GP practical procedures
Joint and soft tissue injections

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Outline of talk

- Acute mono arthritis
- Pros & Cons of injections
- Regional problems
  - Shoulder
  - Knee
  - Soft tissue
Acute monoarthritis

- Septic arthritis
- Crystal arthritis
- Reactive arthritis
- Rheumatoid arthritis
- Other inflammatory arthritis
Septic Arthritis - 1700

The disease is seated in the knee with remarkable pain. The swelling becomes very great and fluctuation is perceivable. The foot is unable to support any share of the weight of the body. The patients sometimes die hectic and wasted before the swelling either breaks or is opened.

William Heberden 1710-1801
Commentaries on the history and cure of diseases
Septic arthritis

- Pre-existing arthritis
- Leg ulceration
- IVDA
- Immunosuppression
- Prosthetic joint
- Recent intra-articular steroid
4. Tastee by
32. If you have had an injection of a modified antigen, you might have been given
1. Diphtheria vaccine
2. Tetanus vaccine
3. Smallpox vaccine
2. Influenza vaccine
2. Tetanus vaccine
3. Smallpox vaccine
1. Anopheles mosquito

35. A substance classed as an antigen must
1. Act as an irritant, stimulating formation of antibodies against itself
2. Be a protein
3. Be a natural constituent of the body
4. Be produced in the body
5. Be produced by polymorphonuclear neutrophils 
6. Be produced by the bone marrow

36. Antibodies
1. Are present in the blood but do not enter the tissues
2. Can be seen with electron microscope
3. Combine chemically with antigen
4. All of the preceding

10. Of procedures previously used for the treatment of hepatobilary disease, modifications performed by an approach involving a transient experience with unclutching. Although the procedure designed to facilitate surgery for cases of biliary obstruction and porto-portal hypertension, the diagnostic and therapeutic follow-up has been beneficial in several situations. Beneficial effects have accrued in 10-30% of patients. 

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This work was supported in part by a grant (2 RO1 GM 17680) from the National Institute of Health. 

Presented at the annual meeting of the American Medical Association, Chicago, Ill. on May 20, 1971.
Investigations for Monoarthritis

- Synovial fluid analysis
  - Gram stain and culture
  - Polarised light microscopy
- Serum urate / U&Es; LFTs; bone profile; ferritin
- RF; CCP Ab
- Reactive screen - ?GU; ?GIT
- FBC, ESR, CRP, blood culture
Crystals
Advantages of aspiration

- Assessment of inflammation
- Diagnosis
- Probably enhances placebo effect
- Makes patient feel better immediately
- Mechanical effect, eg on quadriceps
Why inject?

- Pain relief
  - in RA, approx 25% injected joints are pain free post injection
  - in RA, on self-rating pain scores, the median period of improvement is 12 weeks
- Approx 80% of inflamed joints improve
- As part of disease control
Why avoid injections?

- They hurt – a bit
- No evidence that they change the course of arthritis on their own
- Septic arthritis
- May be placebo response – studies show 1 of every 2
- Osteonecrosis/steroid atrophy
Side effects

- Warn pts about
  - sepsis
  - local features
  - systemic features
  (1 in 10,000)
  - post-injection pain (1 in 6)
  - flushing (1 in 6)

- Warn diabetics of high BMs

- Haemarthrosis – esp. if on warfarin

- Intermenstrual bleeding
Risk reduction

- Always use a no touch technique
- If possible, ensure your patient is relaxed (even if you aren’t!)
- Ask about drug sensitivities – either from previous injections or from previous use of L/A
- Ask about distant infections, current use of antibiotics
Regional problems

- Shoulder
  - Painful arc
  - Rotator cuff tear
  - ACJ
- Elbow
  - Golfers and tennis elbow
- Wrist
  - Carpal tunnel syndrome and De Quervain’s
- Knee
- Hip
How to inject

- Local anaesthetic
- 1 needle to draw up
- Fresh needle to penetrate skin
- Disconnect local & inject steroid
What to inject

- Depot steroid preps
  - tramacinolone hexacetonide
  - triamcinolone acetonide
- Hyaluronic acid
Enhancing the benefit

- REST
- 24 hrs bed rest improves outcome in knee
- Benefits of non-weight bearing can be achieved without hospital admission
- Wrist splints/epicondylar clasps useful
When it doesn’t work ...

- Ultrasound guided injection
- Rifampicin + triamcinolone
- MRI
- Orthopaedic review
Shoulder problems

- Subacromial
- Glenohumeral
- AC joint
- Adhesive capsulitis – frozen shoulder
- Rotator cuff tear

?role of X ray
Subacromial impingement

- Investigations – X ray, ESR, ?urate
- Calcific tendonitis - ?apatite
  - Acute
  - Chronic phase
- Treatment
  - steroid (?where) + ?physiotherapy
  - aspiration of calcific deposit
  - Surgery - decompression
Subacromial injection

- Palpate borders of acromion
- Insert needle inferior to posterolateral border
- Direction towards opposite nipple
- 40mg kenalog/5ml lidocaine
Acromioclavicular joint

- Identify lateral border clavicle (depression)
- Inject from superior anterior approach into AC joint directed inferiorly
- 20mg Kenalog + lidocaine
Glenohumeral injection

- Medial head of humerus
- 1cm lateral to coracoid process
- Feel the gh groove – rotate upper arm, GENTLY
- 40mg kenalog + lidocaine
Rotator cuff tear

- Examination
- USS/MRI to confirm
- Treatment –
  - <6 weeks consider early surgery
  - subacromial steroid
  - physiotherapy
Frozen Shoulder

- Reduced movement in all planes
- Investigations – Consider X ray, ESR, glucose, cholesterol, TFT
- Treatment
  - Conservative
  - Surgical
FIGURE 2. Diagnosis of shoulder problems
with guidelines for initial management

**Neck or shoulder or other?**
- Symptoms localised to neck or shoulder?
- Move the neck and then the shoulder
- Does this reproduce the pain?

**Pain localised to the acromioclavicular joint and associated with tenderness?**
(there may be swelling)

**Reduced passive external rotation?**

**Pain on abduction with the thumb down?**
Worse against resistance? Painful arc?

**Other neck or arm pain**
Common age 35-75 years

**Shoulder**

**History of instability?**
- Has your shoulder ever partly or completely come out of joint?
- Are you worried that your shoulder may dislocate or slip in the joint on sporting activity or on certain movements?

**Other neck or arm**
Common age 35-75 years

**Acromioclavicular joint**
Disease (uncommon)
Common age 30-50 years

**Glenohumeral joint**
Frozen shoulder Common age 40-60 years
Arthritis uncommon Common age 60+

**Rotator cuff/impingement**
Common age 35-75 years

**Red Flags** -- urgent referral
See Table 2

**Management**
- Rest
- NSAIDs/analgesia
- Physiotherapy
- Refer
- Surgery

Adapted with kind permission of the Oxford Shoulder and Elbow Clinic; Nuffield Orthopaedic Centre MRI Trust, Oxford

Available from www.arc.org.uk
Suprapatellar pouch
Tennis elbow

- Lateral epicondylitis
- Common extensor origin
- Conservative management
- Epicondylar clasp
- Steroid injection
DeQuervain’s tenosynovitis
Carpal tunnel syndrome

- Occupation
- Pregnancy
- Hypothyroidism
- Diabetes
- RA
- Acromegaly
- OA
- Obesity
Plantar Fascia

Heel Bone
Plantar Fascia Strain
more comfortable to inject to tender spot using a medial approach
Finale

- Large joint injections have the best risk:benefit ratio of any pain relieving treatment in inflammatory arthritis
- When people do procedures frequently, they generally do them well
- If you hurt your patient at their first injection, you may put them off a useful treatment forever
- Almost always uncomplicated and successful