Intraarticular and Periarticular injections

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Objectives

- Discuss Common Musculoskeletal pathologies and indications for intraarticular and periarticular injections.
- Explore musculoskeletal anatomy and identify anatomic landmarks necessary to perform successful intraarticular and periarticular injections.
  - Identify common intraarticular and periarticular injection techniques.
  - List important codes for billing and reimbursement.

Objectives

- (RX)Discuss Pharmacological Principles of common injectables including local anesthetics and corticosteroids.
- Demonstrate proper intraarticular and periarticular injection techiques.

Introduction

- Musculoskeletal disorders are the most debilitating chronic medical conditions
- Comprise up to 60% of outpatient office visits
- Studies suggest primary care providers are inadequately prepared to care for musculoskeletal problems

(Benham & Geier, 2014, p. 603)

Intraarticular and Periarticular injections/Aspiration

- Indications
  - Diagnosis
    - Aspiration of synovial fluid
      - Analysis
        - Cell count, crystals, cultures
    - Injection of Lidocaine
      - Differentiate pathology
        - Neers Sign
  - Therapuetic
    - Relieves pain from acute/chronic musculoskeletal conditions.
      - Injection and/or aspiration

(Mcnabb, 2015, p. 4)

Intraarticular and Periarticular injections/Aspiration

- Contraindications
  - Absolute
    - Uncooperative Patient
    - Allergy to medication or preservative
    - Injecting critical weight bearing tendons
  - Relative
    - Major arteries, veins, pleural surfaces
    - Concurrent Anticoagulation
    - Joint replacement
    - Diabetes and Glaucoma(corticosteroids)

(Mcnabb, 2015, p. 5-6)

Intraarticular and Periarticular injections/Aspiration

- Synovial Fluid Analysis
  - Usually Clear and transparent
  - Differentiate cause for joint effusion
    - Cell count
    - Crystals
    - Cultures
  - WBC count
    - Noninflammatory <2000 cells/mm^2
    - Inflammatory >2000 cells/mm^2
    - Infective > 2000 cells/mm^2 >90 polymorhonucleic cells
  - Hemarthosis
    - Fracture, ligament tear

(Mcnabb, 2015, p. 7-9)

! Fluid WBC Count [H] 16383 /mcL 0-150 *3
! Performing Lab: [H] "Result Below..." 0-150 *4
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL

Tests: (3) .BF Cell Cnt RBC M (CD:42095329)
! Fluid RBC Count 9 /mcL *5
! Performing Lab: "Result Below..." *6
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL

Tests: (4) Crystals (FLCA)
! Fluid For Crystal Analysis
[A] MSUCrystalsSeen NoCrystals Seen *7
! Performing Lab: [A] "Result Below..." NoCrystals Seen *8
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840

Tests: (1) .BF Diff (.Body Fluid Differential)
! Fluid Polynuclear Cells
[H] 74 % 0-25 *1
! Fluid Mononuclear Cells
26 % 0-78 *2
! Fluid Other Cells 0 % 0-10 *3
! Performing Lab: "Result Below..." 0-10 *4
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 %

Note: An exclamation mark (!) indicates a result that was not dispersed into the flowsheet.
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Tests: (2) Crystals (FLCA)
! Fluid For Crystal Analysis
NoCrystals Seen NoCrystals Seen *3
Steroid crystals may assume needle shapes mimicking CPPD and MSU crystals.
Please review this patient's history for intra-articular steroid injection
within two weeks prior to this crystal analysis.
! Performing Lab: "Result Below..." NoCrystals Seen *4
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840

Tests: (3) BF Cell Count (FLCC)
! Body Fluid Cell Cnt Type
Synovial *5
! Performing Lab: "Result Below..." *6
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840

Tests: (4) .BF Cell Cnt WBC A (.Body Fluid Cell Count WBC Auto)
! Fluid WBC Count [H] 62322 /mcL 0-150 *7
! Performing Lab: [H] "Result Below..." 0-150 *8
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL

Tests: (5) .BF Cell Cnt RBC A (.Body Fluid Cell Count RBC Auto)
! Fluid RBC Count 21450 /mcL *9
! Performing Lab: "Result Below..." *10
RESULT: BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL

Tests: (1) .BF Diff (.Body Fluid Differential)
! Fluid Polynuclear Cells
[H] 86 % 0-25 *1
! Fluid Mononuclear Cells
14 % 0-78 *2
! Fluid Other Cells 0 % 0-10 *3
! Performing Lab: "Result Below..." 0-10 *4
RESULT: BLANCHARD VALLEY HOSPITAL

The following results were not dispersed to the flowsheet:

Fluid For Crystal Analysis, NoCrystals Seen, (F)
Performing Lab:, BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840, (F)
Body Fluid Cell Cnt Type, Synovial, (F)
Performing Lab:, BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840, (F)
Fluid WBC Count, 5474 /mcL, (F)
Performing Lab:, BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL, (F)
Fluid RBC Count, 940 /mcL, (F)
Performing Lab:, BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 /mcL, (F)
Fluid Polynuclear Cells, 43 %, (F)
Fluid Mononuclear Cells, 57 %, (F)
Fluid Other Cells, 0 %, (F)
Performing Lab:, BLANCHARD VALLEY HOSPITAL
1900 SOUTH MAIN STREET
FINDLAY, OH 45840 %, (F)

Tests: (2) BF Cell Count (FLCC)

! Body Fluid Cell Cnt Type	Synovial	
! Performing Lab:	"Result Below..."	*3
RESULT: BLANCHARD VALLEY HOSPITAL		*4

1900 SOUTH MAIN STREET


40
50
60ml
BD
40
50
60ml
BD


10
20
30
40
50
60ml
BD


10
20
30
40
50
60ml
BD

Common Injectables

- Local Anesthetics
  - Lidocaine
  - Bupivicaine
- Corticosteroids
  - Soluble
  - Insoluble
- Viscosupplementation
- Platelet Rich Plasma

Local Anesthetics

- Lidocaine
  - Mechanism of action
    - Inhibits sodium ion channels, stabilizes neuronal cell membrane, inhibiting nerve impulse
  - Metabolism
    - liver, CYP450 1A2, 3A4 substrate
  - Excretion
    - Urine
  - Onset
    - Rapid
  - Half life
    - 1.5-2 hours

Local Anesthetics

- Lidocaine
  - Dosage
    - Max 4.5 mg/kg/dose, up to 300 mg/total
  - Contraindications
    - Hypersensitivity
    - Hepatic impairment
  - Adverse reactions
    - Injection site pain
    - Tinnitus
    - arrhythmia

Local Anesthetics

- Marcaine
  - Mechanism of action
    - Inhibits sodium ion channels, stabilizes neuronal cell membrane, inhibiting nerve impulse
  - Metabolism
    - liver, 3A4 substrate
  - Excretion
    - Urine
  - Onset
    - Slow
  - Half life
    - 3.5 hours

Local Anesthetics

- Bupivicaine
  - Dosage
    - Max 2 mg/kg, up to 275 mg/dose
  - Contraindications
    - Hypersensitivity
    - Hepatic impairment
  - Adverse reactions
    - Injection site pain
    - Tinnitus
    - Arrhythmia

(Epocrates, 2017)

Corticosteroids

- Mechanism of action
  - Complex
    - Inhibits cytokines and inflammatory mediators
- Metabolism
  - Liver, CYP 3A4
- Excretion
  - Urine
- Potency
  - Measured against Hydrocortisone
- Solubility
  - Insoluble
    - Esters, microcrystalline suspensions
  - Soluble
    - Non-esters, nonparticulate

(Epocrates, 2017, Mcnabb, 2015, p. 13)

Corticosteroids

- Caution
  - Hypersensitivity
  - Latent infections
  - HTN
  - DM
  - Glaucoma
- Adverse reactions
  - Anaphylaxis
  - Hyperglycemia
  - CHF
  - PUD
  - Facial flushing
  - Headache
  - Skin and fatty atrophy

(Epocrates, 2017, Mcnabb, 2015, p. 13)

Corticosteroids

Corticosteroid	Relative potency	Solubility (%Wt/Vol)	Biological Half-life (hours)
Hydrocortisone Acetate (Hydrocortisone)	1	High	8-12
Triamcinolone Acetonide (Kenalog)	5	Intermediate	12-36
Methylprednisolone (Depo-Medrol)	5	Intermediate	12-36
Betamethasone and Sodium Phosphate (Celestone)	25	Low/High	26-54
Dexamethasone Acetate (Decadron)	25	High	26-54 (Table adapted

Corticosteroids

Dosing Equivalency

Preparation	Trade Name	equivalent Dose/Volume (mg/ml)
Triamcinolone	Kenalog	40
Methylprednisolone	Depo-medrol	40
Dexamethasone	Decadron	8
Betamethasone Acetate and sodiume Phosphate	Celestone	6 (Table adapted from Mcnabb, 2015, p.15)

Corticosteriod Dosing

Drug	Large Joint (Knee, Hip Shoulder)	Medium Sized Joint (Elbow, ankle)	Small Joints (Hands, feet)
Hydrocortisone	50-10 mg	25-40 mg	10-15 mg
Methylprednisolone	40-80 mg	20-30 mg	5-10 mg
Triamcinolone	20-40 mg	10-20 mg	2.5-5 mg

(Lawery, 2010, p. 130)

Corticosteroids

- Intra-articular steroids
  - How often
    - No studies to determine exact interval
    - Currently based on professional opinion
    - General consensus is every 3 months

(Mcnabb, 2015, p. 15)

Hyaluronic injections/Viscosupplementation

- Hyaluronan (sodium hyaluronate)
  - Natural complex sugar of the glycosaminoglycan family
    - Concentration and size of Endogenous hyaluronate are reduced in Osteoarthritis
- Viscosupplementation
  - Synthetic hyaluronate supplement
    - Rooter comb
    - Derived from Bacterial fermentation
  - Mechanism of action unknown
    - Lubrication, shock absorption

(Mcnabb, 2015, p. 16)

Platelet Rich Plasma

- Investigational
- Injection of centrifuged blood
  - Plasma with concentrated platelets is injected into injured tissue
  - Platelets contain growth factors which is believed to promote/speed healing

Intraarticular and Periarticular injections/Aspiration

- Technique/Procedure
  - Prepare injections/Gather supplies
  - Identify Landmarks
  - Mark injection site
  - Prep injection site
    - Alcohol, betadine, chlorahexidine
  - Injection
    - Local anesthetic
      - Lidocaine
      - Vapocoolant
    - No touch technique
      - Aseptic technique

Intraarticular and Periarticular injections/Aspiration

- Complications
  - Vasovagal reaction
  - Infection
  - Cortisone Flair
    - Crystalline Steroid Preparation
    - Methylparaben preservative
    - Treat with rest, Ice and NSAIDS
  - Headache, flushing, abnormal vaginal bleeding, HPA axis suppression, Osteoporosis
  - Skin/fatty atrophy
  - Skin hypopigmentation
  - Tendon Rupture, ligament rupture

(Mcnabb, 2015, p. 23)

Intraarticular and Periarticular injections/Aspiration

- Aftercare
  - Apply pressure
  - Sterile bandage
  - Ensure Patient is stable
  - Patient instructions
    - Monitor for infection
      - Redness, warmth, proximal red streaking,temp <100
    - Rest and protect area 1-2 days

(Mcnabb, 2015, p. 24)

Documentation

- Diagnosis
- Risk and benefits
- Written Consent
- Post injection instructions
- Follow-up
- Injection
  - Site
  - Medication
  - Positioning
  - Complications, difficulties
  - Response to injection
  - Post injection condition (Mcnabb, 2015, p. 25)

Billing

CPT	J codes
20526- Injection, therapeutic, Carpal Tunnel 20550 Injection, single tendon sheath, or ligament, aponeurosis 20551- Injection, single tendon origin/insertion 20552 Injection single or multiple trigger points 20553- Injection, trigger points, three or more muscles 20600-Arthocentesis, aspiration and or Injection Small Joint or bursa 20605- Arthocentesis, aspiration and or Injection intermediate Joint or bursa 20610-Arthocentesis, aspiration and or Injection Large Joint or bursa	J3301- Kenalog J1020 Depo-medrol 20 mg J1030 Depo-medrol 40 mg J1040 Depo-medrol 80 mg J0704 Celestone 6 mg J1094 Decadron 1 mg

(Mcnabb, 2015, p. 26-27)

Billing

- Modifiers
  - 25- billing for injection with office visit
  - 51 or 59- injections multiple sites
  - 50- bilateral procedure

(Mcnabb, 2015, p. 26)

Upper Extremity

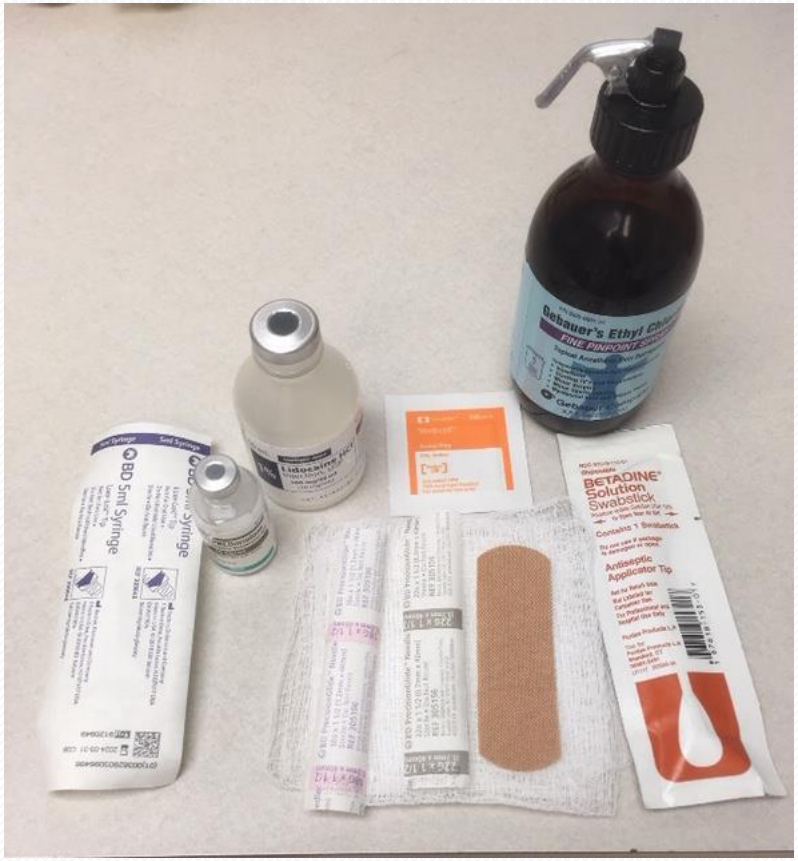
- 1st Carpometacarpal Joint
- De Quervains Tenosynovitis
- Trigger Finger
- Medial and Lateral Epicondyle Injections
- Elbow joint injection/Aspiration
- Subacromial Injection

Lower Extremity

- Greater Trochanter injection
- Knee joint injection/aspiration
- Pes Bursa injection
- Plantar fascia injection

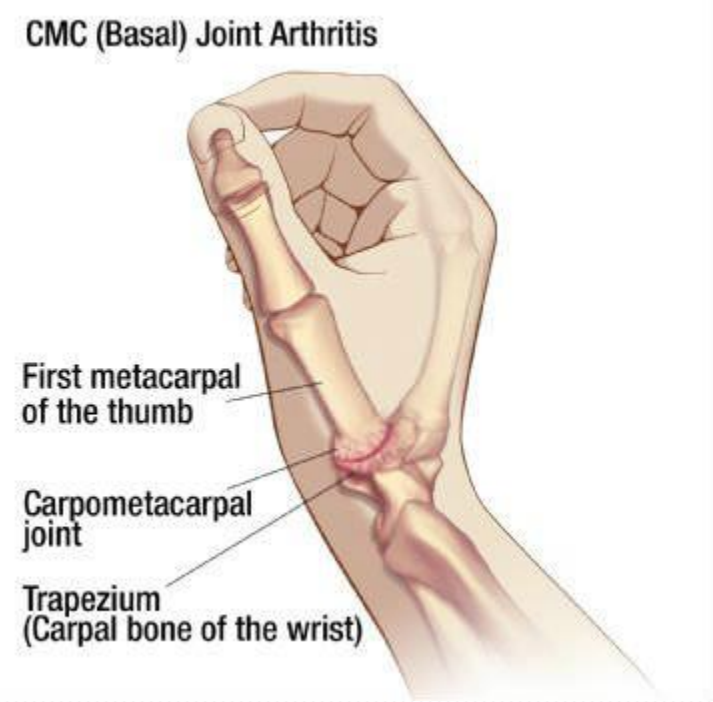
Injection Supplies

- Antiseptic
- Local anesthetic
  - Vapocoolant
  - Lidocaine
- Corticosteroid
- Leur lock syringe
- 22 or 25 gauge needle



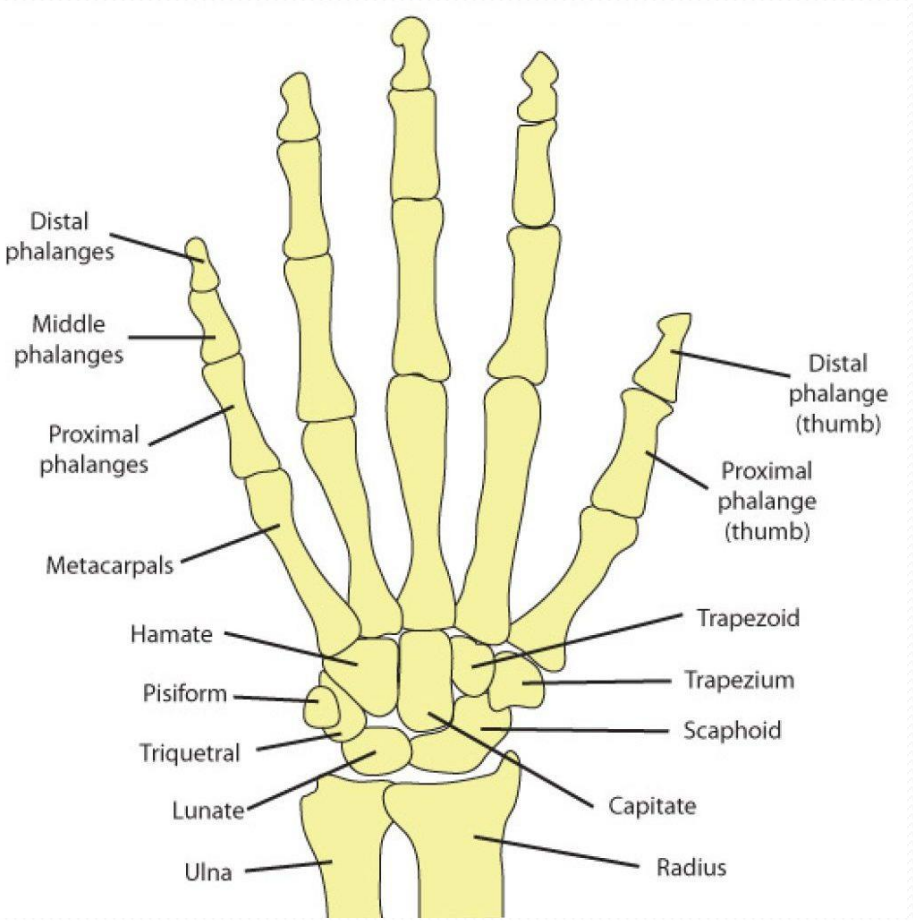
1st Carpometacarpal Joint

- Indication
  - First Carpometacarpal Osteoarthritis



(*CMC (BASAL joint) arthritis*, 2014)

Anatomy



(*Hand anatomy*, 2016)

Landmarks

- Identify landmarks/joint by having patient adduct the thumb
  - Palpate first metacarpal distal to proximal
    - Tenderness
    - Dip between first metacarpal and Trapezium

(Mcnabb, 2015, p. 146)

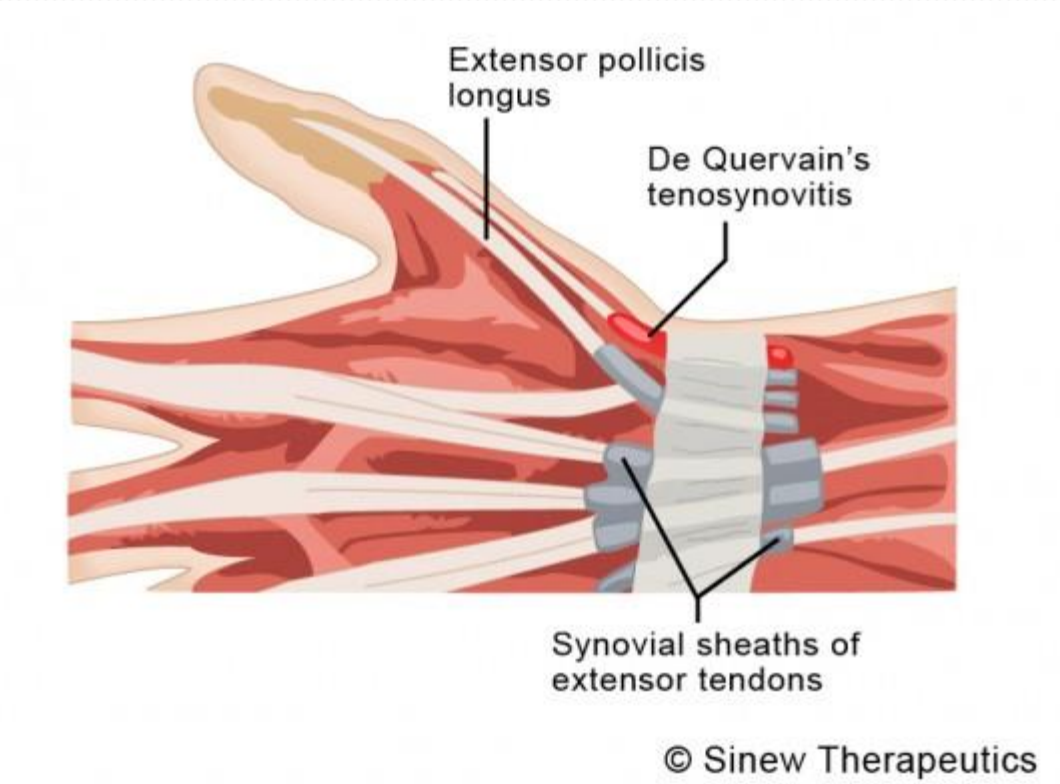
Technique

- Insert needle perpendicular to skin
- Inject dorsally to avoid radial artery.
- Apply traction to thumb to open joint space.

(Mcnabb, 2015, p. 147)

1st Extensor Compartment, Wrist

- Indications
  - Dequervains Tenosynovitis



(*Dequervains tenosynovitis*, n.d.)

Landmarks

- Identify tenderness over 1st dorsal compartment
  - Abductor Pollicis Longus
  - Extensor pollicis brevis

  - Injection site directly between tendons over radial styloid

(Mcnabb, 2015, p. 139)

Landmarks

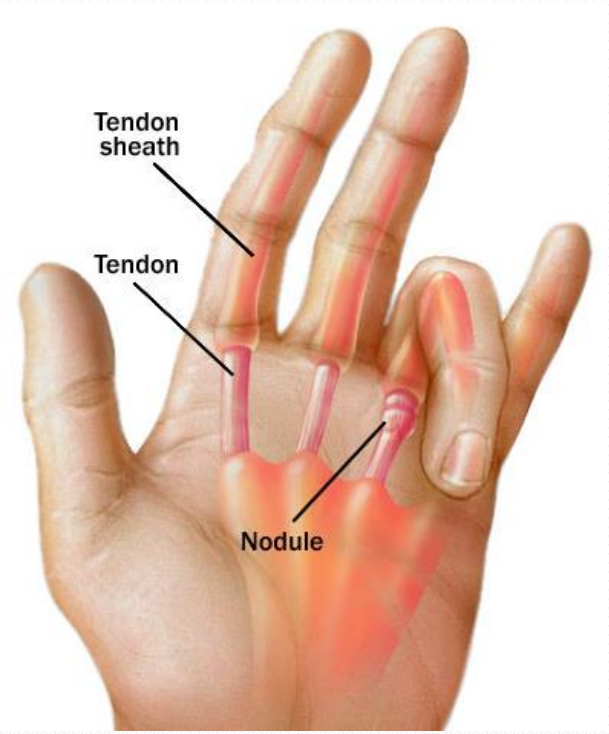
Technique

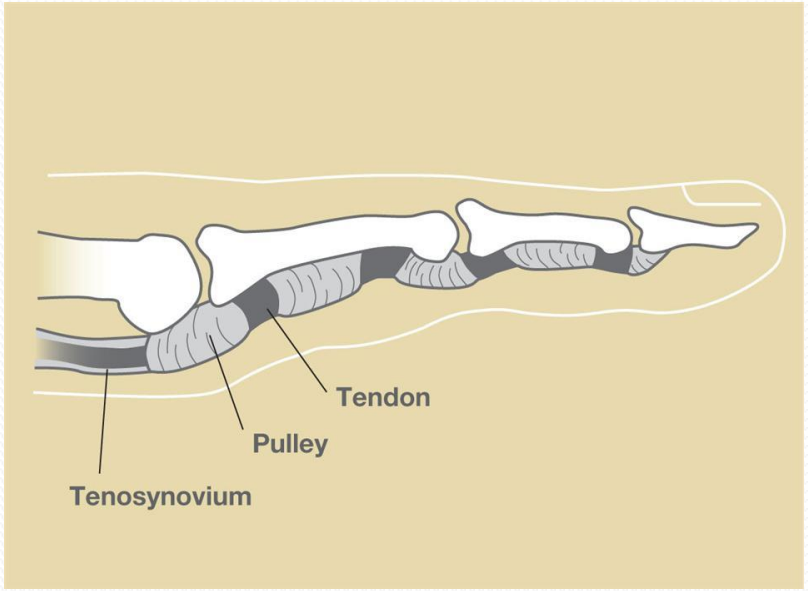
- Position needle 45 degree angle directed proximally with bevel up
- Advance needle to radial styloid, withdraw slightly
- Slowly inject mixture, should track proximally along tendon sheath, may feel “POP” with injection

(Mcnabb, 2015, p. 140)

Trigger Finger Injection

- Indications
  - Stenosing Tenosynovitis





(*Trigger finger*, n.d.)

Landmarks

- Proximal Phalanx
- Metacarpal Head
- Flexor Tendons
  - Identify painful palpable nodule
    - A1 pulley
  - Injection site 1 cm distal to palpable nodule

(Mcnabb, 2015, p. 153)

Landmarks

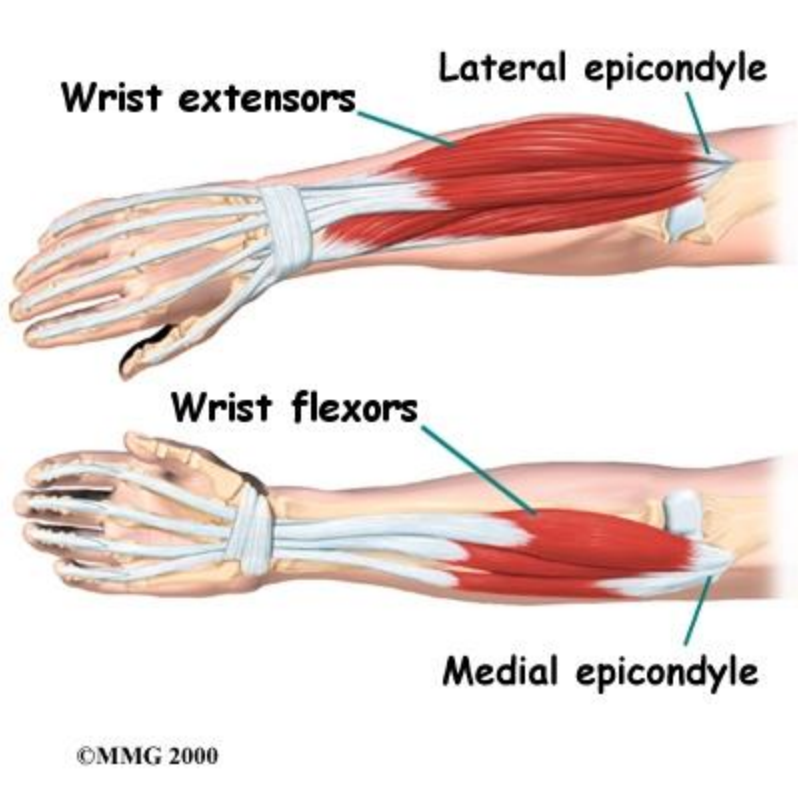
Technique

- Position needle 45 degree angle directed proximally with bevel up
  - Advance needle towards nodule
  - May skewer tendon, withdraw 1-2 ml slowly applying gentle pressure on plunger, once no resistance is felt continue to inject
  - Sausage like mass may form due to distention of tendon sheath.

(Mcnabb, 2015, p. 155)

Medial and lateral epicondyle injection

- Indication
  - Medial Epicondylitis
  - Lateral epicondylitis



(*Medial and lateral epicondylitis*, 2008)

Anatomy

- Lateral epicondyle
  - Point of Maximal Tenderness adjacent to lateral epicondyle
- Medial epicondyle
  - Point of maximal tenderness adjacent to medial epicondyle

Landmarks

- Lateral epicondyle injection
  - Lateral epicondyle
  - Extensor Carpi Radialis Longus

- Medial epicondyle Injection
  - Medial epicondyle
  - Olecranon
  - Cubital tunnel (ulnar nerve)

(Mcnabb, 2015, p. 115)

Landmarks

Technique

- Lateral epicondyle injection
  - Advance needle perpendicular to lateral epicondyle
    - Withdraw needle 1-2 mm and inject
  - Use pinch technique to avoid subcutaneous infiltration

- Medial epicondyle injection
  - Advance needle to medial epicondyle
    - Withdrawal needle 1-2 mm and inject

(Mcnabb, 2015, p. 116 & 120)

Elbow Joint Injection/Aspiration

- Elbow joint effusion
- Elbow osteoarthritis
- Olecranon Bursitis

Landmarks

- Radial Head
- Lateral epicondyle
- Olecranon process
  - Injection site is locate in soft spot between radial head, lateral epicondyle and Olecranon.

Landmarks

Technique

- Intraarticular injection
  - Position
    - Lying supine with elbow 45 degrees extension
  - Injection/aspiration
    - Direct needle 90 degrees
    - Insert slowly applying suction
    - Synovial fluid confirms placement
    - Inject if indicated

(Mcnabb, 2015, p. 109)

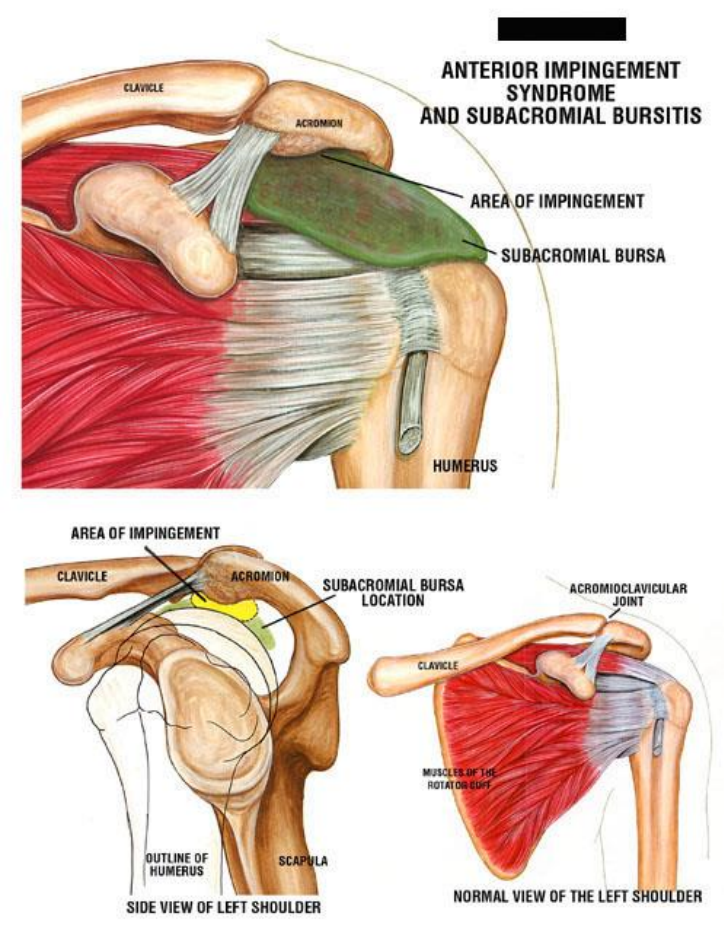
Technique

- Olecranon bursa
  - Insert needle away from any open areas and/or cellulitis at the site of maximal fluctuance
    - Insert slowly applying suction
      - Fluid may be thick and not amendable to aspiration
      - Inject following aspiration if indicated

(Mcnabb, 2015, p.112)

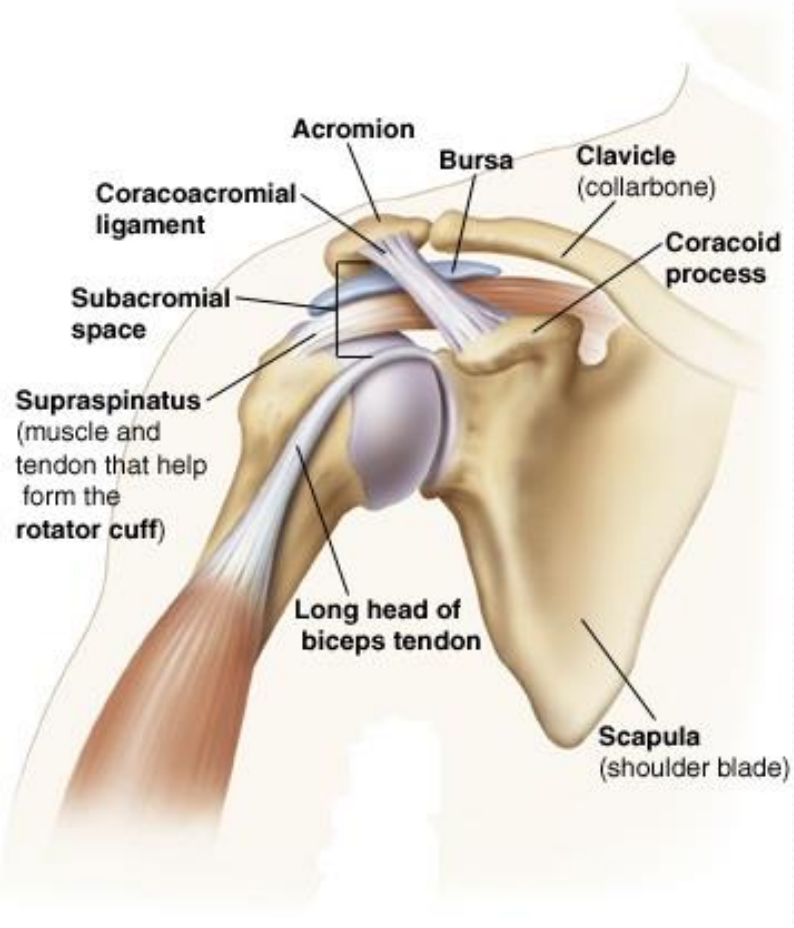
Subacromial Injection

- Indications
  - Rotator Cuff Impingement
  - Partial Rotator Cuff Tear
  - Rotator cuff tendinitis
  - Subacromial Bursitis
  - Proximal Bicep tendinitis



(*Subacromial impingement*, n.d.)

Anatomy



(*Shoulder anatomy*, n.d.)

Landmarks

- Subacromial injection (Posterior Approach
  - Identify Posterior Lateral Border of Acromion
    - Injection site located in soft spot approximately 2 cm inferior

(Lawery, 2010, p. 18)

Landmarks

Technique

- Positioning
  - Sitting
- Needle is directed Medially, superior aiming towards acromioclavicular joint

(Mcnabb, 2015, p. 84)

Case Study

43 year old male presents for follow up for his right shoulder. He has continued pain despite taking over the counter anti-inflammatories, activity modification, and 4 weeks of formal physical therapy. On exam he has positive Neer and Hawkin's signs. What is the next best mode of action?

a. Perform Subacromial corticosteroid injection utilizing posterior approach with 160 mg Depo-medrol and 8 ml 1% lidocaine.
b. Prescribe Norco 5mg/325 mg 1-2 tablets every 4-6 hours as needed for pain. Dispense 240 tablets. No Refills.
c. Perform Subacromial corticosteroid Injection utilizing Posterior approach with 80 mg Depo-medrol and 8 ml 1% lidocaine.
d. Perform Glenohumeral corticosteroid injection utilizing Posterior approach with 80 mg Depo-medrol and 8 ml 1 % lidocaine.

Case Study

Following the injection, what do you anticipate?

A. Increased Pain
B. Right arm numbness
C. Resolution of Neer and Hawkin's Signs
D. Reduction in Range of motion

Case Study

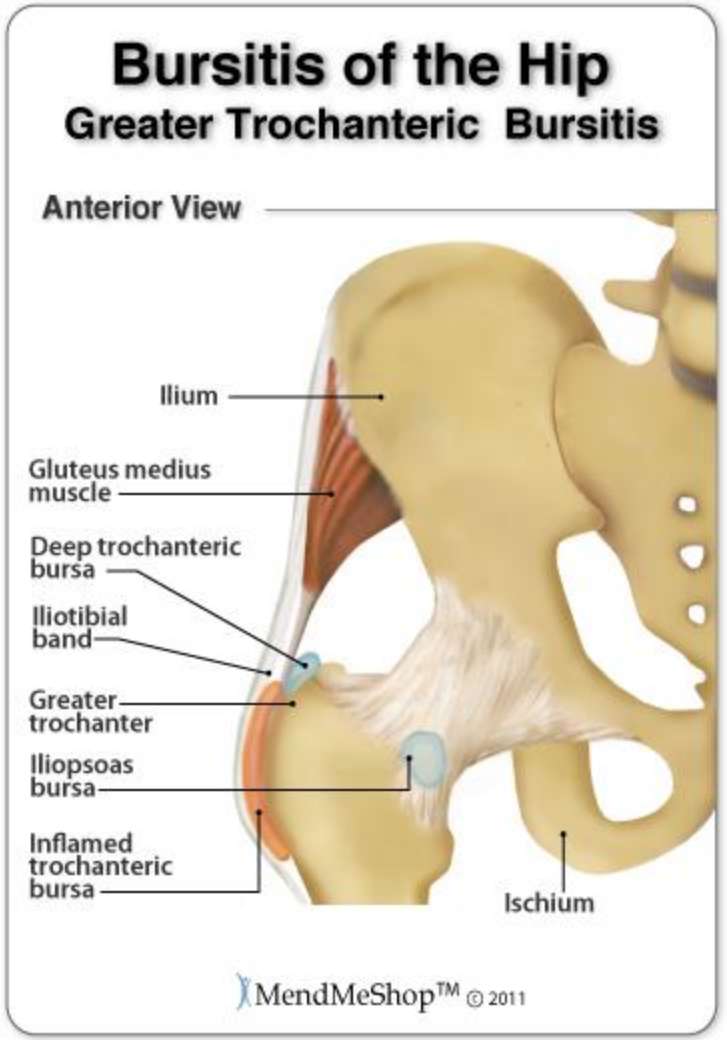
Which reflects the most appropriate Coding for this encounter?

A. Level 3, 99213. 25 modifier. Large Joint 20610, Depo-medrol 80 mg J1040
B. Level 3, 99213. 25 modifier. Intermediate Joint 20605, Depo-medrol 80 mg J1040
C. Level 3, 99213, 57 modifier, Large Joint 20610, Depo-medrol 80 mg J1040
D. Level 3, 99213, 57 modifier, Intermediate joint 20605, Depo-medrol 80 mg J1040

Break time

Greater trochanteric Bursa injection

- Indications
  - Greater Trochanteric Bursitis



(*Greater trochanteric bursitis*, 2011)

Landmark

- Greater trochanter
  - Identify point of maximum tenderness
  - In larger patients can internally and externally rotate hip to identify greater trochanter

Technique

- Positioning
  - Lateral decubitus
    - Affected hip up
- Insert needle perpendicular to skin
  - Insert needle until contact with femur
    - Withdrawal 1-2 mm and inject
    - Fan injection

(Mcnabb, 2015, p. 193)

Knee joint injection/aspiration

- Indication
  - Knee Arthritis
  - Acute effusion
  - Septic arthritis

(*Knee effusion*, 2013)

Landmarks(Lateral suprapatellar Approach)

- Superior boarder patella
  - Draw line 1 cm superior
- Posterior edge patella
  - Draw line alone posterior boarder
    - Injection site is where the lines intersect

Landmarks

Technique (Lateral Suprapatellar approach)

- Position
  - Supine, knee flexed supported by towel or pillow
- Technique
  - Insert needle perpendicular to skin with needle bevel up
    - Slowly advance with gentle suction between quad and distal femur
    - May feel pop, presence of synovial fluid confirms placement
    - Aspirate fluid as desires, may follow with corticosteriod preparation.

(Mcnabb, 2015, p. 204)

Landmarks (Anterolateral Approach)

- Inferior pole patella
- Lateral femoral condyle
- Gerdy's Tubercle (proximal tibia)
  - Injection site approximately 1 cm lateral to patellar tendon (soft spot)

Landmarks

Technique

- Position
  - Sitting on exam table with knee flexed 90 degrees
- Insert needle 30-45 degree angle aiming toward condylar notch tibia
  - Apply suction, synovial fluid confirms needle placement
  - Inject slowly

(Mcnabb, 2015, p. 214)

Pes Bursa Injection

- Indication
  - Pes bursitis

(*Pes bursitis*, 2011)

Landmarks

- Medial proximal tibia
  - Injection site
    - Point of maximum tenderness

Technique

- Position
  - Either supine with knee slightly flexed, or seated with knee flexed 90 degrees
- Injection
  - Insert needle perpendicular to skin
  - Advance slowly until needle reaches tibia, withdraw 1-2 mm, aspirate and inject.

Plantar fascia injection

- Indications
  - Plantar fasciitis

(*Plantar fasciitis*, 2011)

Landmarks

- Medial calcaneal tubercle
  - Injection site
    - Draw vertical line alone posterior border or tibia
    - Draw horizontal line one finger breadth above plantar surface
      - Point of intersection correlates with medial calcaneal tubercle

(Mcnabb, 2015, p 245-247)

Landmarks

Technique

- Position
  - Supine
- Injection
  - Advance needle perpendicular to skin
  - Slowly advance until medial tubercle is reached at plantar facial insertion, slowly inject

(Mcnabb, 2015, p 245-247)

Case Study

70 year old Male returns to your clinic for his left knee. He has an established diagnosis of Left knee primary osteoarthritis. He denies new injury. He take Tylenol as needed for the pain, and applies biofreeze with little improvement. He walks daily and wears a knee brace. He is having a hard time with daily tasks. He is having pain at night time that awaken's him. He does not want to have surgery. On exam he exhibits subtle joint effusion. Varus alignment. Medial joint line tenderness. Negative mcmurrays. Patellofemoral crepitance. He has full motion and strength. No instability. Which option is likely to give him the most relief?

A. Intramuscular injection 80 mg Depo-medrol
B. Left knee Pes bursa injection using 80 mg depo-medrol 8 ml 1 % lidocaine
C. Left knee injection using lateral suprapatellar approach using 8 ml 1 % lidocaine
D. Left knee injection using lateral suprapatellar approach using 80 mg Depo-medrol and 3 ml 1 % lidocaine.

Case Study

Which reflects the most appropriate Coding for this encounter?

A. Level 3, 99213. 25 modifier. Large Joint 20610, Depo-medrol 80 mg J1040
B. Level 3, 99213. 25 modifier. Intermediate Joint 20605, Depo-medrol 80 mg J1040
C. Level 3, 99213, 57 modifier, Large Joint 20610, Depo-medrol 80 mg J1040
D. Level 3, 99213, 57 modifier, Intermediate joint 20605, Depo-medrol 80 mg J1040

Case Study

The previous patient calls your office 24 hours later complaining of severe knee pain. What is the most likely cause?

A. Septic arthritis
B. Medial Meniscus tear
C. Cortisone Flare
D. Exacerbation of his arthritis

Case Study

What advice to you give to the patient?

A. Go to the emergency room
B. Come to the office immediately
C. Non-weight bearing with axillary crutches
D. Provide reassurance. Advise him to apply ice and elevate. Take NSAIDS or Tylenol. Pain should subside in 24-48 hours. If pain does not improve or if there is redness or warmth, please call the office.

Conclusion

- Musculoskeletal conditions comprise 60 percent of outpatient office visits
- Intraarticular and periarticular injections offer a safe and valuable adjunct to musculoskeletal care.

(Benham & Geier, 2014, p. 603)

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