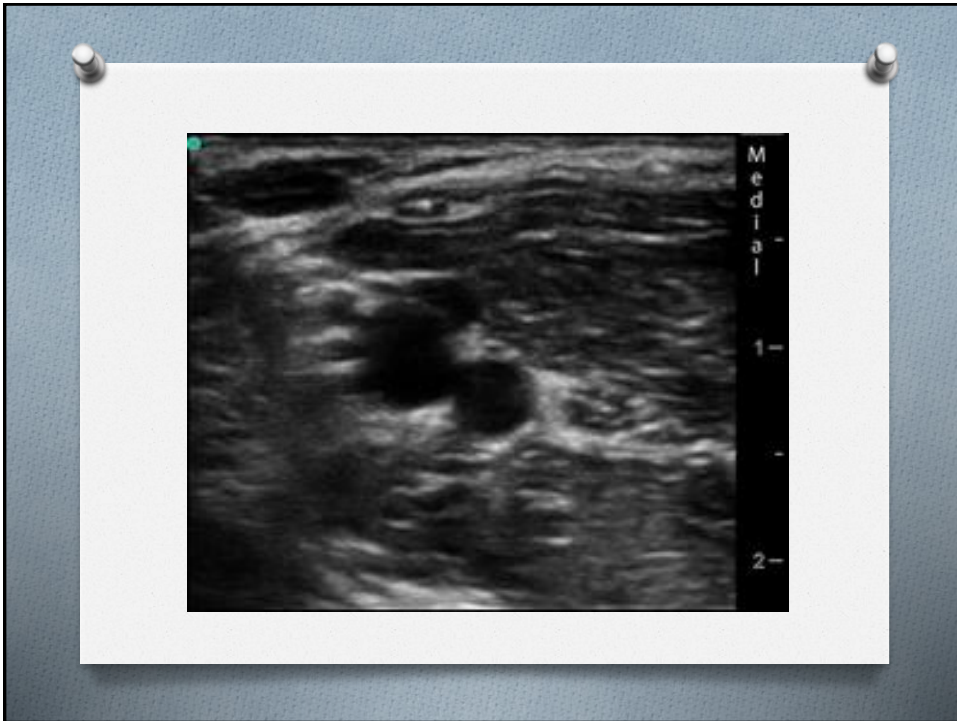
Other structure to look for



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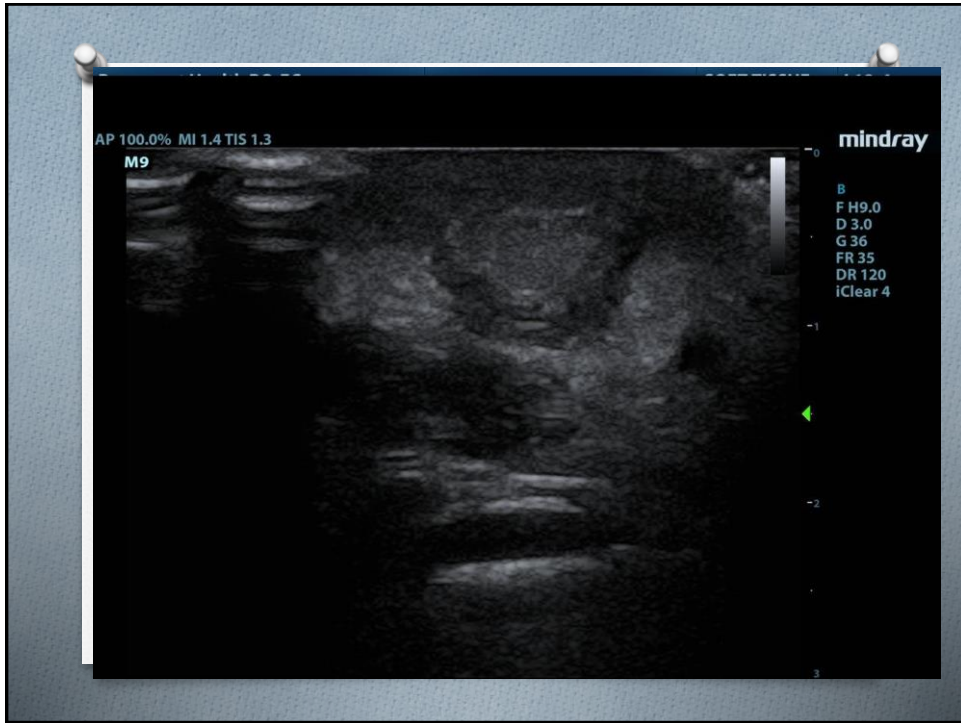


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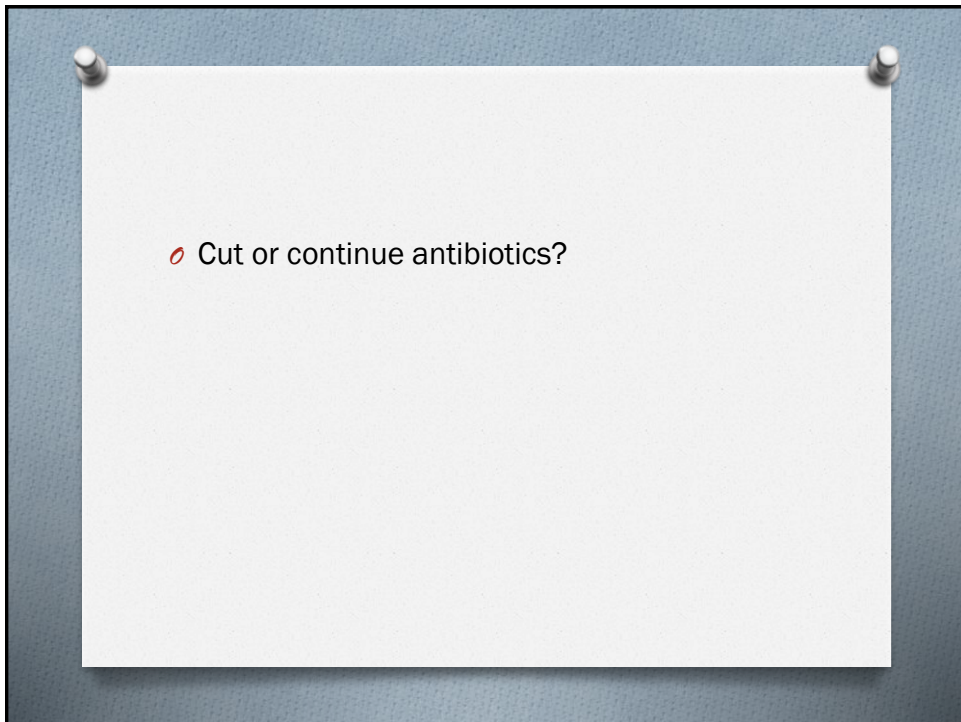
Case 4

- 46 yo male presents for hand infection. Was seen the day before in your emergency department and placed on oral antibiotics for cellulitis. No ultrasound performed the day before.
- Physical exam shows an area of induration over the first metacarpal without definite fluctuance.

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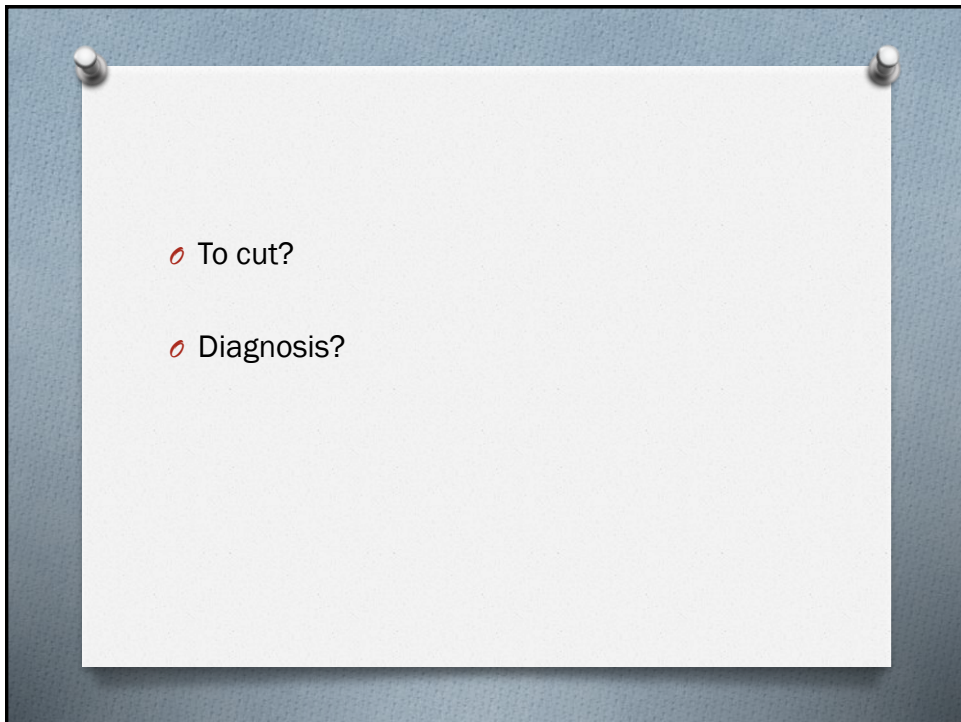
Case 5

- o 37 yo obese male with no significant pmh comes in with complaint of gluteal infection.
- o Hey you want to tell me how big this abscess is?
- o Physical exam shows an erythematous, indurated area from the left buttock to posterior thigh to scrotum but not affecting the scrotum.
- o Patient falling asleep during exam.

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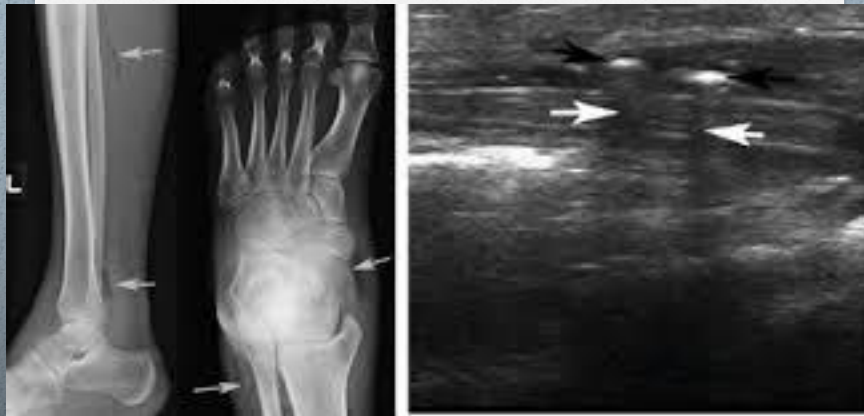
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Necrotizing Fasciitis

- Air in soft tissue
- Marked thickening of the subcutaneous tissue
- Distorted and thickened fascial layer
- Perifascial fluid over 4mm
- Involves deeper layers than cellulitis

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Necrotizing Fasciitis

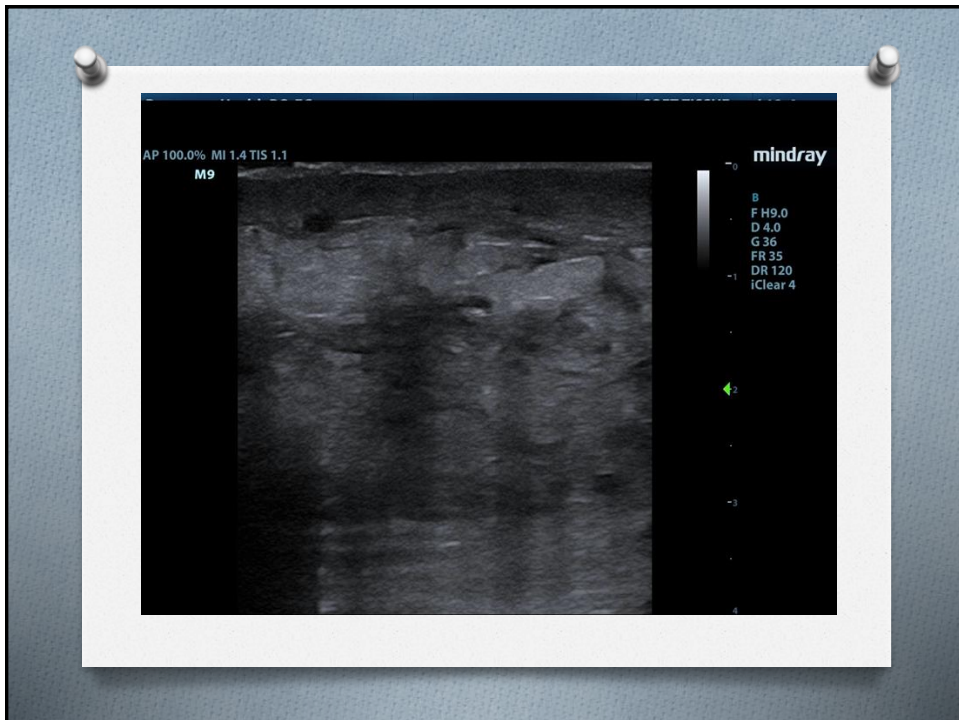


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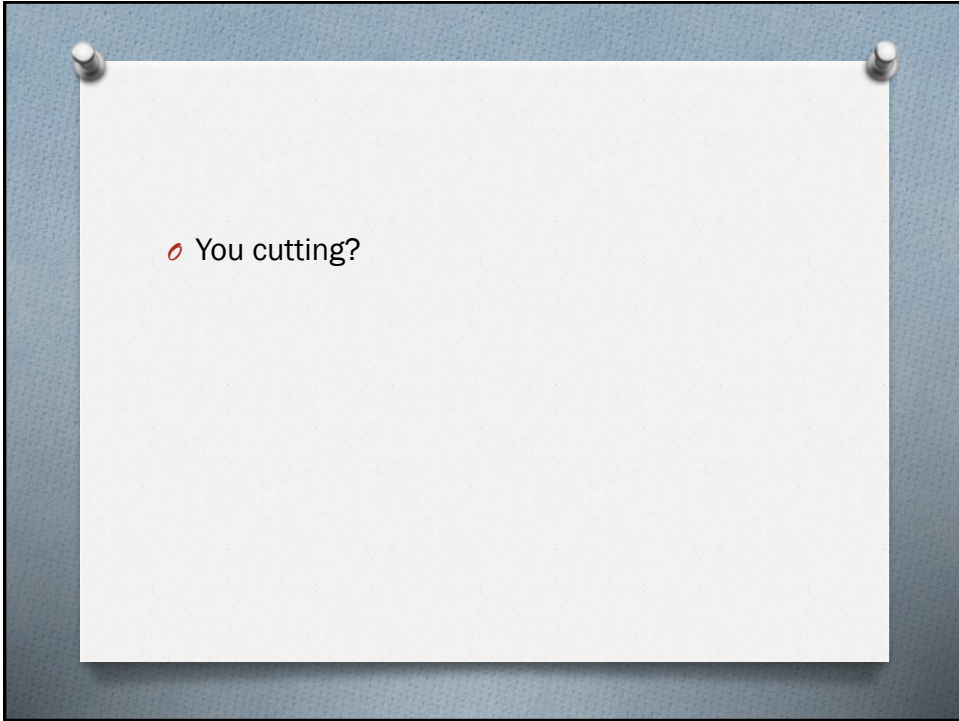
Case 6

- 73 yo female with a history of severe dementia, sent in from her nursing home for fever and breast abscess.
- Resident brings you the following image.

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Breast Abscesses

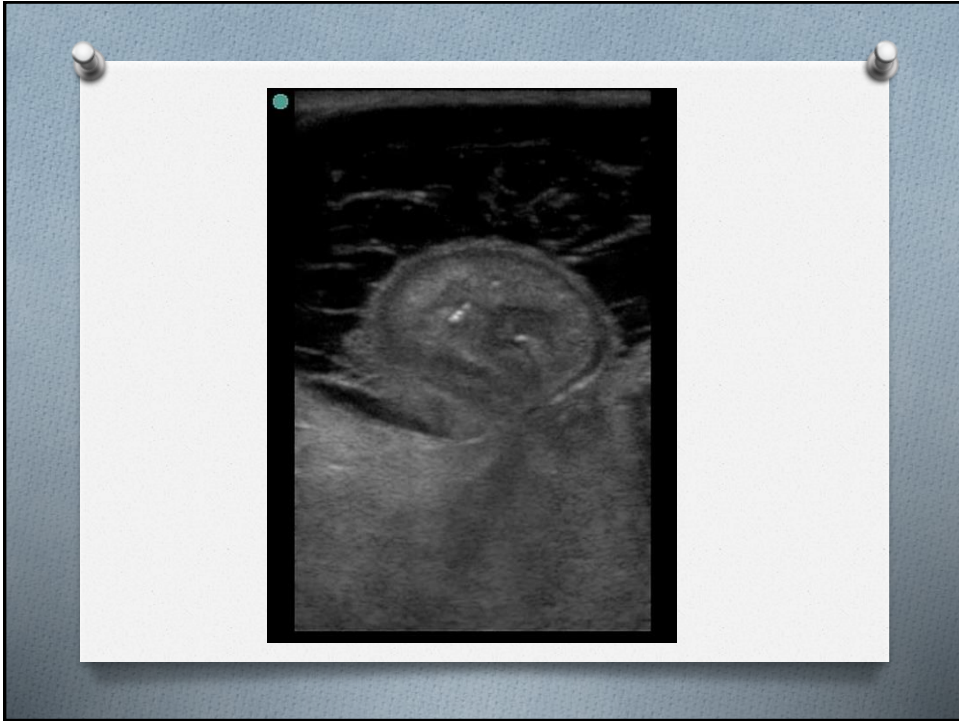
- Studies shows breast abscess less than 3-5 cm do well with ultrasound guided needle aspiration and washout vs incision and drainage.

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Case 7

- 62 yo male presents with groin pain and palpable mass 3 days after a cardiac cath.

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Vs hematoma

- Hard to distinguish vs abscess

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When and Why to scan

- Uncertain clinical exam
- Changes management in up to 50% of cases
- Pediatrics – may avoid an unnecessary sedation
- Good to practice on ones you're certain of to get an idea of what abscess can look like
- High risk areas – inguinal region, abdomen, neck
- To guide needle aspiration
- Better than CT too
- Decreased LOS compared to radiology scanning

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References

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