Office Based Procedures
Knee, Elbow, and Wrist injections
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Disclosure Information
- Nothing to disclose
References

- Adding joint and soft-tissue injection to your practice can pay off in more ways than one. William D. Martz, MD Fam Pract Manag. 2003 Nov-Dec;10(10):38-40.
- Joint Injections, American College of Rheumatology website
- Pain Procedures in Clinical Practice (Third Edition): Ted Lennard

Office Based Procedures

Objectives:

- List the most common pain conditions in Knee, elbow and myofascial pain
- Describe the etiology and pathology
- Explain the economic impact of these common conditions
- List the various diagnostic tests available
- Discuss the various office based procedures than can help alleviate the pain and improve function
**Indications**

- Acute painful joint/bursa/tendon insertion
- Acute flare of a chronic arthritic joint
- Evaluate spontaneous, unexplained joint effusion with/without associated trauma
- Limit joint damage from infectious process and provide relief from large effusion

**Most Common Joints Injected**

- Knee
- Hip
- Shoulder
- CMC of thumb
- Elbow
- Ankle
Other Common Injections

- Nonarticular disorders
  - Myofacial pain
    - Trigger point injections
  - Bursitis
    - Subacromial
    - Trachanteric
    - Anserine
  - Tenosynovitis/tendinitis
    - De Quervain’s disease
    - Bicipital tendinitis
    - Lateral/medial epicondylitis (Tennis and Golf elbow)
    - Plantar fasciitis
  - Neuritis
    - Carpal tunnel syndrome
    - Cubital tunnel syndrome

Contraindications

- Overlying cellulitis*
- Severe coagulopathy
- Anticoagulant therapy
- Septic effusion
- More than three injections per year in a weight-bearing joint
- Lack of response after two to four injections
- Bacteremia*
- Unstable joints
- Inaccessible joints (i.e. facet joints of spine)
- Joint prosthesis*
- Evidence of surrounding osteoporosis
- Recent intra-articular joint osteoporosis
- History of allergy or anaphylaxis to injectable pharmaceuticals

*absolute contraindications

Adapted from Pfenninger, 1991 and Cardone, 2002
Injection Technique

- Materials and equipment
- Pharmacologic agents
- Site preparation
- Postinjection care

Supplies for Office Based Injections

- Alcohol wipes
- Gloves
- 20-25 gauge 1.0-1.5 inch needle
- 1 mL to 10 mL syringe
- Local anesthetic (Lidocaine/Bupivacaine)
- Corticosteroid preparation
- Adhesive bandage dressing
Injection Techniques

Injection

— Do not inject directly into tendon or ligament
— Reposition needle if resistance encountered
— Aspirate to avoid intravascular deposition of medicine

Site Preparation

Sterile ethyl chloride

Aseptic technique

▪ Injection site clearly identified
▪ Immediate injection site cleaned with alcohol swab
▪ Use of local anesthetic on skin/subcutaneous tissues overlying the injection site optional
  — Sterile ethyl chloride
▪ Immediate injection site cleaned with alcohol swab
**Knee**

- Injections of knee recommended for treatment of such conditions as OA and bursitis (Grade of Recommendation: A)
  - Intra-articular space
  - Anserine bursa

**Pharmacologic Agents**

- Corticosteroids
  - Modify local inflammatory response
  - Increase viscosity of synovial fluid
  - Alter production of hyaluronic acid synthesis
  - Short term benefit of intrarticular injections well established in knee, no long term studies
Commonly Used Agents

- **Depo-Medrol®:** (40-80 mg/cc)
  - 10-20 mg into small joints, up to 40 mg into large joints

- **Celestone®:** (6 mg/cc)
  - 1-2 cc into small joints, 2-4 cc into large joints

- **Hyaluronic acids:**
  - 1-3 injections every 6 months
  - FDA approved for knee, off label in other joints

- **Local Anesthetics:**
  - 0.5 % Lidocaine, 0.25-0.5% Bupivacaine

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Knee

[Image of an injection into a knee]
Knee

Knee
De Quervain’s Tenosynovitis

- De Quervain’s tenosynovitis is inflammation of tendons on the side of the wrist at the base of the thumb
- These tendons include the extensor pollicis brevis and the abductor pollicis longus tendons

De Quervain’s Tenosynovitis (cont’d)

- Typical causes include lifting young children into car seats, lifting heavy grocery bags by the loops and lifting gardening pots up repeatedly
- De Quervain’s tenosynovitis causes pain and tenderness at the side of the wrist beneath the base of the thumb
- Sometimes there is slight swelling and redness in the area
De Quervain’s Tenosynovitis (cont’d)

- De Quervain’s tenosynovitis is diagnosed based on the typical appearance, location of pain, and tenderness of the affected wrist.
- It is usually associated with pain when the thumb is folded across the palm and the fingers are flexed over the thumb as the hand is pulled away from the involved wrist area (Finkelstein’s test).

Treatment Options for De Quervain’s

- Treatments for De Quervain’s tenosynovitis include any combination of rest, splinting, ice, NSAIDs, and/or cortisone injections.
- Injections are very effective and surgery is rarely necessary.
De Quervain’s Tenosynovitis

Lateral Epicondylitis

- Lateral epicondylitis (tennis elbow), is a painful condition involving the tendons that attach to the lateral part of the elbow. The muscles involved are extensors, primarily the extensor carpi radialis brevis which help extend elbow and stabilize the wrist.
- There is degeneration of the tendon’s attachment, weakening of the anchor site which places greater stress on the area leading to pain with activities in which the extensors are active, such as lifting, gripping, and/or grasping.
- Sports such as tennis are commonly associated with this, but the problem can occur with many different types of activities, athletic and otherwise.
Lateral Epicondylitis (cont’d)

- Overuse, both occupational and otherwise. Any activity that places stress on the tendon attachments, through stress on the extensor muscle-tendon unit, increases the strain on the tendon. These stresses can be from holding too large a racquet grip or from “repetitive” gripping and grasping activities (ie, meat-cutting, plumbing, painting, weaving, etc)

- Trauma: a direct to the lateral part of the elbow can result in degeneration and pain

Etiology of Lateral Epicondylitis
Medial Epicondylitis

- Medial epicondylitis is an overuse injury affecting the flexor-pronator muscle origin at the anterior medial epicondyle of the humerus
- Less frequent compared to lateral epicondylitis
- Also commonly referred as golf elbow

Medial Epicondylitis (cont’d)
Etiology

- Overuse involving the flexor/pronator group of muscles
- Repetitive stress at the musculotendinous junction and its origin at the medial epicondyle leads to tendinitis

Diagnosing Lateral/Medial Epicondylitis

- Diagnosis is purely based on physical examination
- Imaging and electrodiagnostic would help rule out other causes of pain
Treatment Options for Lateral and Medial Epicondylitis

- Conservative treatment would involve NSAIDs, activity modification, bracing, shock wave, and physical therapy
- Refractory to conservative treatment would require cortisone and PRP injections
- Severe cases may require surgical intervention, which will involve removing degenerated tissue and reattach healthy muscle to the bone

Elbow
Billing and Coding

References

- Physiatric Procedures in Clinical Practice, Ted A. Lennard
- Diagnostic & Therapeutic injections of the wrist and hand region, AAFP.ORG, Feb 2003
- Netter’s Anatomy (Courtesy pictures)
References

- De Lisa’s Physical Medicine and Rehabilitation: Principles and Practice., Walter Frontera
- Clinical Practice Guidelines, American Academy of Orthopedic Surgeons (AAOS.ORG)