Injection Techniques in the Office

October 24, 2014
NH ACP Conference

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Today’s Agenda:

- Indications for aspiration/injection
- Equipment used in aspirations/injections
- Techniques for outpatient aspirations/injections
- Practice on shoulder model
Mr. Smith

- 89 y/o M with seronegative RA presents with Right knee effusion
- Medications:
  - Methotrexate 15mg Q week
  - Prednisone 5mg daily
  - Coumadin
- ROS:
  - (-)F/C, trauma, erythema
  - (+)R knee pain
Indications for Diagnostic / Therapeutic Injections

- **Soft tissue conditions**
  - Bursitis
  - Tendonitis
  - Trigger points
  - Entrapment syndromes

- **Joint conditions**
  - Effusion of unknown etiology (aspiration only)
  - Suspected infection (aspiration only)
  - Crystal induced arthritis
  - Inflammatory arthritis/synovitis
  - Osteoarthritis
Equipment

- Various sized needles (18-27 gauge)
- Various sized syringes
- Non-sterile gloves or sterile gloves
- Chlorhexidine swab or povidone-iodine (Betadine)
- Gauze
- Bandaid
- Tubes for cell count and crystal examination (lavender)
- Sterile container for culture
Medications

- **Anesthetic**
  - 1% lidocaine
  - 0.75% bupivacaine

- **Steroids**
  - Methylprednisolone acetate (Depo-Medrol)
  - Triamcinolone acetonide (Kenalog)
  - Triamcinolone Hexacetonide (Aristospan)

Potential Complications

- Bleeding
- Local infection
- Risk of septic arthritis 1/20,000 – 1/166,000
  - Vial aspiration vs pre-filled syringes
- Soft tissue atrophy
- Local depigmentation
- Tendon rupture
- Nerve damage
- Hyperglycemia
- Post injection flare
- Osteonecrosis

Contraindications

- Few absolute
  - If infection is suspected, fluid should be aspirated
  - If other indications, avoid procedure if there is overlying cellulitis
- Caution with
  - Significant bleeding diathesis
  - Joint prosthesis
Common Injections / Aspirations

- Shoulder
- Knee
Shoulder anatomy

Shoulder injections

Indications:
- Adhesive capsulitis
- Impingement syndrome
- Subacromial bursitis
- Rotator cuff tendinosis
- Biceps tendinosis
- Subdeltoid bursitis

Subacromial Injection

Typically use a lateral or posterior approach, with the inferior acromion edge and the humeral head as landmarks.

http://www.hughston.com/hha/b_17_1_1b.jpg
Long head of the biceps tendon
Infiltrate area in and around the groove (NOT within tendon).

Shoulder injections

- Glenohumeral joint injection

Anterior approach: Needle placed medial to the head of the humerus and 1 cm lateral to the coracoid process. Direct posteriorly, slightly superiorly and laterally.

Shoulder injections

- Acromioclavicular joint

Superior & anterior approach: Palpate the clavicle distally to its termination to a slight depression. Direct needle inferiorly.
Knee anatomy

Knee aspiration and injection

**Indications:**
- Unexplained effusion
- Possible septic arthritis
- Gout or CPPD
- Relieve hemarthrosis
- Inflammatory arthritis
- Osteoarthritis
Knee aspiration and injection

- Medial or lateral approach
- Flex knee 15 degrees (may place towel roll beneath)
- Sterile technique including sterile drape?
- Locate middle of patellar edge
- Anesthetize with 25 or 27 gauge needle (optional)
- For aspiration, insert 18 or 20 gauge needle
- Needle should not come in contact with bone
Corticosteroid injections for knee osteoarthritis... evidence?

- Exercise and physiotherapy consistently shown to relieve symptoms
- One systematic review 2006 compared intra-articular corticosteroids vs placebo.
- Benefit seen for steroids at the end of week one, two, and three but not sustained to 4 weeks.
- Uncommon adverse effects included: symptom flare, tissue atrophy, fat necrosis, calcification, steroid arthropathy, and vascular necrosis. Theoretical risk of infection.

Pes anserine bursa

Insert needle perpendicular to the tibia with point of maximal tenderness. Guide to bone then withdraw 2-3 mm to inject.

Let’s Practice!