




JOINT ARTHROCENTESIS: KNEE AND ELBOW

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Goals of the program

- Discuss indications and contraindications for procedure
 - Demonstrate knee and elbow aspiration and injection
 - Discuss pre and post care
 - Discuss follow up
 - Discuss fluid analysis and diagnosis
 - Dictate the chart
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Introduction

- Arthrocentesis is the removal of synovial fluid
 - Therapy to reduce pain
 - Evaluate Trauma
 - Diagnostic purposes
 - Septic Joint
 - Gonococcal Arthritis
 - Gout, etc.
- Discuss the procedure for Knee and Elbow arthrocentesis, these are the most common on ED



KNEE ANATOMY

Indications for Arthrocentesis

- Evaluate for Arthritis
- Suspected septic joint
- Evaluate joint effusion



Indications for Arthrocentesis

- Evaluate for crystals, seen in gout, pseudogout
- Evaluate for injury, is the fluid bloody?
- Drain effusion for pain relief
- Injection of medicine for therapeutics



Contraindications

- No **absolute contraindications** but several relative contraindications
- Cellulitis over the joint, site of needle entry
 - if clinically it is septic joint you can still proceed

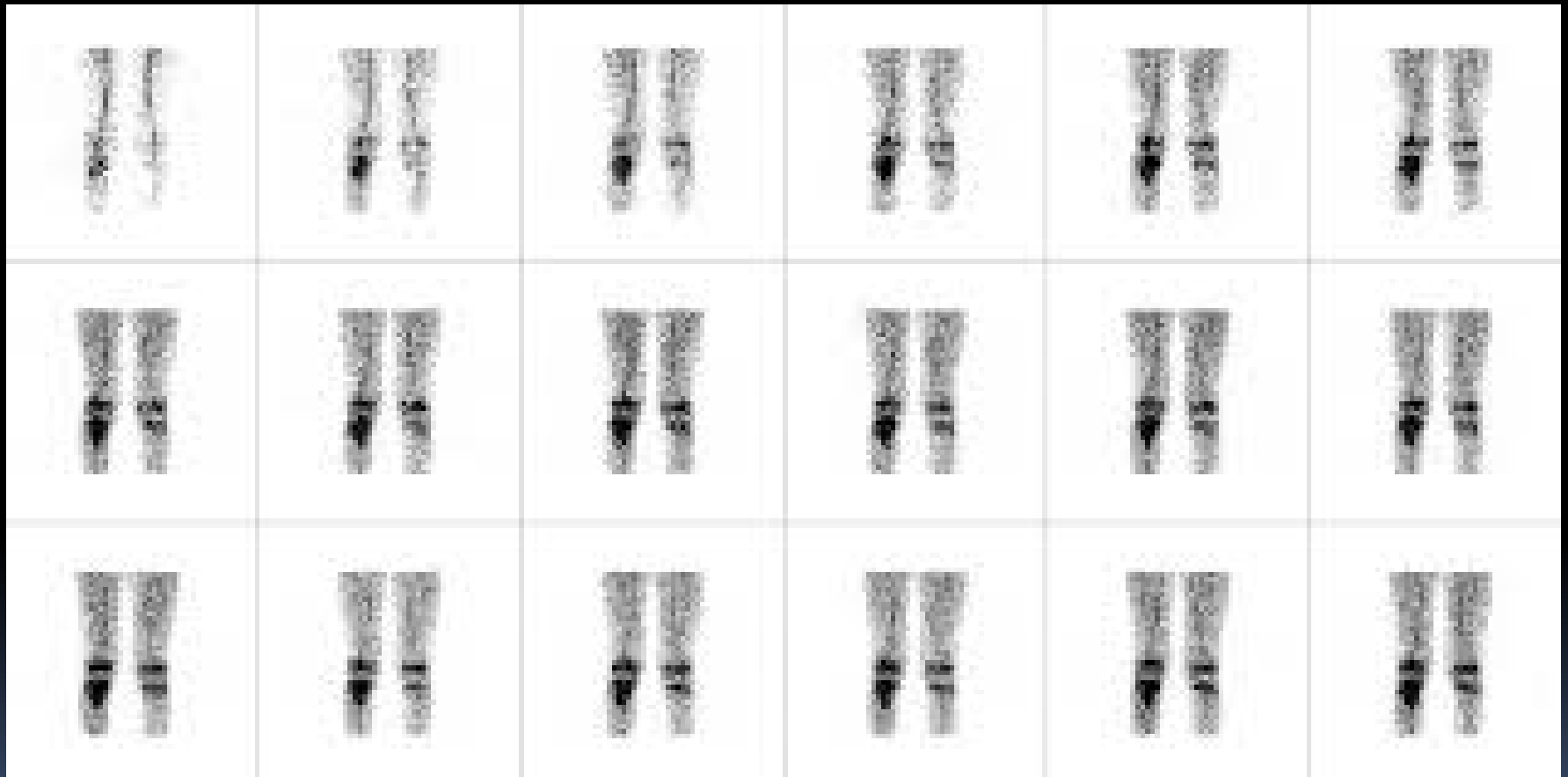


Contraindications

- Skin lesion or rash at site of needle insertion
- Joint Prosthesis- should be preformed by Orthopedist
- Coagulopathy
 - use smaller needle
 - wrap with ace wrap
 - recheck sooner



Contraindications: Osteomyelitis



Patient Preparation

- **Explain** procedure to patient, obtain consent
 - 1-Skin will be cleaned
 - 2-Local injection of anesthesia to reduce pain
 - 3-Insertion of a 18-20g needle into joint
 - 4-Aspiration of fluid
 - 5-Possible injection of medication
 - 6-Remove needle, send fluid to lab, dress area with neo/gauze/ace wrap



MATERIALS

Patient Positioning

- Supine
- Leg extended
- possibly slightly flexed
- Medial or Lateral approach
 - recommended use medial approach with small effusion and lateral with larger



Landmarks

- Palpate the superior lateral aspect of the patella
- 1 fingerbreadth above and 1 fingerbreadth lateral to this site, mark with marking pen
 - Provides best access to synovium
- Insert needle at about a 45 degree angle





DEMONSTRATION

Post Procedure Treatment

- discuss s/s infection to prompt follow up
 - Redness
 - Warmth
 - increased swelling
 - Hematoma
 - fever/chills
- RICE



Complications

- Bleeding into joint
- Injury to deeper structures, may hit ligament
- Severe pain during procedure, needle may be hitting highly innervated cartilage
 - Redirect needle
- Large effusion occurred after aspiration
 - place ace wrap on joint immediately after



ELBOW ARTHROCENTESIS



ELBOW ANATOMY

Indications

- Like the knee
 - diagnosis inflammatory issues
 - septic joints
 - pain relief
 - Septic joint, more common in larger joints, also consider gonococcal arthritis
 - Evaluate Acute Non Traumatic Pain
 - Occult Fracture? Is blood present

Differential Diagnosis

- Cellulitis
- Abscess
- Bursitis
- Tendonitis



Contraindications

- Cellulitis at needle insertion
- Overlying skin lesions/rash
- Anticoagulants
- Prosthetic joint, refer to orthopedist
- Known bacteremia
- Trauma?



Explain Exam to Patient

- Informed Consent
- Steps to Procedure
- Reason
- Possible Complications
- Post Procedure Treatment

Steps to the Procedure

- Obtain Consent
- Sitting Position
- Arm Bent 90 Degree
- Palm down with arm pronated
- Use Lateral Technique
 - Safest
 - Medial Technique: you can damage ulnar nerve and superior ulnar collateral artery

Steps to the Procedure

- Clean the skin
- Inject local Anesthesia
- Insert 18-20g needle into joint space
 - Lateral Approach
- Aspirate fluid, send for analysis
- Cover site with dressing
- Consider Ace wrap



LANDMARKS



MATERIALS



PROCEDURE DEMONSTRATION

Post Procedure Complications

- Same as Knee
- Cellulitis
- Septic Joint
- Swelling
- Bleeding



Patient Follow up

- Return for prompt recheck if:
 - Increased pain
 - Increased swelling
 - Fever
 - Chills
 - Erythema to area

Clinical PEARLS

- Again- **do not use medial approach** injury the ulnar nerve and superior ulnar collateral artery
- Can use a posterolateral approach
 - this increases risk of injury to radial nerve triceps tendon
- Do not confuse a olecranon bursitis with a joint effusion
- Do not insert needle in skin that appears infected

Fluid Analysis

- Normal fluid contains:
- Electrolytes, glucose, uric acid, albumin, globulins, mucin, blood cells, debris
- Results can be broken down into these parts:
 - 1) normal
 - 2) traumatic
 - 3) inflammatory
 - 4) infected



TABLE WITH VALUES




Post Procedure Treatment

- Ace wrap
- Pain Medications
- Follow up with ortho
- s/s infection to prompt return



Chart Documentation

- Indication for test
 - Informed consent obtained
 - Steps to the procedure
 - Amount and color of fluid removed
 - How was it tolerated?
 - Any immediate complications?
 - Follow up discussed
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PROCEDURE REVIEW