

Arthrocentesis

Introduction:

Arthrocentesis is a procedure in which a needle is inserted into a joint space to obtain synovial fluid.

Indications:

Diagnostic:

- Septic arthritis
- To differentiate inflammatory and noninflammatory conditions such as trauma or osteoarthritis
- To diagnose crystalloid arthritis
- Synovial biopsy
- Pain relief and increase in range of motion

Therapeutic:

- For intra - articular injection
- To aspirate large effusions
- For lavage of joints
- Removal of hemarthrosis

Contraindications:

Absolute:

- Local infection such as overlying cellulitis
- Systemic infection with possible bacteremia
- Coagulopathy, hemophilia
- Allergy to substance injected
- Aspiration of prosthetic joint is better left to be done by the surgeon under strict aseptic conditions

Relative:

- Joints with severe distortion that are unlikely to respond.

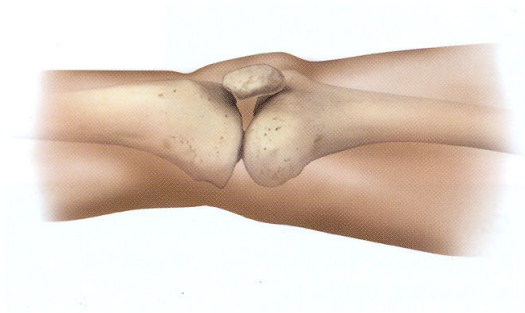
Equipment:

- Sterile prep set
- Sterile gloves and drapes
- 18-gauge needle for large joint

- 20-gauge needle for small joint
- 20-ml syringes (two)
- 10-ml syringes for injection
- Small Kelly clamp
- Sample tube
- Culture tube with swabs
- 1% Lidocaine

Knee Joint:

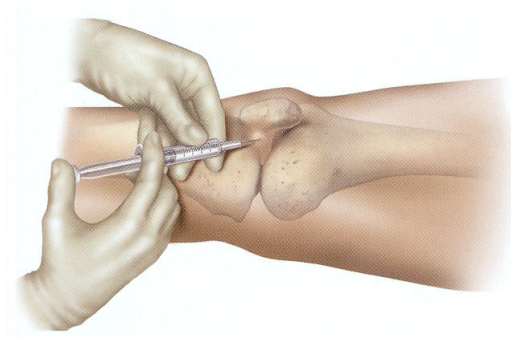
1. Place the patient supine with the knee extended.



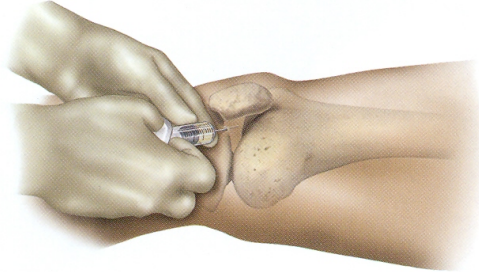
2. Palpate the borders of the patella and select a medial or lateral approach.



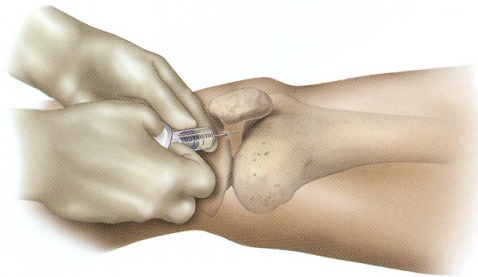
3. Anesthetize the skin with 1% Lidocaine.



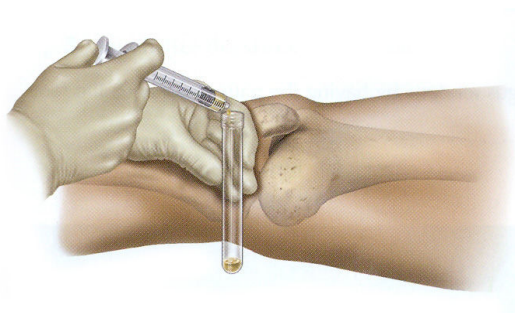
- ε. Enter the skin between the patella and the joint midway between the superior and inferior poles of the patella.



- ο. Aspirate gently on the syringe while advancing the needle into the joint. Withdraw synovial fluid into the syringe.

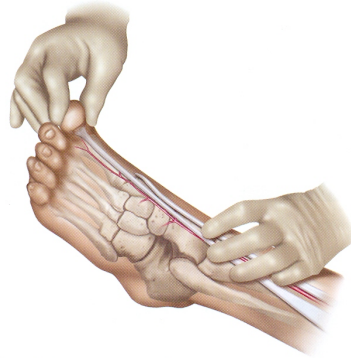


- ϒ. If necessary, inject anesthetic solution into the joint for pain relief.
ϛ. Withdraw the needle.
λ. Send the synovial fluid to the laboratory for analysis.

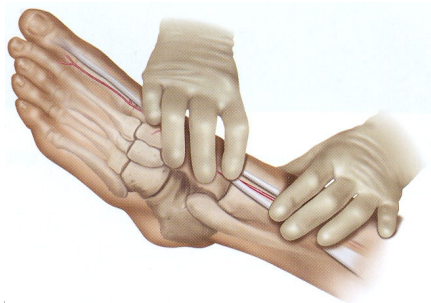


Ankle Joint:

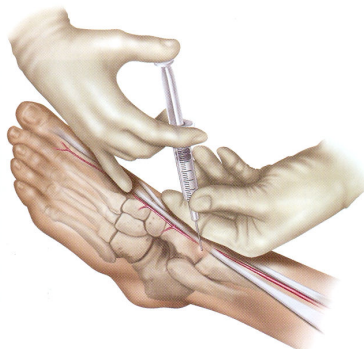
1. Locate the tibialis anterior and extensor hallucis longus tendons by having the patient dorsiflex the foot and raise the toe.



2. Identify the joint line between the tibia and talus.



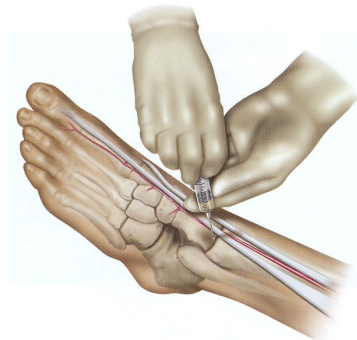
3. Anesthetize the skin overlying the joint.



ε. Direct the needle perpendicular to the skin between the tibia and talus, lateral to the tendons. Avoid the artery and any visible veins.

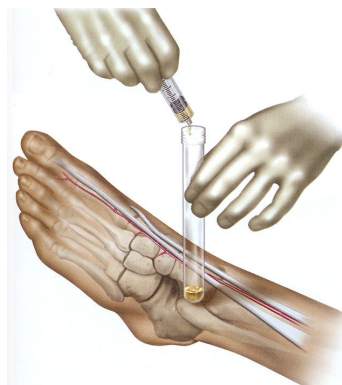


Ϟ. Aspirate gently on the syringe the needle into the joint. Withdraw synovial fluid into the syringe.



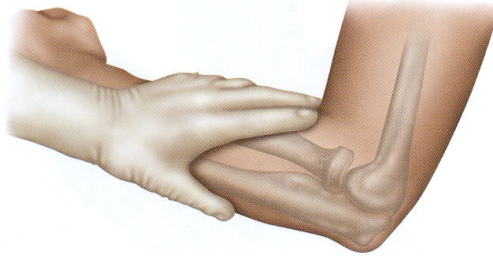
ϟ. Withdraw the needle.

Ϡ. Send the synovial fluid to the laboratory for analysis.

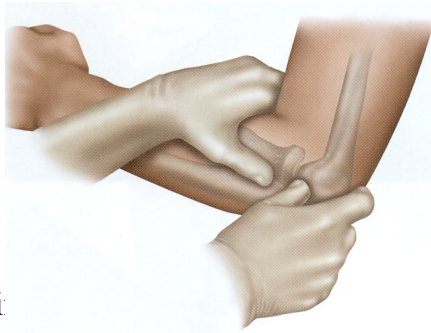


Elbow Joint:

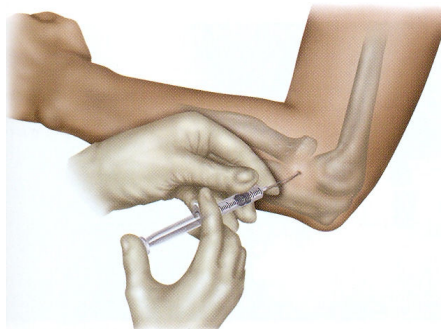
1. Stabilize the elbow joint at a 90-degree angle with the thumb pointing up.



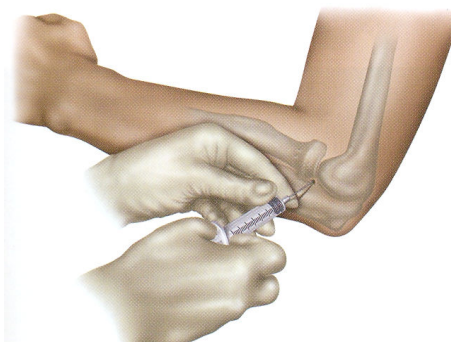
2. Palpate the soft triangle between the radial head, the olecranon, and the lateral epicondyle of the humerus.



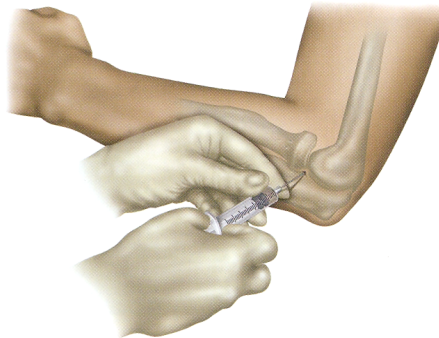
3. Anesthetize the skin overlying



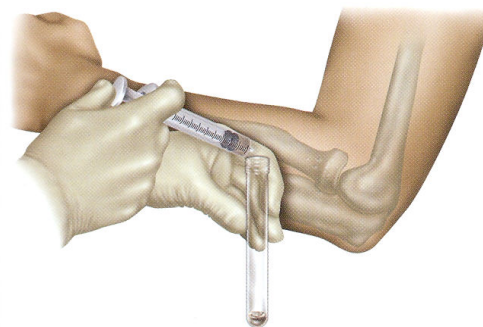
4. Enter the joint from the lateral side.



- . Aspirate gently on the syringe while advancing the needle into the joint. Withdraw synovial fluid into the syringe.



- Ϛ. Withdraw the needle.
- ϛ. Send the synovial fluid to the laboratory for analysis.



Complications:

- Infection
- Intra-articular and periarticular bleeding
- Allergic reaction
- Cutaneous atrophy
- Tendon rupture
- Vasovagal syncope may occur

Notes:

- Aspiration may be performed under the cover of antibiotics if deemed urgent.
- Flow of fluid can be interrupted at time due to clogging by synovium or debris. Rotating the needle, with drawing it slightly, or even reinjecting some fluid can help declog.
- Send fluid for evaluation:
 - Cell count and differential

- Gram stain and culture
- Crystal analysis
- If joint injection is to be done, it should be done only after complete aspiration. Correct injection into joint is confirmed by feeling little or no resistance to injection.
- Avoid repeat injection.

Checklist for Arthrocentesis

1. Mentions hand washing
2. Gathers equipment
3. Identifies the patient
4. Greets and introduces oneself to the patient
5. Explains procedure to the patient
6. Places patient in comfortable position
7. Corrects position of the joint for optimal joint position
8. Identifies land mark and ascertain the point of needle entry
9. Wears gloves
10. Preps the joint
11. Anesthetizes the area with Lidocaine
12. Inserts needle in correct site and aspirates
13. Cleans skin and applies tape
14. Thanks and listens to the patient questions
15. Sends fluid for evaluation
16. Records finding on patient's medical record