

# **Joint and Soft Tissue Injection: Part 1 – The Upper Extremity**

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February 7, 2008

# Objectives

- To provide general overview
- To review billing and coding
- To provide hands-on learning
  - Wrist
  - Elbow
  - Shoulder

# Injections/aspirations

- Evidence-based reviews neither support or refute efficacy of joint interventions
- Practice- based experience supports effectiveness of joint and soft tissue aspiration and injection for diagnostic and therapeutic reasons

# Indications

- Diagnostic
  - Aspiration of synovial fluid for evaluation
    - Infection, inflammation, trauma, crystals
  - Injection of local anesthetic to confirm presumptive Dx through symptom relief
- Therapeutic
  - Decreased mobility and pain
  - Injection of medication as tx adjunct

# Risks/Contraindications

- Risks-
  - Infection (<0.1% if non-sterile, <.006% if aseptic technique)
  - Bleeding, reaccumulation of fluid
  - Steroid flare (uncommon, <5%)
  - Atrophy, skin depigmentation
  - Possible weakening, rupture of tendon with repeated injections
- Contraindications (joint injection)
  - Drug allergies, infection, fracture, tendinous sites at high risk of rupture
    - Avoid Achilles or patella tendon injection

# Injections

- Corticosteroids
  - Function- suppress inflammation and decrease swelling, heat, and tenderness
- Anesthetic
  - Function-
    - Relieves pain, can aid in diagnosis
    - Dilution of steroid (theoretically less risk of tendon rupture, steroid flare)

<b>Joint Size</b>	<b>Code</b>	<b>Syringe</b>	<b>Needle</b>	<b>Lidocaine</b>	<b>Marcaine</b>	<b>Depo-Medrol</b>
<b>Small</b> (finger, tendon)	<b>20600</b>	<b>3cc</b>	<b>27 ga</b> <b>1 inch</b>	<b>1cc</b>	<b>1cc</b>	<b>10-20mg</b>
<b>Medium</b> (A-C joint, wrist, lateral epicondylitis)	<b>20605</b>	<b>5cc</b>	<b>25 ga</b> <b>1.5 inch</b>	<b>2cc</b>	<b>2cc</b>	<b>20-40mg</b>
<b>Large</b> (Knee, ankle, shoulder, hip bursitis)	<b>20610</b>	<b>10cc</b>	<b>25 ga</b> <b>1.5 inch</b>	<b>4cc</b>	<b>4cc</b>	<b>40-80mg</b>

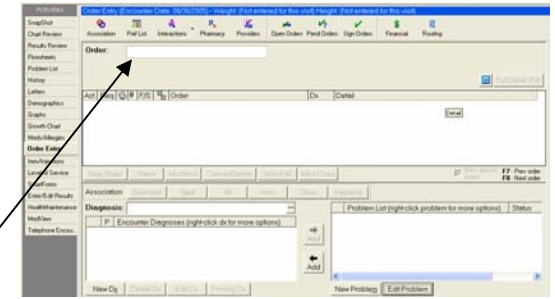
# Technique

- Equipment
  - Iodine, alcohol swabs
  - Gloves
  - Sterile syringes
    - 3-12cc for injections
    - 20-50cc for aspirations
  - Sterile needles
    - 22-25 guage for injections; length depends on site
    - Larger guage for aspirations
      - Need hemostat, collection device

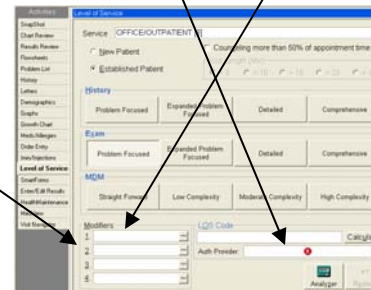
# Other considerations

- Informed consent
- Aftercare
  - Area may be numb
  - Avoid aggressive use of area
  - Maintain ROM
  - Relative rest (depending on joint)
  - t/c ICE, NSAIDS

# Procedures



- Usually no level of service or low level of service if only reason for visit is procedure
- Remember to bill for medications used and for the procedure itself in CPT section
- Must be “supervised” by attending (note: GC modifier)  
...the attending must be present during all critical and key portions of the procedure and be immediately available to furnish services during the entire procedure
- Document the procedure separate from other issues
- Must have a 25 modifier



# Procedure Documentation = “.idp”

## DOCUMENTATION OF UNIVERSAL PROTOCOL FOR INVASIVE PROCEDURES

The patient was identified by the following methods (need 2): {MISC; UNIVERSAL PROTOCOL; PATIENT ID:1151::-Name/DOB", "-Verbal with patient and/or family"}

The following procedure verification steps were taken: {MISC; UNIVERSAL PROTOCOL; PROCEDURE VERIFICATION:1152::-Procedure confirmed with patient or family/designee.", "-Consent for procedure signed.", "-Relevant documentation completed, reviewed, and signed.", "-Clinical indications for procedure confirmed."}

Site Marked (Operative Site)? {ANSWER; YES/NA:1155::-"Yes"}

Time-out was taken with all members of procedure team immediately prior to procedure and the following were confirmed: {MISC; UNIVERSAL PROTOCOL; TIME OUT:1153::-Correct patient identified.", "-Agreement on procedure.", "-Correct side and site.", "-Correct patient position.", "-Availability of correct implant/equipment or special requirements."}

## PROCEDURE NOTE:

Type of Procedure: {PROCEDURES; INVASIVE OFFICE PROCEDURES:1154}

Procedure Date: 2/5/2008

Time: \*\*\*

Performing Provider: \*\*\*

Clinical Indications: \*\*\*

Description of Procedure (include location, number of attempts, type of device/catheter, and xray confirmation if relevant): \*\*\*

Specimens Sent: \*\*\*

Estimated Blood Loss: \*\*\*

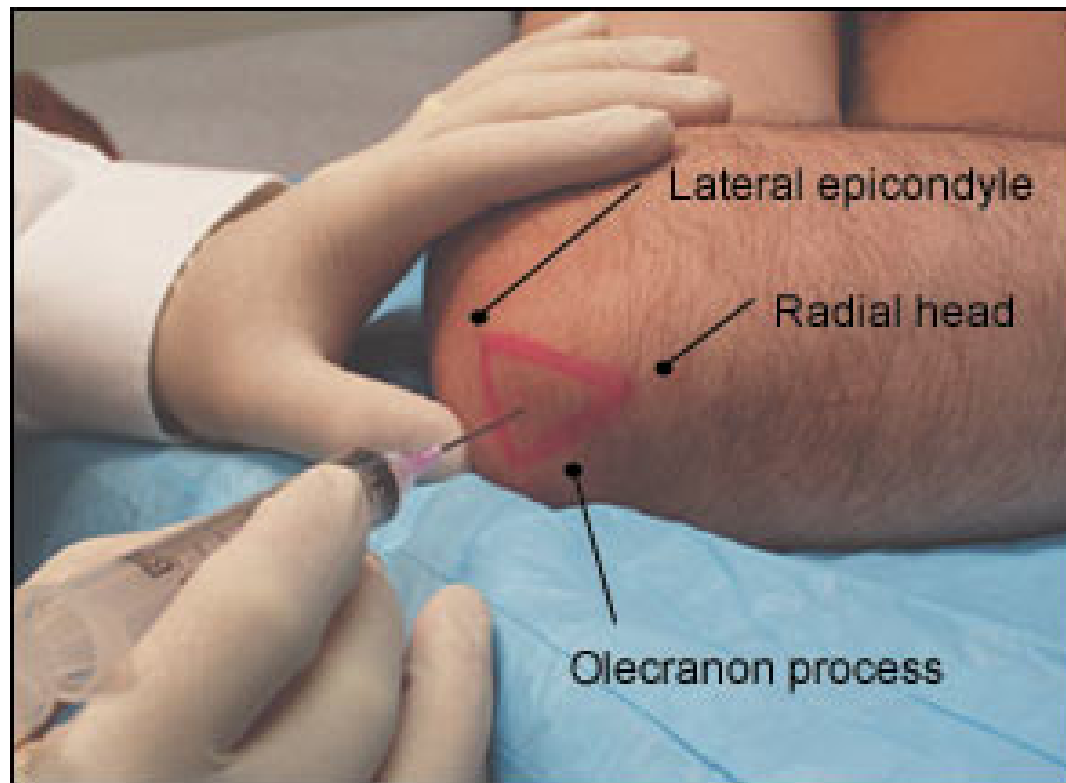
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# **Elbow Injections**

# **Elbow Injections/Aspiration - Indications**

- Osteoarthritis
- Rheumatoid arthritis
- Crystal arthropathies
- Traumatic radial head fractures

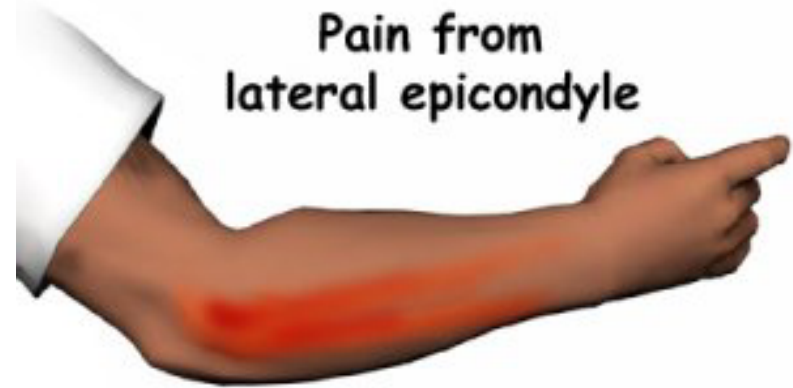
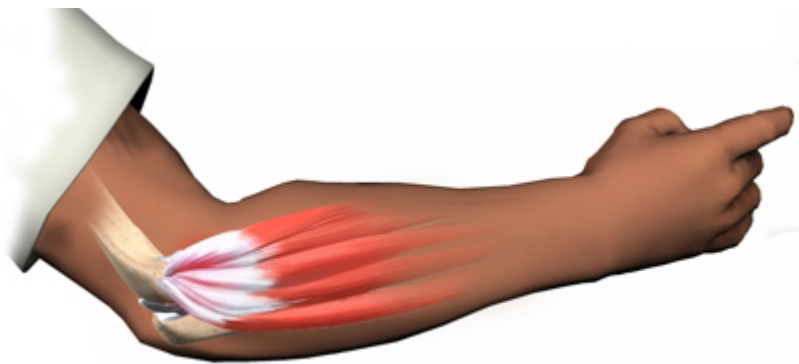
# Anatomic triangle for joint injection or aspiration



# Lateral and Medial Epicondylitis

- Most often the result of repetitive activities such as golf, racquet or throwing sports, or occupation-related movements such as hammering, hand sanding, lifting, or point-and-click motions from moving a computer mouse
- Insidious onset of pain and tenderness of the affected elbow region, and a weakened hand grip
- Point tenderness in the region of the epicondyle, and pain and weakness exacerbated by resisted wrist extension and supination for lateral epicondylitis, and with resisted wrist flexion and pronation for medial epicondylitis

# Lateral Epicondylitis - Presentation



# Lateral Epicondylitis Injection - Indications

- Chronic pain and disability not relieved by more conservative means
- Severe acute pain with functional impairment that calls for a more rapid intervention

# Injection - Technique



**Cortisone Injection  
to the Elbow**

# Lateral Epicondylitis - Other Modalities



# Medial Epicondyle Injection Site



# Olecranon Bursitis

- Commonly occurs after repetitive trauma to the elbow or in patients with rheumatoid or crystalloid arthritis
- A swollen, relatively painless, fluid-filled sac is noted and palpated over the olecranon
- Aspiration of an inflamed bursa can be performed for relief of discomfort associated with bursitis
- If recurrent, corticosteroid injection may be performed

# Olecranon Bursa Injection Site



# **Shoulder Injections**

# **Glenohumeral Joint - Indications**

- Osteoarthritis
- Adhesive capsulitis (frozen shoulder)
- Rheumatoid arthritis.

# Glenohumeral Joint - Technique



*(Left)* Anterior approach



*(Right)* Posterior approach

# Acromioclavicular joint - Indications

- Osteolysis of the distal clavicle
- Osteoarthritis
  
- Increased range of motion and strength following subacromial injection with lidocaine usually points to a diagnosis of an impingement syndrome rather than a tear of the rotator cuff

# Acromioclavicular joint – Technique



# Subacromial Space - Indications

- Subdeltoid bursitis
- Rotator cuff impingement
- Rotator cuff tendinosis
- Adhesive capsulitis

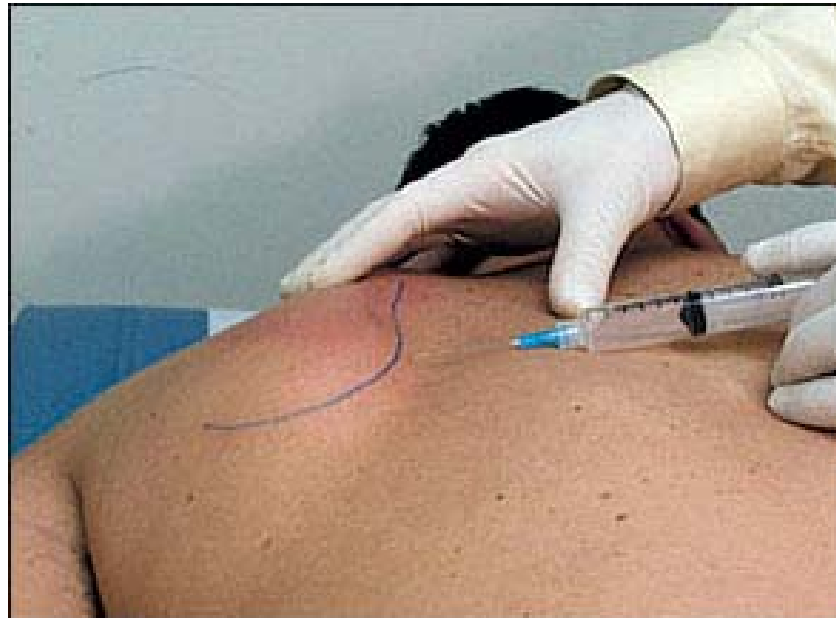
# Subacromial Space - Techniques



# Scapulothoracic Articulation - Indications

- Site of inflammation associated with various activities, including throwing, weight lifting, and activities, of daily living involving pushing or pulling
- History of pain with any of the above activities, which frequently will cause the sensation of popping or catching with the offending motion
- Palpation of the area may reveal tenderness on the inferior medial border of the scapula, as well as crepitus with movement or compression of the scapula against the chest wall

# Scapulothoracic Articulation - Technique



## Long Head of the Biceps Tendon - Indications

- Persistent pain secondary to inflammation of the bicipital tendon is an indication for therapeutic injection
- Eliciting pain with palpation of the tendon along the bicipital groove to its origin
- A positive Speed's test is the elicitation of pain with the patient's shoulder flexed to 60 degrees, elbow extended to 150 to 160 degrees, palm supinated, and pushing up against resistance

# Long Head of the Biceps Tendon - Technique



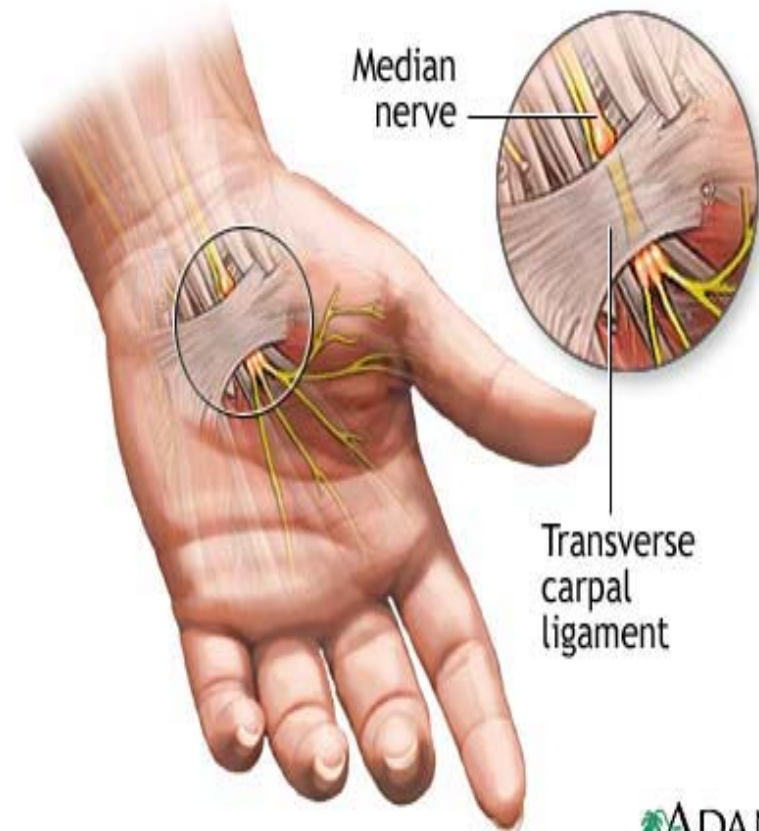
# **Wrist & Hand Injections**

# Wrist and Hand Injections

<b>Site</b>	<b>Syringe</b>	<b>Needle</b>	<b>Lidocaine</b>	<b>Depo-Medrol</b>
<b>Carpal tunnel syndrome</b> (under carpal tunnel ligament)	5 mL	25 guage, 1.5"	0.5-2cc	1cc (40mg)
<b>DeQuervain's</b> (point of maximal tenderness)	5 mL	25 guage, 1.5"	0.5-1cc	0.5-1cc (20-40mg)
<b>Trigger finger</b> (flexor nodule)	3 mL	25 guage, 1"	0.5cc	0.5cc (20mg)

# Carpal Tunnel Syndrome

- Carpal tunnel contains:
  - Median nerve
    - Sensorimotor function of the palmar aspect of thumb, index, and middle finger
  - Flexor tendons of the hand



# CTS

- Diagnosis: clinical
  - Weakness of thumb abduction sign
  - Numbness of palmar aspect of hand
- Indications for injection
  - Median nerve compression
    - OA, RA, DMII, hypothyroid, repetitive use, pregnancy
  - EBM shows greater symptom relief compared with placebo at 1 month
  - No longitudinal, RCTs

# CTS

- Consider injection **AFTER** initial treatment
  - NSAIDs, splinting, avoidance of exacerbating activity
- Landmarks
  - Proximal wrist crease
  - Palmaris longus tendon
    - Pinch all finger together, tendon pops up

# CTS injection

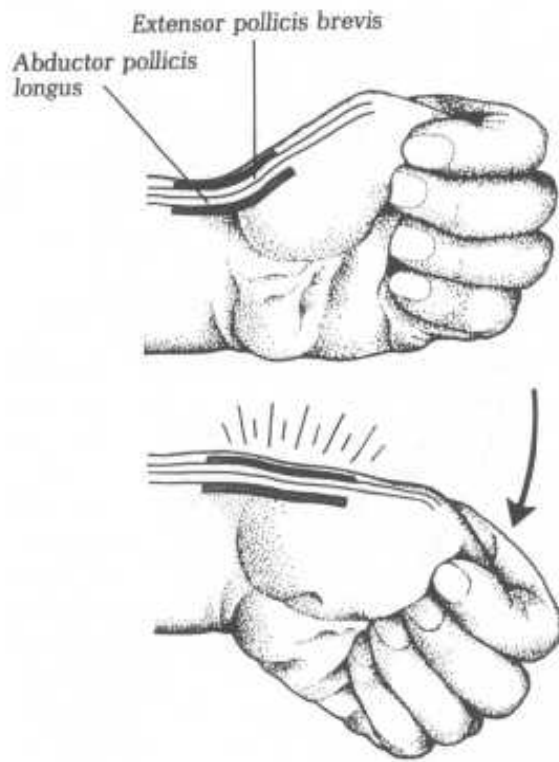


- Technique-
  - Just ulnar to the palmaris longus tendon
  - At the proximal wrist crease
  - Dorsiflex wrist to 30° and rest on rolled towel
  - 30° angle, towards ring finger, 1-2cm in

# DeQuervain's Tenosynovitis

- Involves abductor pollicis longus, extensor pollicis brevis
- Occurs with repetitive use of the thumb
  - Think new moms (lifting baby)
  - Think texters
- Signs:
  - Thickening and tenderness distal to radial styloid process
  - Positive Finklestein's test

# Finkelstein test



# DeQuervain's injection

- Technique
  - With thumb abducted and extended, palpate tendons distal to radial styloid process
  - Needle placed in first extensor compartment and directed proximally toward radial styloid



# Trigger finger

(digital flexor tenosynovitis)

- All flexor tendons of the hand may develop tenosynovitis
  - Thickening or nodule of flexor tendon catches on first annular pulley
  - Causes catching sensation
  - Occurs commonly in RA, DMII, and repetitive use injuries

# Trigger finger injection

- Technique
  - Insert needle into over palmar aspect distal to the metacarpal head
  - 30° angle
  - Direct proximally, almost parallel to skin

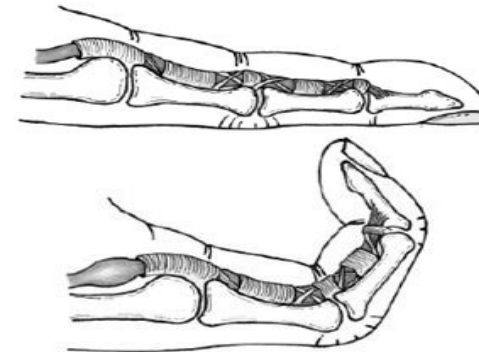


Figure 1: Flexor Tendon & Sheath



# Credit for Pictures and Text...

- Cardone DA, Tallia AF. *Joint and soft tissue injection*. Am Fam Physician. 2002 Jul 15;66(2):283-8.
- Tallia AF, Cardone DA. *Diagnostic and therapeutic injection of the wrist and hand region*. Am Fam Physician. 2003 Feb 15;67(4):745-50.
- Cardone DA, Tallia AF. *Diagnostic and Therapeutic Injection of the Elbow Region*. Am Fam Physician. 2002 Dec 1;66(11):2097-100.
- Tallia AF, Cardone DA. *Diagnostic and Therapeutic Injection of the Shoulder Region*. Am Fam Physician. 2003 Mar 15;67(6):1271-8.