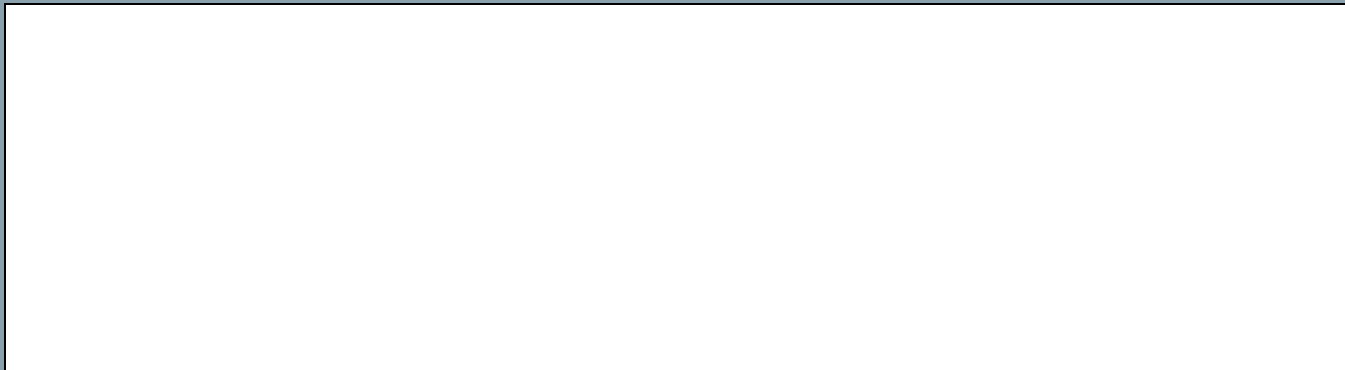


# On call joint aspirations



# GOAL

- Supervision of resident during call
- Residents will have training in aspiration of the hip, knee and shoulder
- Staff need to be aware of how to safely acquire an adequate sample
  - needle placement
  - Aspiration techniques
  - Documentation of intraarticular position
  - How to send samples
- My personal goal is to train the residents to do the procedure and to make sure staff understand what the resident should be doing. The idea of training each staff person seems a bit over the top and probably not practical.

# Technique

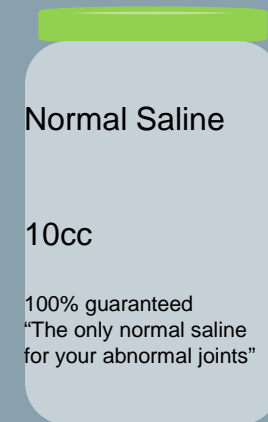
- Fluid for Microbiology
  - Send in universal culture medium (white top tube)
  - Culture, sensitivity and gram stain
  - May use saline NOT WATER to irrigate joint if necessary to obtain a sample
- Fluid for Cell count
  - Send in small purple top container
  - Must be direct aspirate not saline irrigation



OK not a great picture – it is a tube with a white top in a plastic bag .

# Technique

- Fluid for Microbiology
  - Send in universal culture medium (white top tube)
  - Culture, sensitivity and gram stain
  - May use saline NOT WATER to irrigate joint if necessary to obtain a sample
  - It comes in a little bottle like this with a green top
- Fluid for Cell count
  - Send in small purple top container
  - Must be direct aspirate not saline irrigation



# Technique

- Fluid for Microbiology
  - Send in universal culture medium (white top tube)
  - Culture, sensitivity and gram stain
  - May use saline NOT WATER to irrigate joint if necessary to obtain a sample
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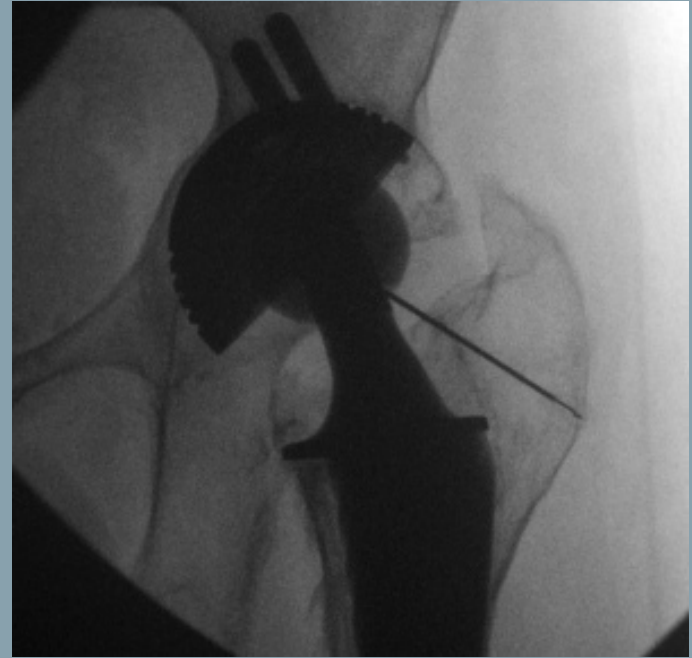


# TECHNIQUE

- 18 or 20 gauge needle after sterile prep and local anesthesia
- If no spontaneous aspirate place a second needle in tandem to vent the system.
- If still not productive inject air to document intraarticular placement and communication between the two needles – try to aspirate again
- If still not productive abandon attempt to get cell count and irrigate with saline **NOT WATER** – place irrigant in universal culture
- If air injection is equivocal document position with contrast

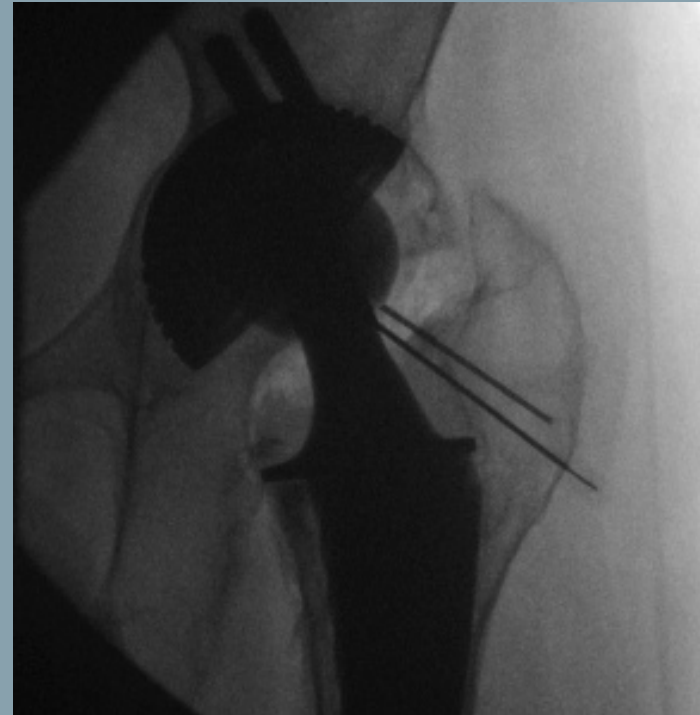
# TECHNIQUE

- 18 gauge needle after sterile prep and local anesthesia



# TECHNIQUE

- If no spontaneous aspirate place a second needle in tandem to vent the system
- If still not productive inject air to document intraarticular placement and communication between the two needles – try to aspirate again
- Think of this as being similar to the need to put a second hole in a can of soda in old days or pulling the tab when doing a beer shooter





- When in doubt intraarticular position can be confirmed by injecting contrast – AFTER aspiration and or irrigation
- Contrast may also be useful in identifying extraarticular communication into an overlying bursa (arrow)



# TECHNIQUE: Irrigation

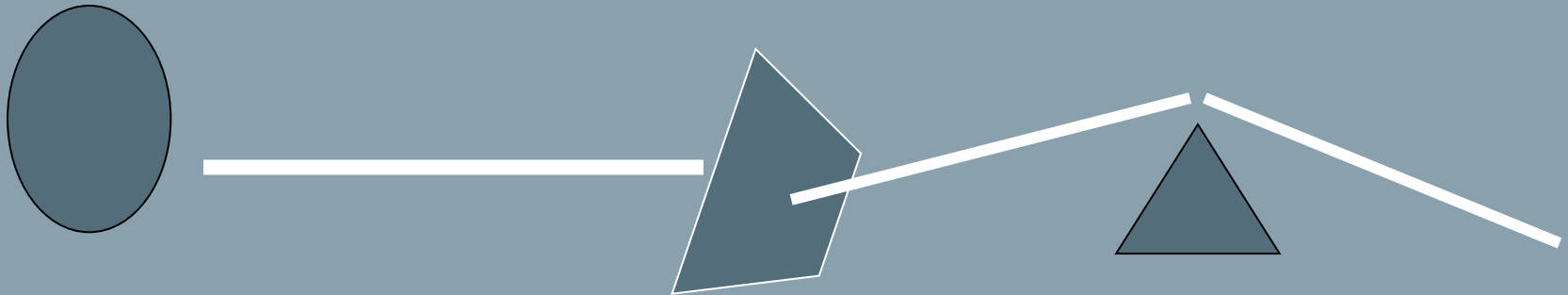
- If still not productive abandon attempt to get cell count and irrigate with saline NOT WATER – place in universal culture
- Why not water? It will kill the bacteria leading to a false negative culture
- Remember you can't send for a cell count once you have diluted the system with saline or contrast

# Joint specific techniques

- There are a lot of ways to get into joints – each has advantages
- These are the techniques I teach because they are reliable and designed to keep people out of trouble.
- If you want to do an aspiration using a different approach that's great but just be sure it is safe and will produce a useful aspirate.

# Technique: hip - position

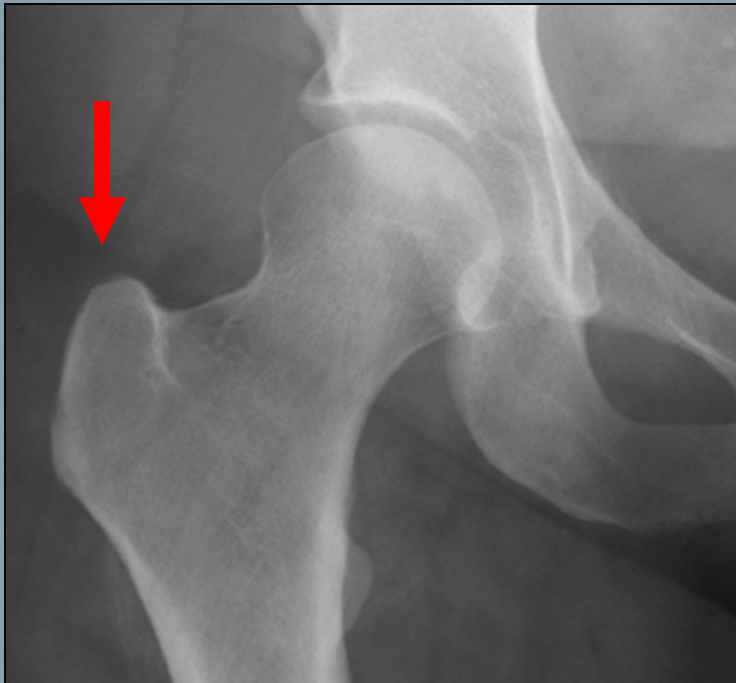
- Hip flexed
- Sponge under the knee



The key is to relax the quads and the abdominal muscles so that the capsule is not pulled tightly onto the surface of the joint. If the muscles are flexed say for example if the patient is continuously laughing, you will have a hard time getting in.

# Technique: knee - position

- Hip flexed
- Sponge under the knee
- Internal rotation
- The greater trochanter should stick out (**red arrow**)
- Taping the toes together allows the patient to relax without falling into external rotation



# Hip: approach

- Target: joint recess



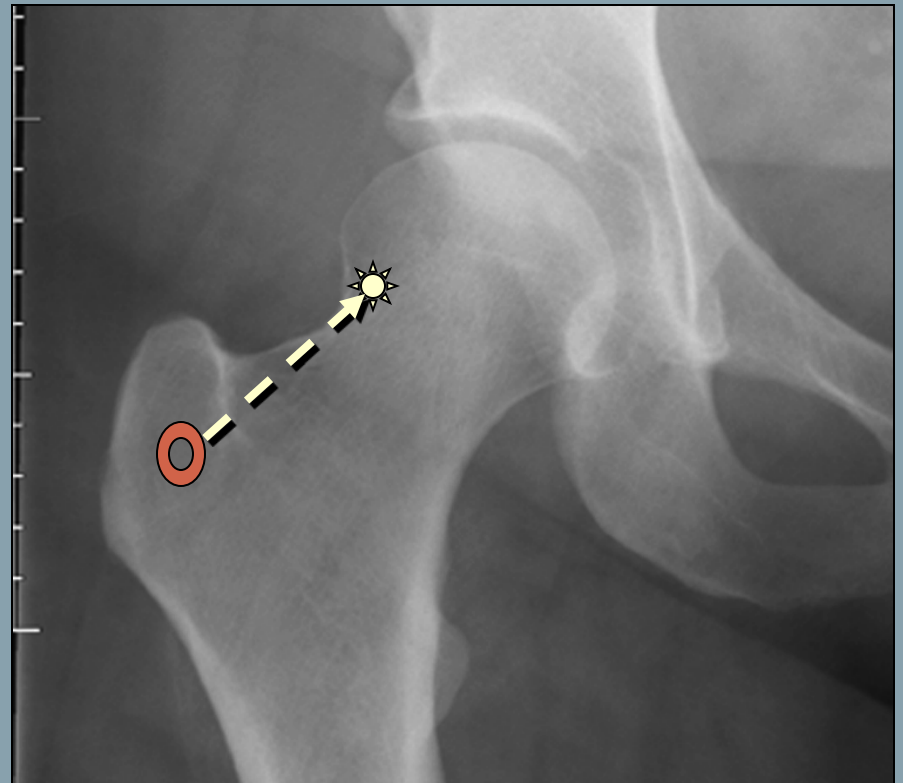
# Hip: approach

- Mark skin over the greater trochanter



# Hip: approach

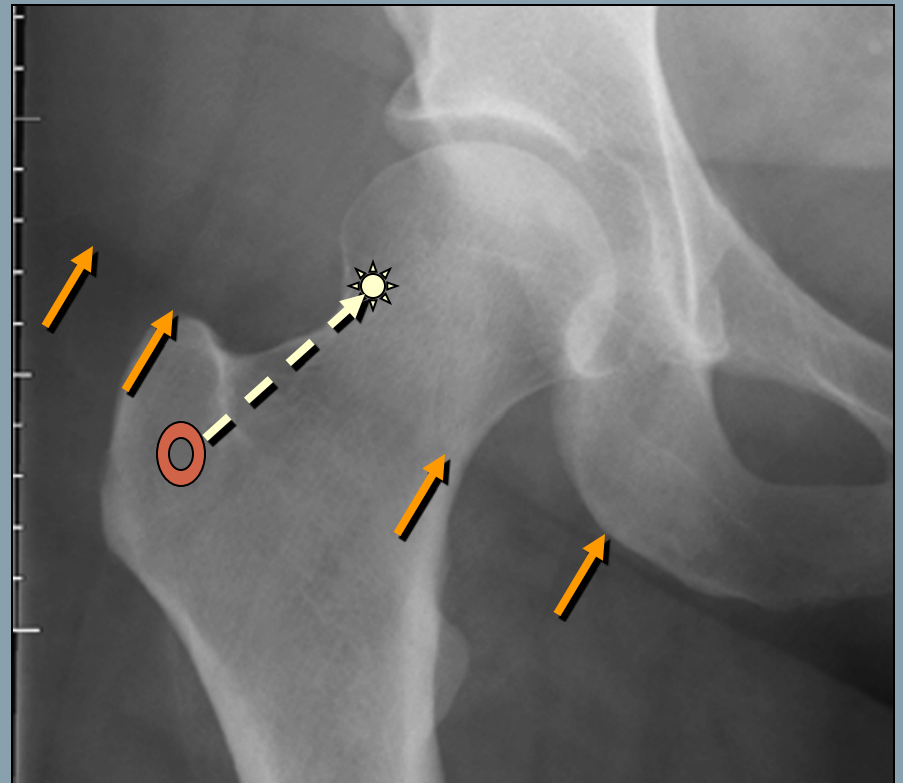
- Mark skin over the greater trochanter
- Aim down the neck at the head neck junction





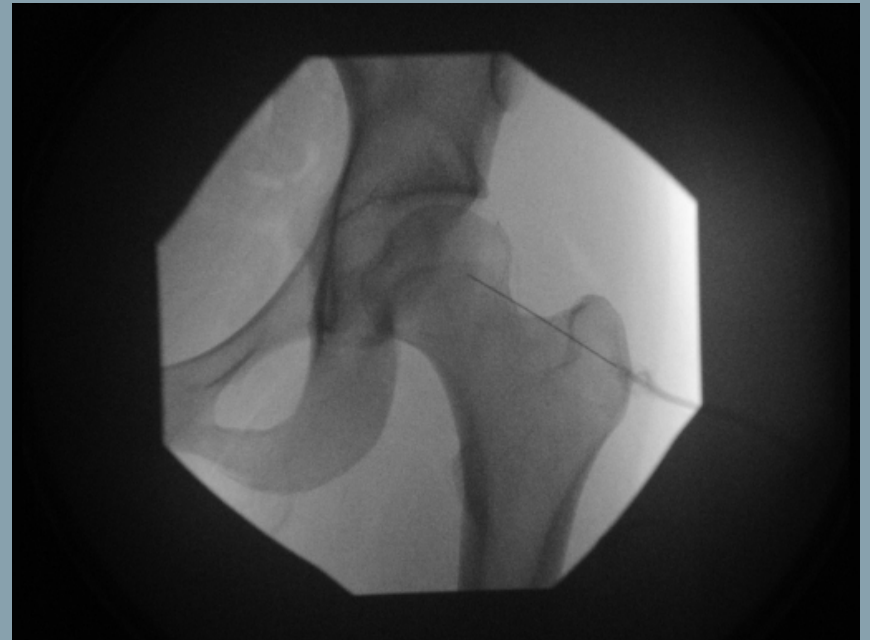
# Hip: approach

- Mark skin over the greater trochanter
- Aim down the neck at the head neck junction
- I like this approach because you can avoid overlying panus
- The bone will keep you from going in too steeply



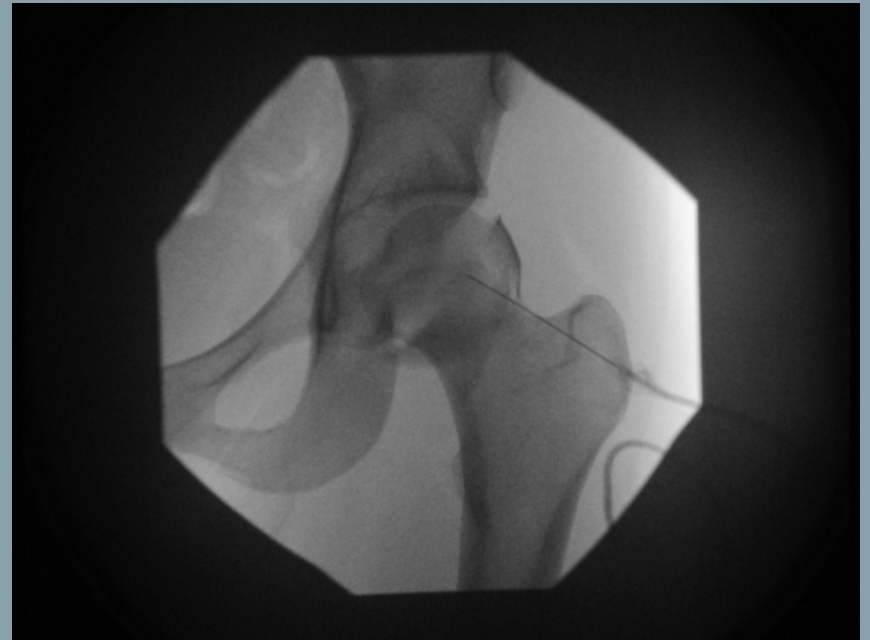
# Hip: approach

- Mark skin over the greater trochanter
- Aim down the neck at the head neck junction



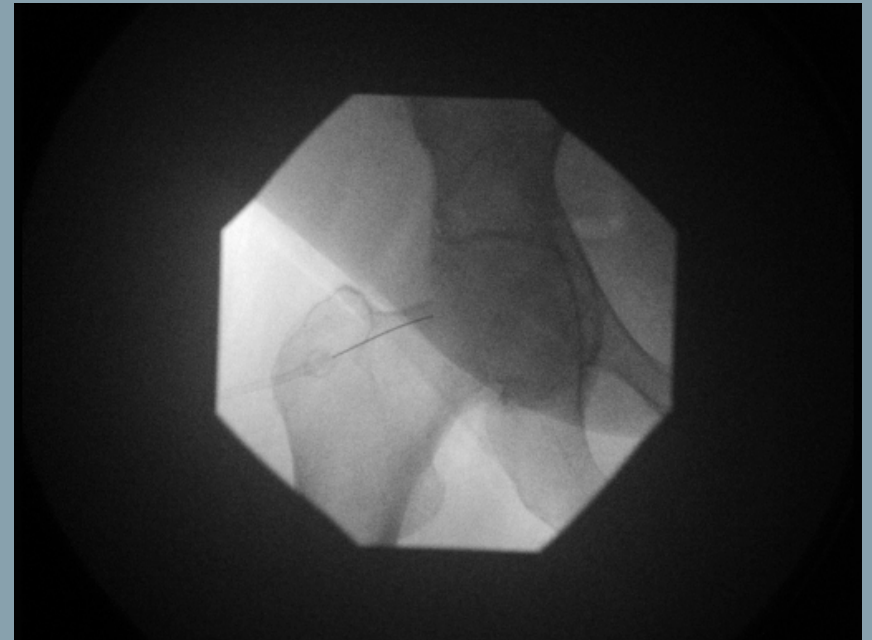
# Hip: approach

- Mark skin over the greater trochanter
- Aim down the neck at the head neck junction



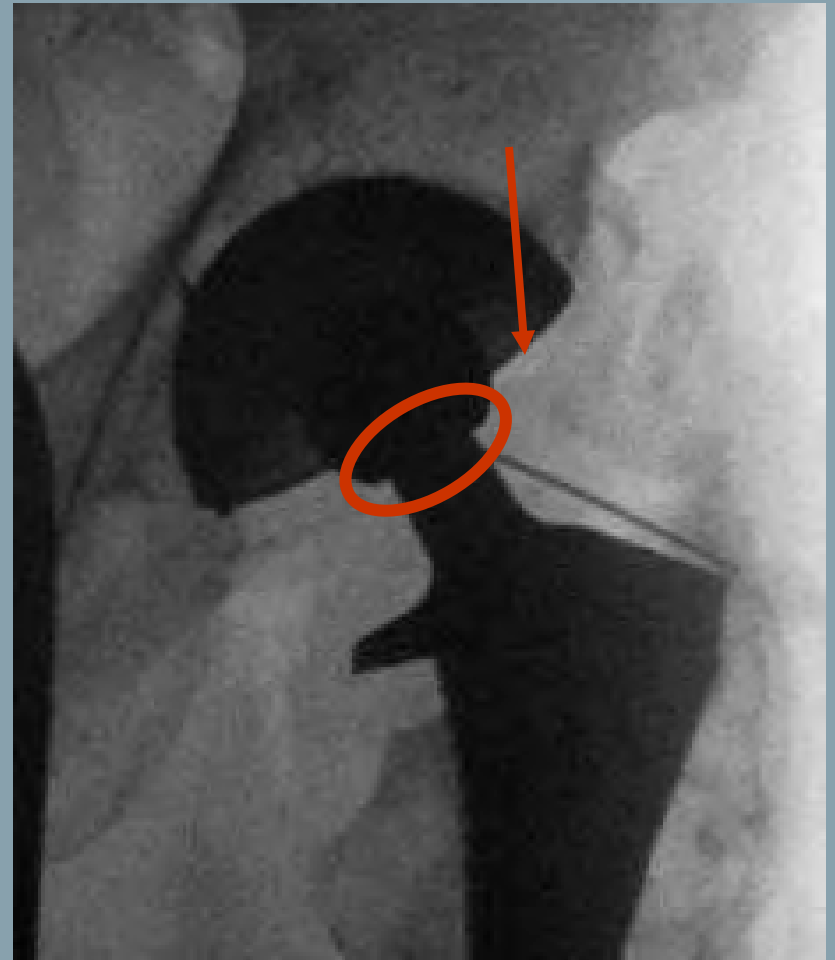
# Hip: approach

- Mark skin over the greater trochanter
- Aim down the neck at the head neck junction



# Target: total hip

- Target:
  - head/neck junction
- Joint capacity may be very small due to normal postoperative changes in the joint capsule
- injection of air to confirm position may only show a small volume of air adjacent to the prosthesis



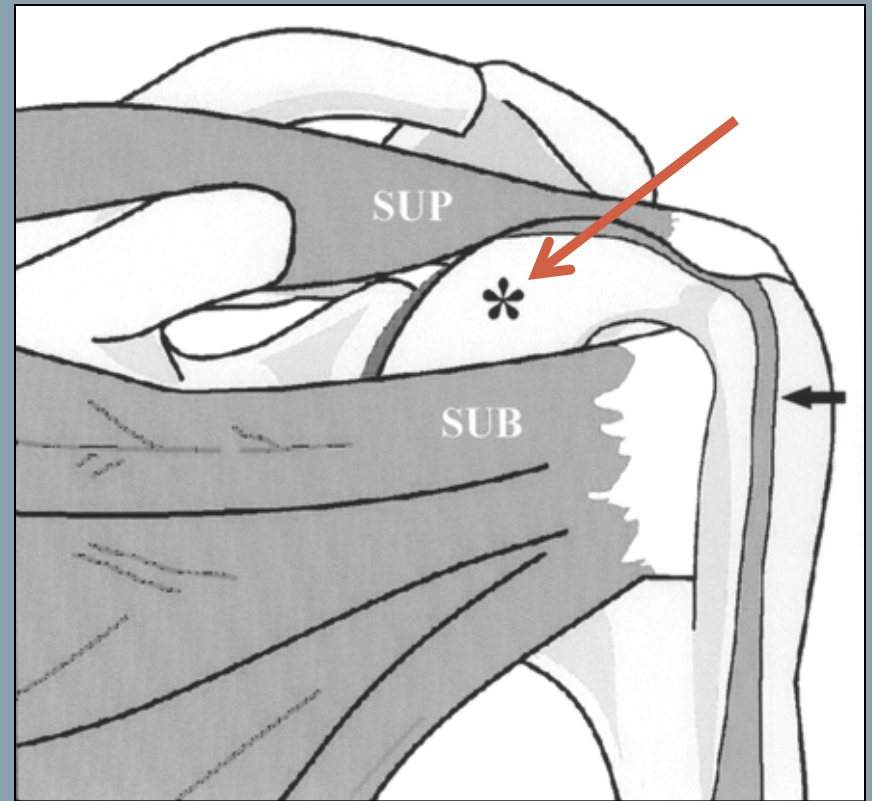
# Knee aspiration

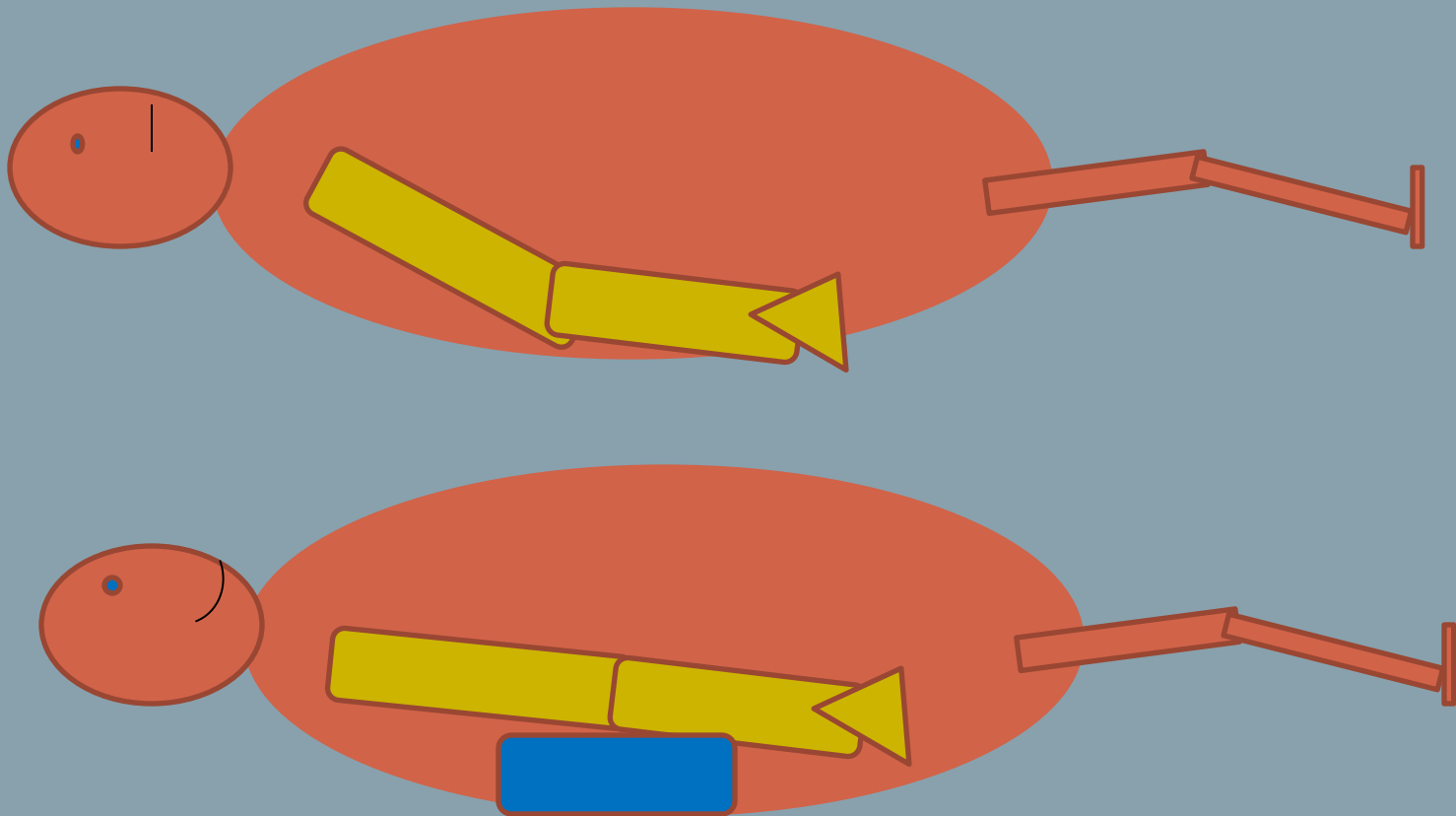
- Most residents find the anterior parasagittal approach to be the easiest
- Lateral positioning of the knee
- Enter just to the side of the patellar tendon
- Aim for the femoral condyle – hit the metal
- Avoid the poly liner (arrows)



# Shoulder

- Anterior approach at the rotator interval
- Humerus in external rotation
- Aim for the upper inner quadrant of the humeral head
- Mind the coracoid process and the biceps tendon





- Some people are really big. When the hand lies on the fluoro table the shoulder is placed in fairly extreme extension, tightening the joint capsule. One can relax the anterior capsule by elevating the elbow.



# Shoulder

- Anterior approach at the rotator interval
- Humerus in external rotation
- Aim for the upper inner quadrant of the humeral head
- Mind the coracoid process and the biceps tendon

