JOINT INJECTIONS

AJ DURFEE PA-C

- Worked with sports group in San Diego for 7 ½ years
- Worked for Kaiser Orthopedics since 2011
- I grew up in San Diego

CHRIS MAYBERRY PA-C

XAVIER VALDEZ

- Grew up in Texas
- Speak fluent Spanish

RULES

- If you have a question please stop me and ask
- No one can effectively listen to me for 2 hours so don't try
- Finally if I start speaking in Spanish stop me and I will revert back to english

COURSE OBJECTIVES

- Discuss the various pharmacologic agents and methods used in joint injections
  - Corticosteroids
  - Lidocaine/Marcaine
  - Hyluronic Acid
  - Ultra Sound

COURSE OBJECTIVES- CONTINUED

- State the risks and contraindications to performing joint injections.
- List the various joints that are commonly injected in patients.

COURSE OBJECTIVES

- Review the important anatomy needed to perform joint injections
- Leave here confident to inject a joint or soft tissue

GENERAL INTRODUCTION

- Injections are safe and effective when done properly
- Helpful tool to treat musculoskeletal problems
- Anatomy- *"Bone is your friend*
- *Inject deep so you don't bleach the skin*

PRINCIPLES OF INJECTION

- Local problem tx. With local solution
- *Steroids injections safer than NSAID?*
  - *NSAID*:
    - GI bleeds- minor vs. life threatening
    - Renal - ARF (interstitial nephritis)
    - Liver toxicity- cytochrome P450

STEROIDS INJECTIONS: COMPLICATIONS
(GREY, CLIN. ORTHO., 1983)

Transient paresis of injected extremity	Rare
Hypersensitivity	Rare
Periarticular calcification	45%
Acceleration of cartilage attrition	Unknown

STEROID INJECTIONS

Sepsis	0.38%
Arthropathy	0.34%
Tendon rupture	<1%
Bone fracture	<1%
Skin atrophy	<1%
Hypopigmentation	<1%
Malignant infection	<0.001%

Bad Injection Technique

RISKS FROM INJECTIONS

- Bleeding
- Infection
- Scarring
- Nerve Damage
- Tendon Weakening
- Vaso-vagal reaction

AGENTS TO INJECT

- Corticosteroids
- Local Analgesics
- Viscosupplementation

CORTICOSTEROIDS SHORT ACTING

- Depo Medrol 40 and 80 mg
- Inhibits inflammatory cytokines
- Kenalog 40

- Long acting agents are available
- Dexamethasone

CAINES FOR ANESTHESIA

- Lidocaine (2 Hours)
- Bupivocane (4-8 Hours)
- Marcaine (4-8 Hours)

VISCOSUPPLEMENTATION

- History of injections
- 1 2 cc injection a week for 5 weeks Q 6 months
- 1 a week for 3 weeks Q 6 months
- 1 Q 6 months

VISCOSUPPLEMENTATION

- Synvisc, Orthovisc, Euflexxa, Supartz, Hyalgan, Synvisc One
- We typically are using Synvisc one Q 6 months

INDICATIONS

- Mild to moderate DJD
- Not mod-severe elderly obese patient
- AAOS in an article 2015 reported not effective
- If you want to know how good it is read the Sunday newspaper

TECHNIQUES TO MINIMIZE PAIN

- This is the Orthopedic magic mix
- Prepare Patient, Position Patient. This is how you will succeed
- Ethyl Chloride- spray until skin turns white
- Choose your cain mix wisely
- Have them ice the area at home
  - 15 min x 3 per day (consider frozen peas or other veggies)

CONTINUED

- Consider a compressive knee sleeve
- Activity modification
- Weigh loss
- NSAIDS if appropriate
- This is the orthopedic talk. If you do this we are all on the same page with our patients.

REPEAT INJECTIONS

- Maximum 3 injections to same joint per year
- Ortho sometimes will do every 3 months or 4 a year
- Lower patient expectations on repeat injections!!!!

PROCEDURE / ASEPTIC TECHNIQUE

- Explain/consent patient
- Dress/position patient
- Glove/goggle/mark site with *lollypop*
- Prep with betadine x 3, or Chloraprep
- Ethyl Chloride
- Inject
- Clean/Dress/Aftercare/follow up

POST INJECTION CARE/FOLLOW UP

- Avoid full activity x 1-3 days
- Failure to improve…
  - Re-think diagnosis
  - Weight bearing X-Ray
  - Modify activity
  - Weight loss
  - Ortho referral if surgical

ULTRASOUND

- Orthopedics has ultrasound at all outpatient offices
- It is the standard in community orthopedics WHY?
- When is it beneficial?

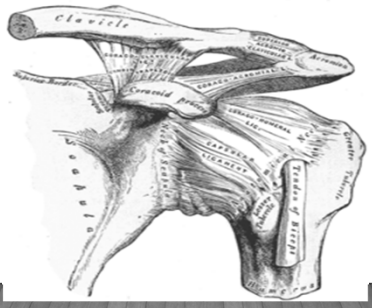
JOINTS TO INJECT

- Technically if it's a joint you can inject it
- Shoulder : GH Joint, AC Joint, Subacromial Space, Biceps Tendon
- Knee: Joint, Pes Anserine
- Elbow, Wrist, Fingers, Ankle, Foot

ANATOMY

- Shoulder
- Knee
- Hip
- Elbow
- Wrist/Hand
- Ankle/Foot

SHOULDER ANATOMY



SHOULDER PATHOLOGY

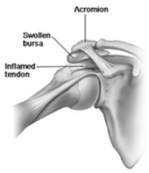
- Impingement Syndrome of Shoulder
- Biceps Tendonitis
- GH DJD
- AC Separation
- Adhesive Capsulitis
- Infection (Be aware of this)

SHOULDER IMPINGEMENT SYNDROME

- History
  - Pain with abduction, sleep, overhead activity
- Symptoms
  - Popping, clicking, weakness,
- Physical Signs-Impingement Signs
  - Neers, Hawkins
- Treatment Options

SHOULDER (SUBACROMIAL) INJECTION

- 1 ½ 22 gauge needle
- 80 Depo-Medrol
- Or 40 Kenalog
- 6cc Bupivocaine
- Location
  - Posterior
    - 1 cm medial / 1cm inferior to pos
  - Lateral

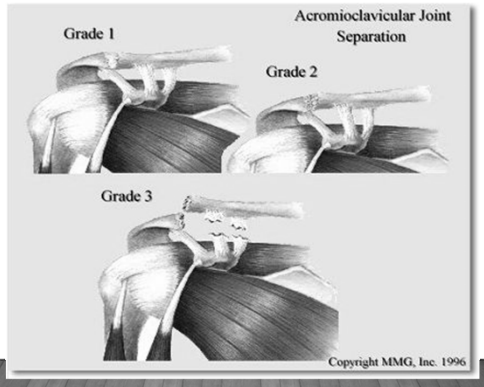


POSTERIOR SHOULDER DISLOCATIONS

- "Beware the frozen shoulder…"
- Be sure not missing posterior dislocation
- Physical Exam Pearl
  - Even full rotator cuff tears can externally rotate
  - Posterior Dislocated shoulders cannot externally rotate!

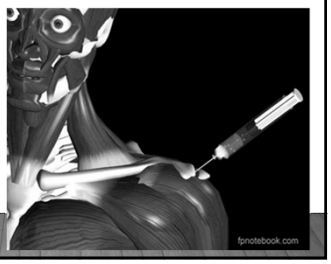
ACROMIOCLAVICULAR (AC) SEPARATIONS OF THE SHOULDER

- Fall on to tip of shoulder, adducted arm
- Very painful
- Consider early injection…
  - Prevents natural course of
  - Pain, Bleeding, Inflammation, Disuse Atrophy
  - Turns a 8 week injury into 1 week
  - Need to do within days



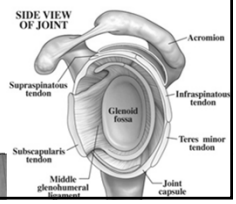
AC JOINT (SHOULDER SEPARATION)

- 80 Demo-Medrol or
- 40 Kenalog
- 2 cc Bupivicane



GH JOINT INJECTIONS

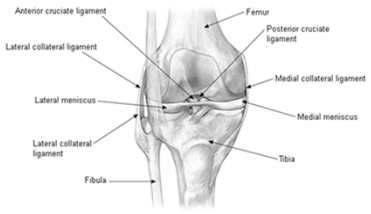
- 80 Depomedrol or 40 Kenalog
- 6 cc bupivacaine
- Posterior approach or superior approach through neviaser portal
- 1 ½ 22 gauge needle
- 10 cc syringe
- Hand is flat



ORTHOPEDICS REFERRAL

- If you find a fracture you are not comfortable with on X-Ray
- If they fail an injection and Physical Therapy with all other conservative measures
- If you order and MRI and there is pathology

KNEE ANATOMY



KNEE PATHOLOGY

- DJD (80% of Americans over 40 have osteoarthritis)
- Patellar Femoral syndrome
- Meniscus tear
- Loose Body
- Ligament injury
- Infection (Be aware)

KNEE INJECTIONS JOINT

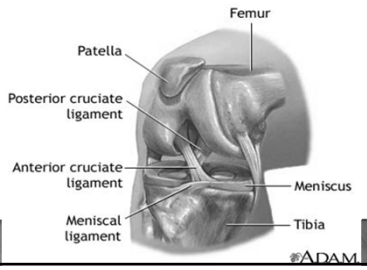
- 80 Depo-Medrol or 40 Kenalog
- 3 cc bupivacaine
- 5 cc syringe
- 1 ½ inch 25 gauge needle
- Location
  - Superior/Lateral aspect- soft spot
  - Anterior Medial
  - Anterior Lateral

ANTERIOR APPROACH

- Ensure the patient is seated and has their knee flexed. This opens the joint up.
- Find patellar tendon
- Palpate the patella
- Palpate the tibial plateau
- Palpate the femoral condyle
- Compress the joint space and watch for buldge (pull up your pant leg)

ANTERIOR APPROACH

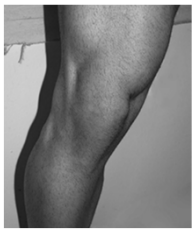
- Choose Medial or Lateral based on anatomy



SUPERIOR LATERAL APPROACH

- Patient has to be supine comfortable on the table
- Knee to be in full extension
- You sit beside them on a chair

KNEE ANATOMY



SUPERIOR LATERAL APPROACH

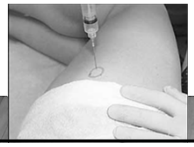
- Palpate the patella
- Pull the patella laterally and feel the edge
- Your injection will be at the apex of the superior border of the patella and the lateral border of the patella
- Draw lines if it helps you

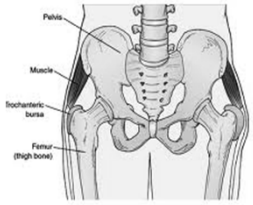
ORTHOPEDICS REFERRAL

- Failure of injections, Physical therapy, other conservative measures
- BMI less than 40. If greater work on weight loss vs referral to general surgery
- Ensure DM is controlled
- Remember you are sending to a surgical specialty, make sure they are a surgical candidate

HIP- GREATER TROCHANTERIC BURSITIS

- Common in geriatric
- Good results from injection
- 80 Depo-Medrol or 40 Kenalog, 4cc Bupivicane
- 22 gauge spinal needle



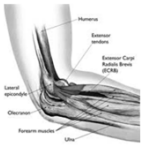


TROCHANTERIC BURSITIS CONTINUED

- Ice cup massage
- NSAIDS
- Referral to Physical Therapy
- Stretch

ELBOW- LATERAL EPICONDOLITIS

- 80 Depo-Medrol or 40 Kenalog
- 1-3 cc bupivicane
- BE CAREFUL OF SKIN ATROPHY
  - Deeper is better in regards to this injection
  - Start distal and inject proximal

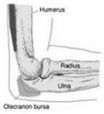


LATERAL EPICONDYLITIS CONTINUED

- Compression strap
- NSAIDS
- Friction Massage
- Ice up Massage
- Referral to Physical Therapy
- Activity modification

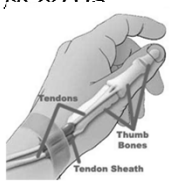
OLECRANON BURSITIS OF ELBOW

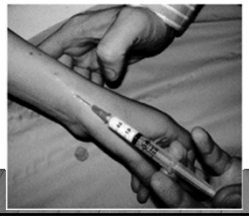
- We typically do not inject these due to increase chance of infection
- Compression/Padding Sleeve or ace wrap and padding

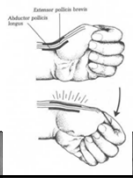


DEQUERVAIN TENOSYNOVITIS

- 80 Depo-Medrol or 40 Kenalog
- 1-2 cc Bupivicane
- BE CAREFUL OF SKIN ATROPHY!





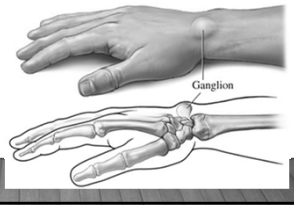


DEQUERVAINS CONTINUED

- Use a Velcro Thumb Spica Splint
- NSAIDS
- Ice Cup Massage
- Activity modification
- Referral to Physical Therapy

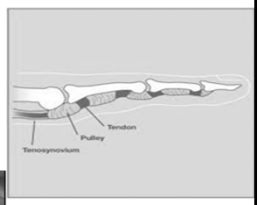
GANGLIONS

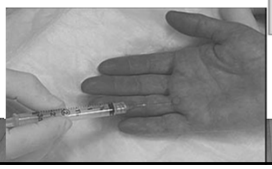
- Aspirate
  - Use Needle Holders to change syringes 1 ½ inch 18 gauge needle
- Injection
  - 80 Depo-Medrol or 40 Kenalog
  - 1 cc Bupivicane
- Very likely to recur
- Use ace wrap or Velcro splint
- Encourage ice use
- If recurrence send to Orthopedics



TRIGGER FINGER - A1 PULLEY STENOSIS

- Injection
  - 80 of Depo-Medrol or 40 Kenalog
  - 1 cc Bupivicane
  - 25 gauge 1 ¼ needle



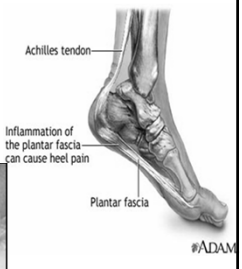


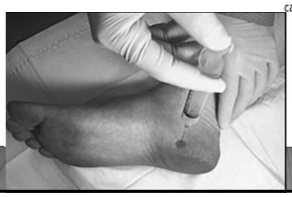
TRIGGER FINGER CONTINUED

- When you inject have them move their digit to ensure you are not injecting the tendon
- Some acute triggering will stop on its own with rest, NSAIDS, and ice

PLANTAR FASCIITIS

- 80 Depo-Medrol or 40 Kenalog
- 1 cc Bupivicane
- BE CAREFUL OF HEEL FAT PAD ATROPHY!!!!!!





PLANTAR FASCIITIS CONTINUED

- Ice roller
- Stretch
- Referral to Physical Therapy
- Night boot use
- Wise shoe choices

FINAL COMMENTS OR QUESTIONS

- Patients may artificially feel better for 4 days
- ROM helpful
- Injections should be view as one aspect of the treatment to compliment physical therapy….

PEARLS

- Bone is your friend
- If you can put a finger on the pain you can put a needle in it
- Don't let the skin get in the way of the cure