Professor Lisa Stamp

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Saturday, August 13, 2016

(Room 6)

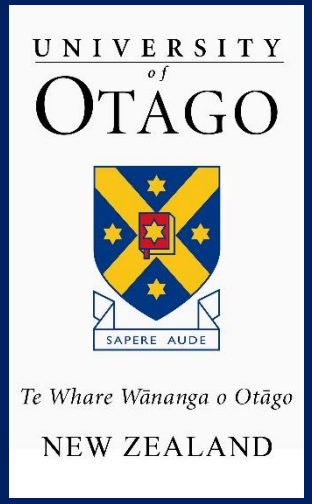
8:30 - 9:25 WS #65: Joint Injection Techniques

9:35 - 10:30 WS #75: Joint Injection Techniques (Repeated)

Joint/soft tissue corticosteroid aspiration and injection

Professor Lisa Stamp

University of Otago, Christchurch

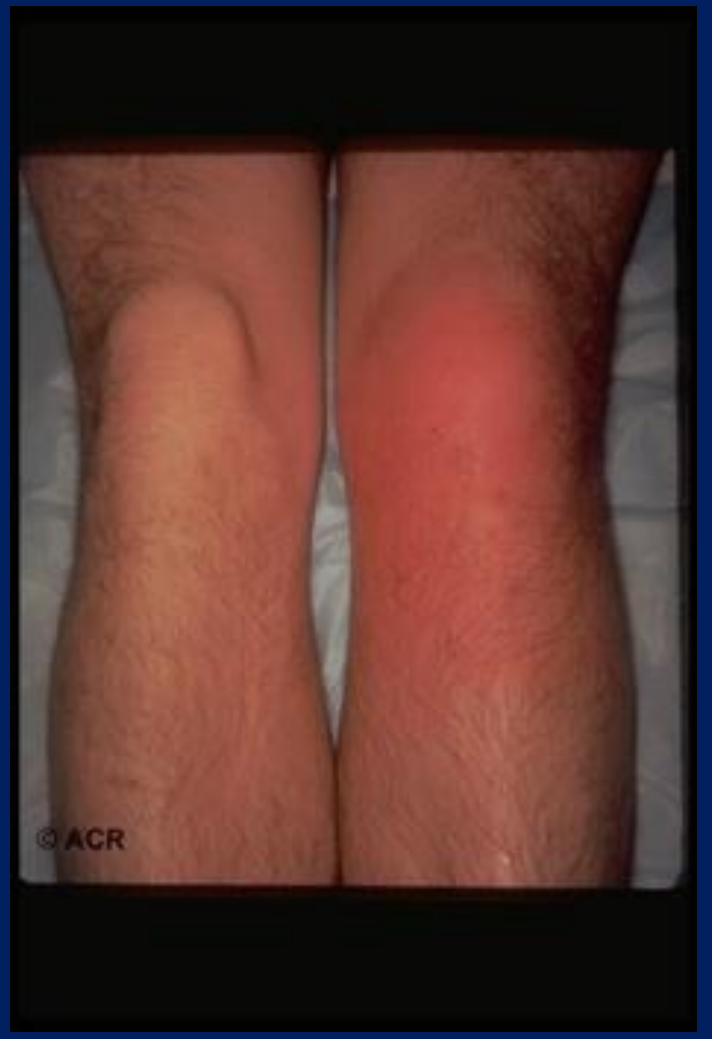


Background

- Corticosteroids – first used (orally) 1949
- IM/IA use within several years
- IA use
  - excellent local effect (synovitis)
  - less systemic effects
  - useful adjunct therapy
- Chequered history
  - Overuse, oversell → backlash

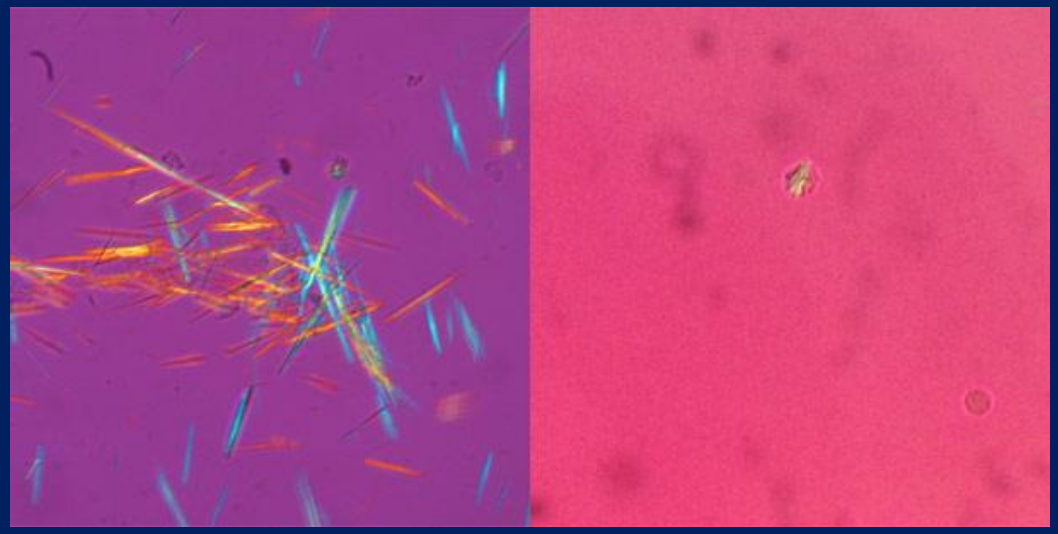
Indications - diagnosis

- **Monoarthritis**
- **Exclude septic arthritis**
- **Gold standard for crystal arthritis**



Diagnosis

- **Test requests –**
  - **Cell count – purple top tube**
  - **Crystals – operator dependant+++**
  - **Gram stain**



Diagnosis

Categories of synovial fluid based upon clinical and laboratory findings

Measure	Normal	Noninflammatory	Inflammatory	Septic	Hemorrhagic
Volume, mL (knee)	<3.5	Often >3.5	Often >3.5	Often >3.5	Usually >3.5
Clarity	Transparent	Transparent	Translucent-opaque	Opaque	Bloody
Color	Clear	Yellow	Yellow to opalescent	Yellow to green	Red
Viscosity	High	High	Low	Variable	Variable
White blood cell, per mm^3	<200	0 to 2000	2000 to 100,000	15,000 to >100,000*	200 to 2000
Polymorphonuclear leukocytes, percent	<25	<25	≥50	≥75	50 to 75
Culture	Negative	Negative	Negative	Often positive	Negative

* Lower part of range with infections caused by partially treated or low virulence organisms.

Indications - therapy

- **Joints**
  - **Inflammatory joint disease e.g. RA**
  - **Crystal synovitis – gout/pseudogout**
  - **Osteoarthritis (trial)**
- **Soft tissues**
  - **Tenosynovitis, bursitis**
  - **Enthesopathies**
  - **Compression neuropathies e.g. Carpal tunnel**

Contraindications to IA steroid

- **Any suspicion of joint infection**
- **Surrounding skin infection, psoriasis**
- **Haemarthrosis**
- **Patient reluctance/psychogenic symptoms**
- **Prosthetic joint – ask orthopaedics**

Frequency

- **As infrequently as possible**
- **Synovitis/inflammatory arthritis**
  - **Maximum 3-4/per joint/year**
  - **≤ 3 joints in one setting**
- **Soft tissue lesions**
  - **Maximum 3, at least one month apart/year**
  - **If no response after 2 injections abandon, consider referral, alternative treatment**

What steroid preparation

- **Long acting preparation preferred**
- **Triamcinolone (Kenacort)**
  - **IA, deep soft tissue injections**
  - **Caution with superficial injections e.g. tennis elbow → tissue atrophy**
- **Methylprednisolone (Depomedrol)**
  - **useful alternative**
  - **superficial injections**

Use of local anaesthetic

- **0.5 -1% <u>without</u> adrenalin**
- **Not always necessary, useful when starting, joint/site dependent**
- **Almost always mixed with steroid**
  - **↑ volume helps IA distribution (large joints, bursae)**
  - **↓ post-injection pain**
  - **useful accuracy aid**

What dose

Joint	Dose
Knee	40-80mg
Shoulder	40mg
Ankle/elbow	20-30mg
Wrist	15-20mg
Small joint – MCP, PIP, MTP	10mg
Tendon sheaths hand	7.5-10mg
Tendon sheaths Tib post	15mg

Complications

- **Infection – very rare with careful technique i.e. < 1:50,000**
  - **extra care with ankle, foot (PVD, venous stasis)**
- **Skin atrophy**
  - **Esp. MTPJ**
  - **Loss of skin pigment**
- **Tendon rupture**
- **Acute crystal synovitis**

Technique

- **Have patient relaxed, seated or lying**
- **Make yourself comfortable**
- **Identify injection site, landmarks prior**
- **Aseptic technique – sterile gloves?**
- **Needle size**
  - **large joint 22G**
  - **medium joint 22/23G**
  - **small joint 25G**
  - **tendon sheaths 23G-25G**

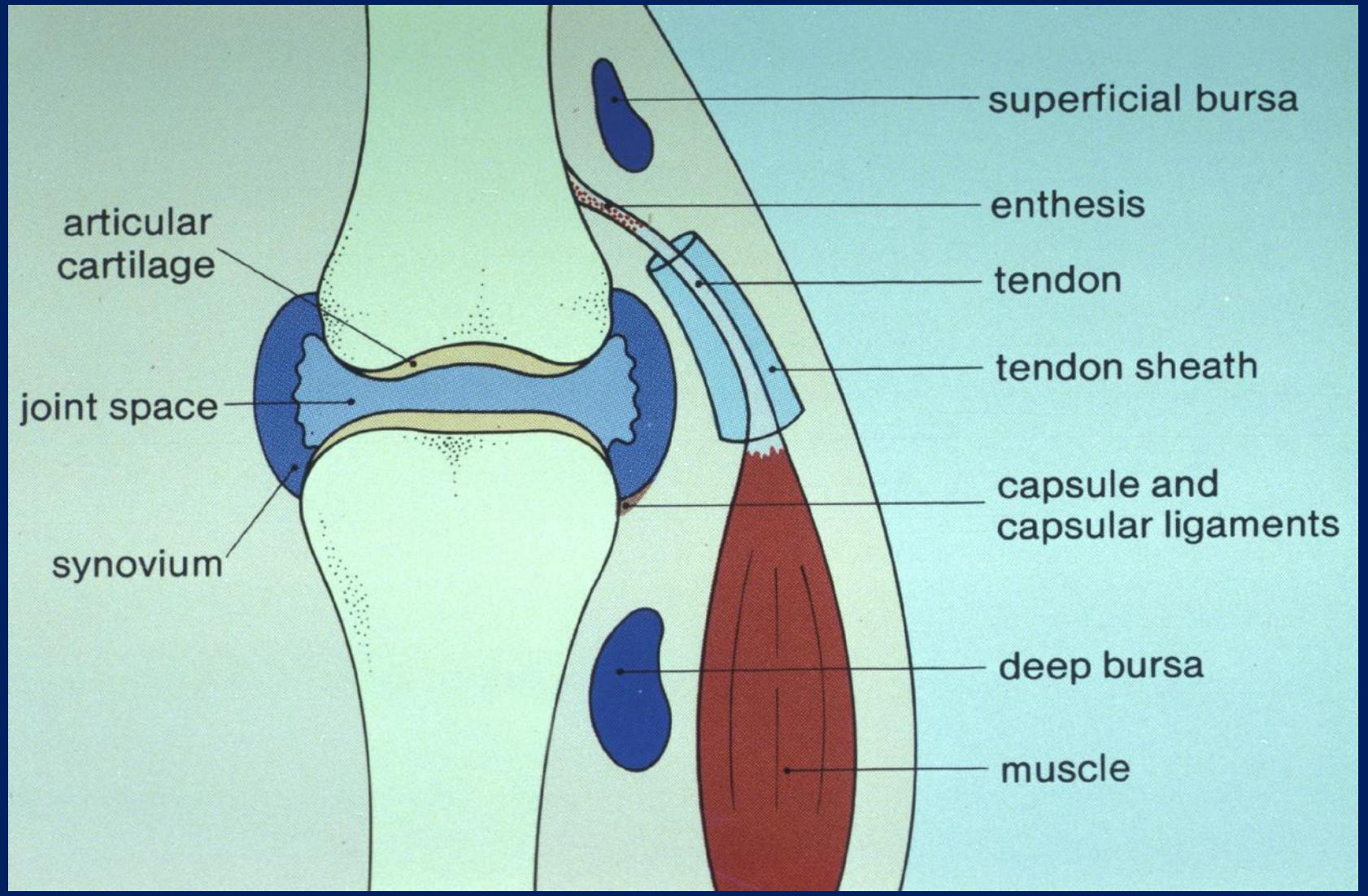
Technique

- **Aspirate fully any synovial fluid present**
- **Do not inject against resistance**
  - **except superficial injections e.g. lateral epicondylitis**
- **Following injection – passive ROM 2-3 x, then rest**
- **Follow-up aspirate result**

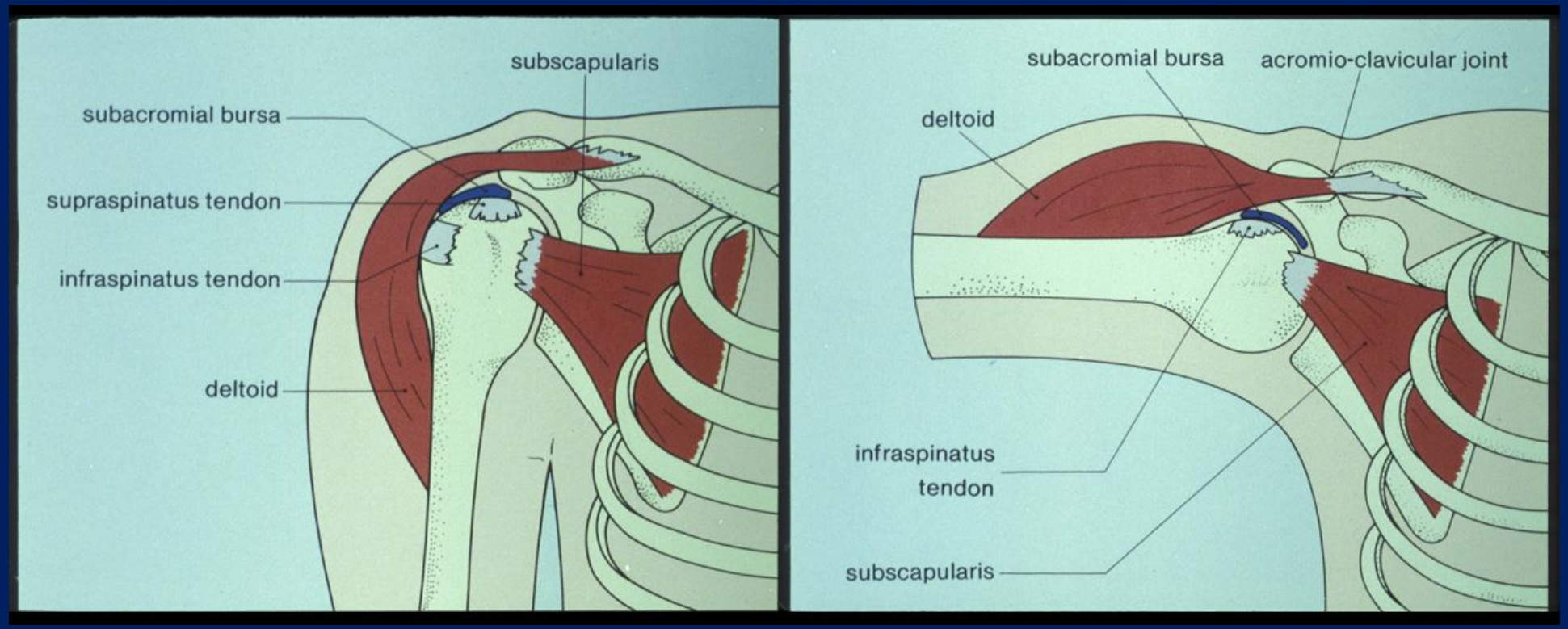
Follow-up and advice

- **Do not oversell, “trial of treatment”**
- **Joint may be painful for up to 24-72 hrs post-injection**
- **Benefit may take 1-2 weeks**
- **Joint should be rested for 24 hrs, consider supportive splints e.g. de Quervains**
- **(Ideally) patients should be contacted / seen again**

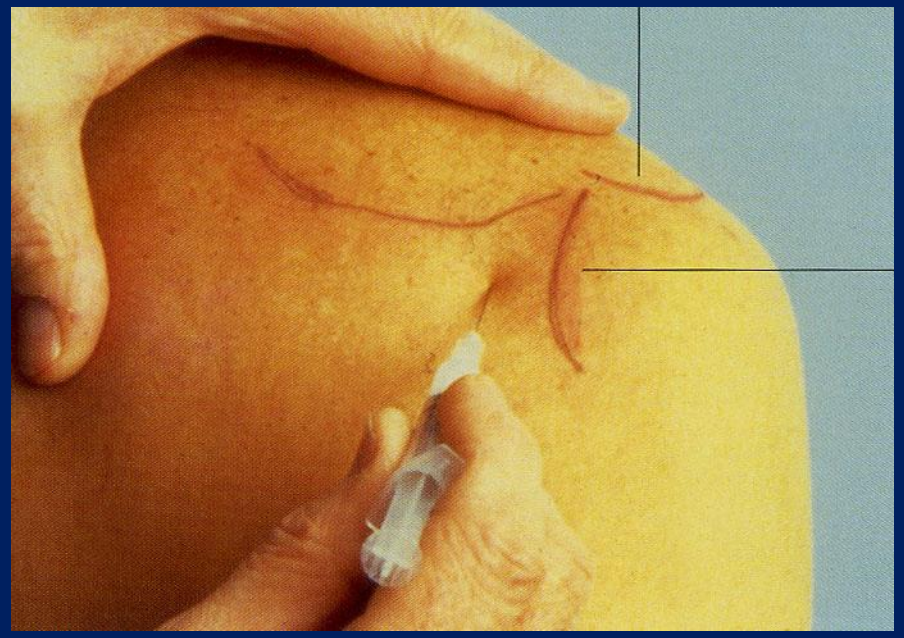
Injection targets

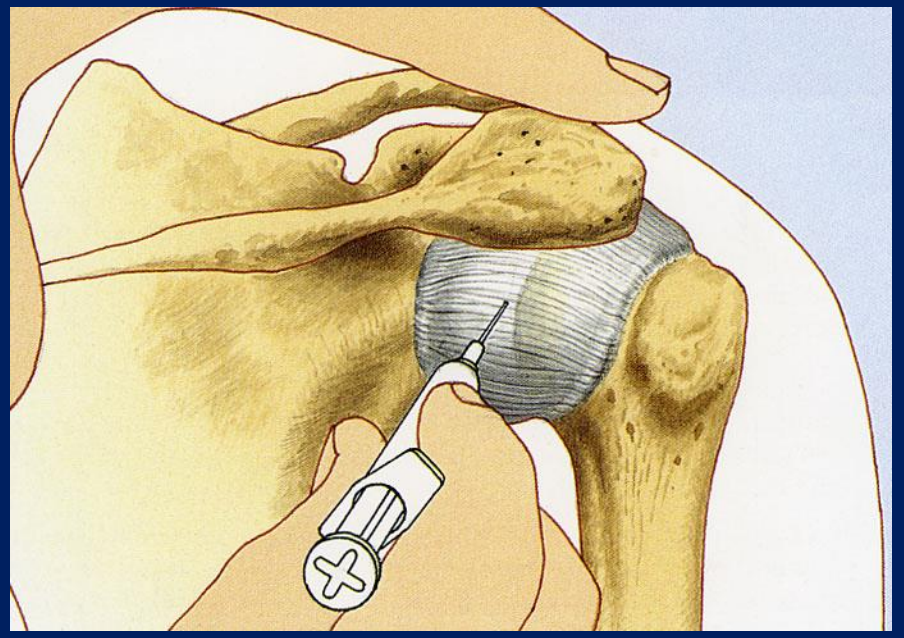


SHOULDER
- sub-acromial bursa

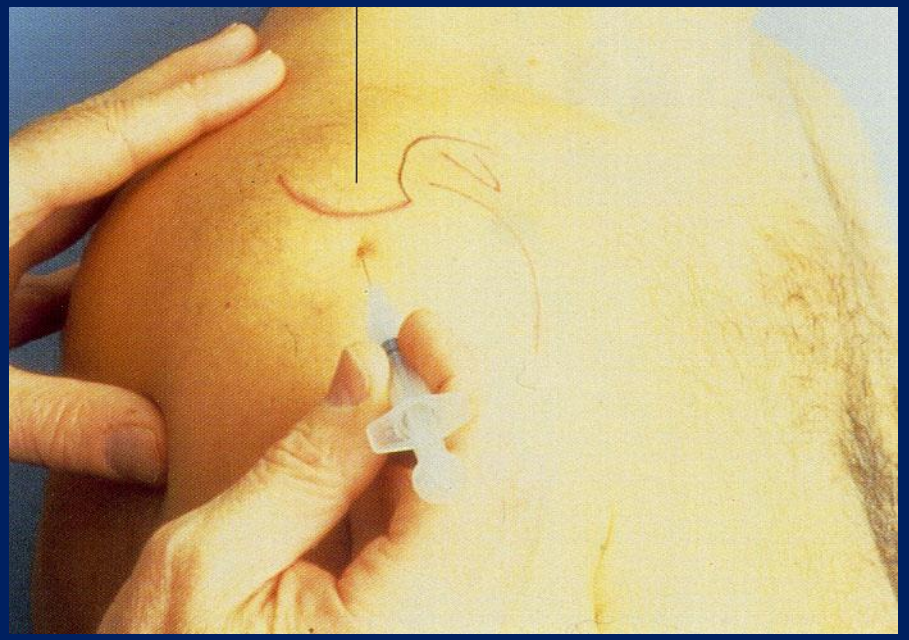


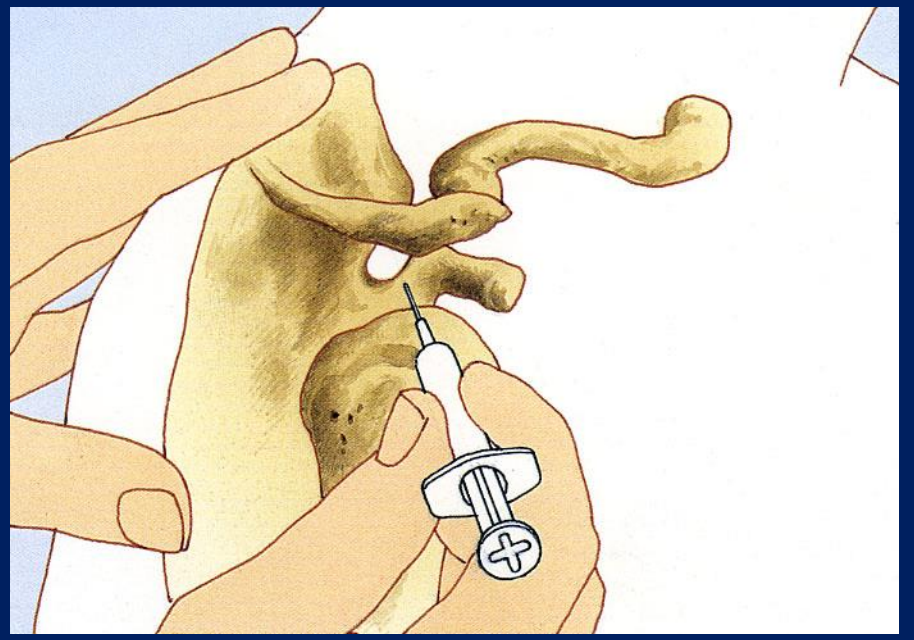
Shoulder / glenohumeral joint - posterior approach



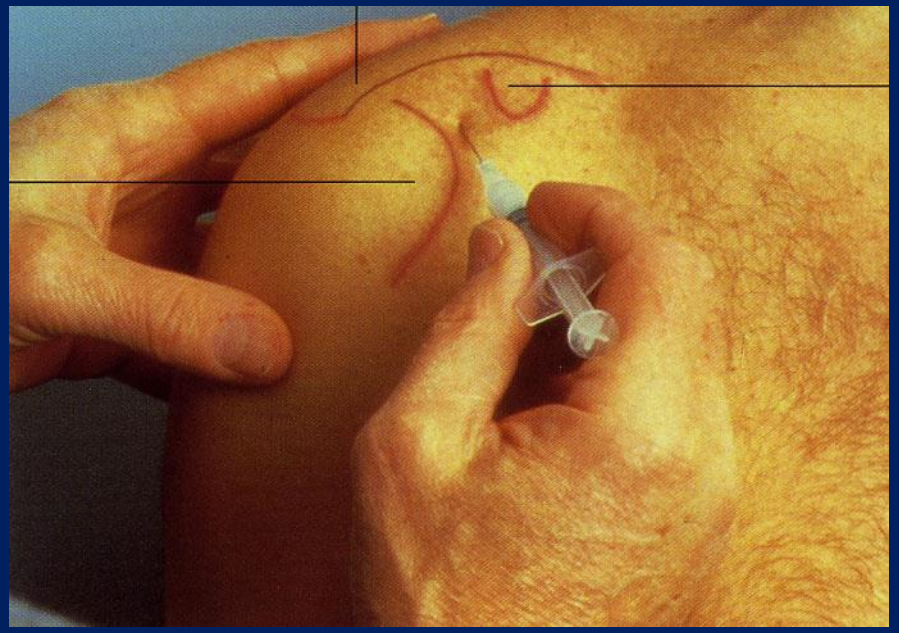


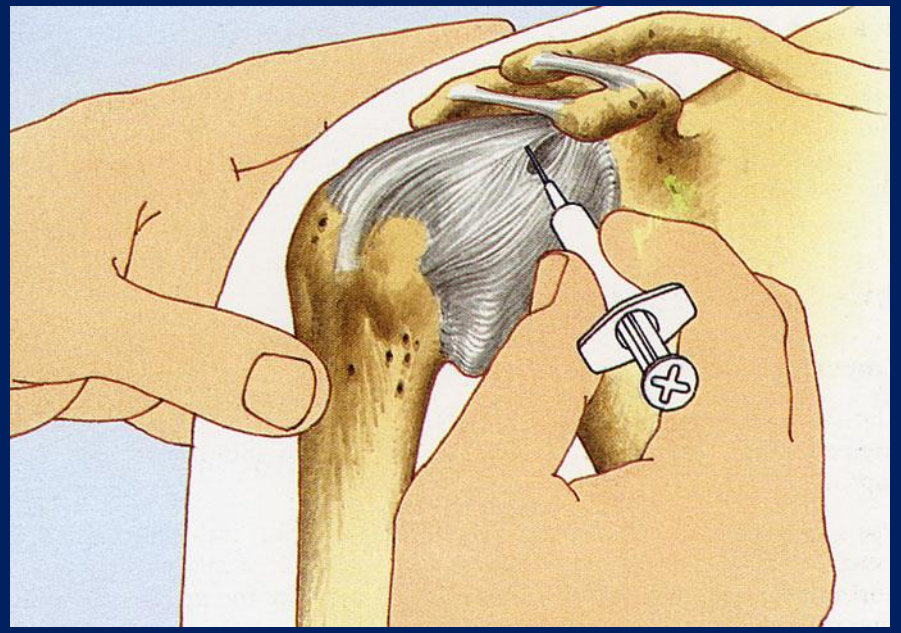
Shoulder / glenohumeral joint - lateral approach



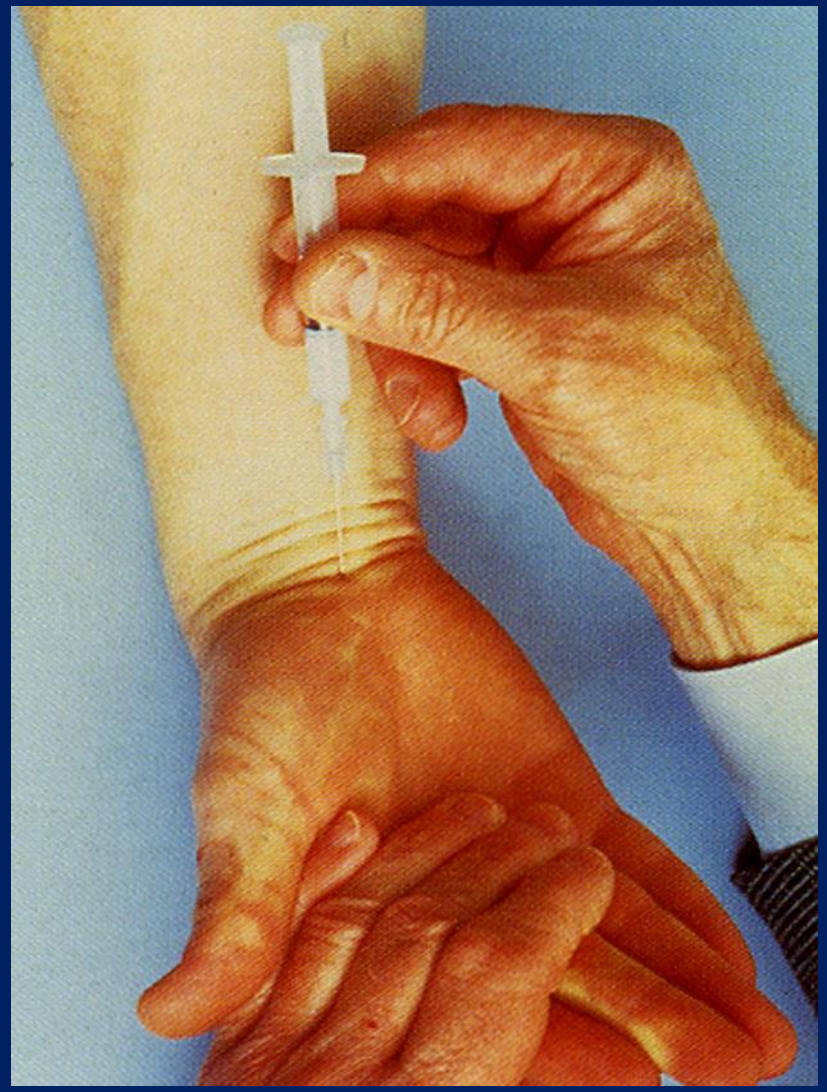


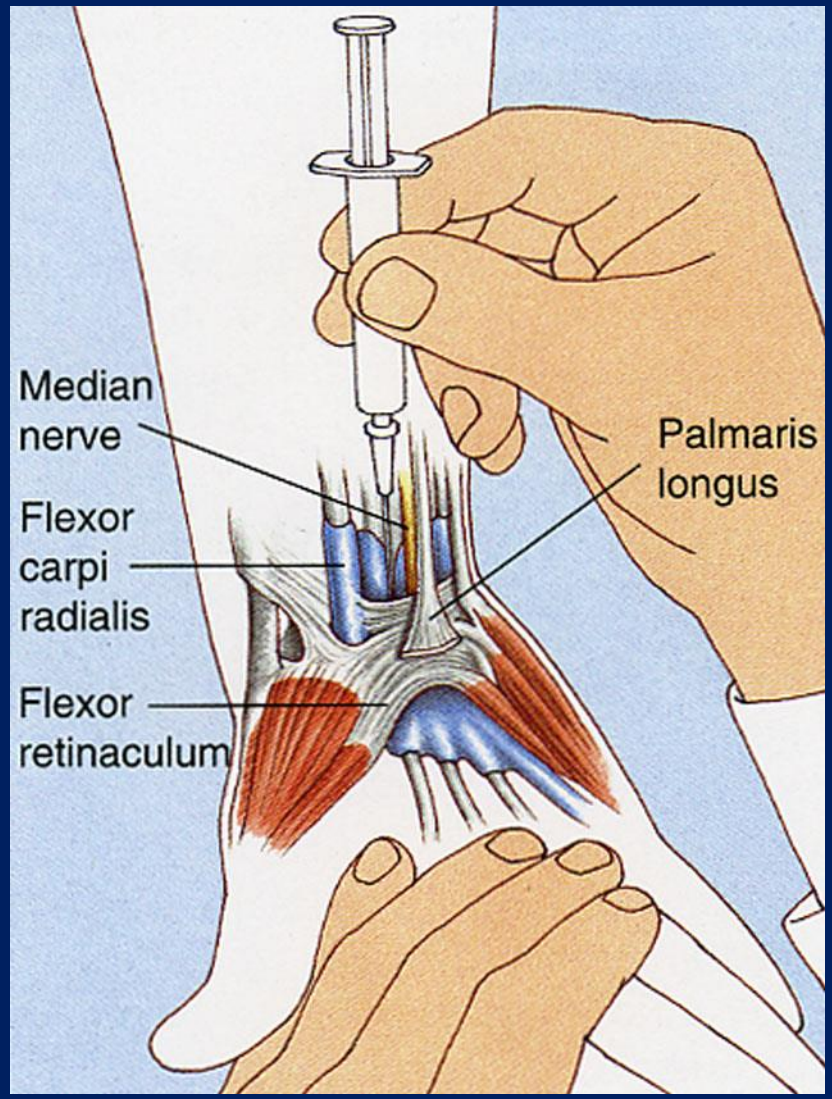
Shoulder / glenohumeral joint - anterior approach





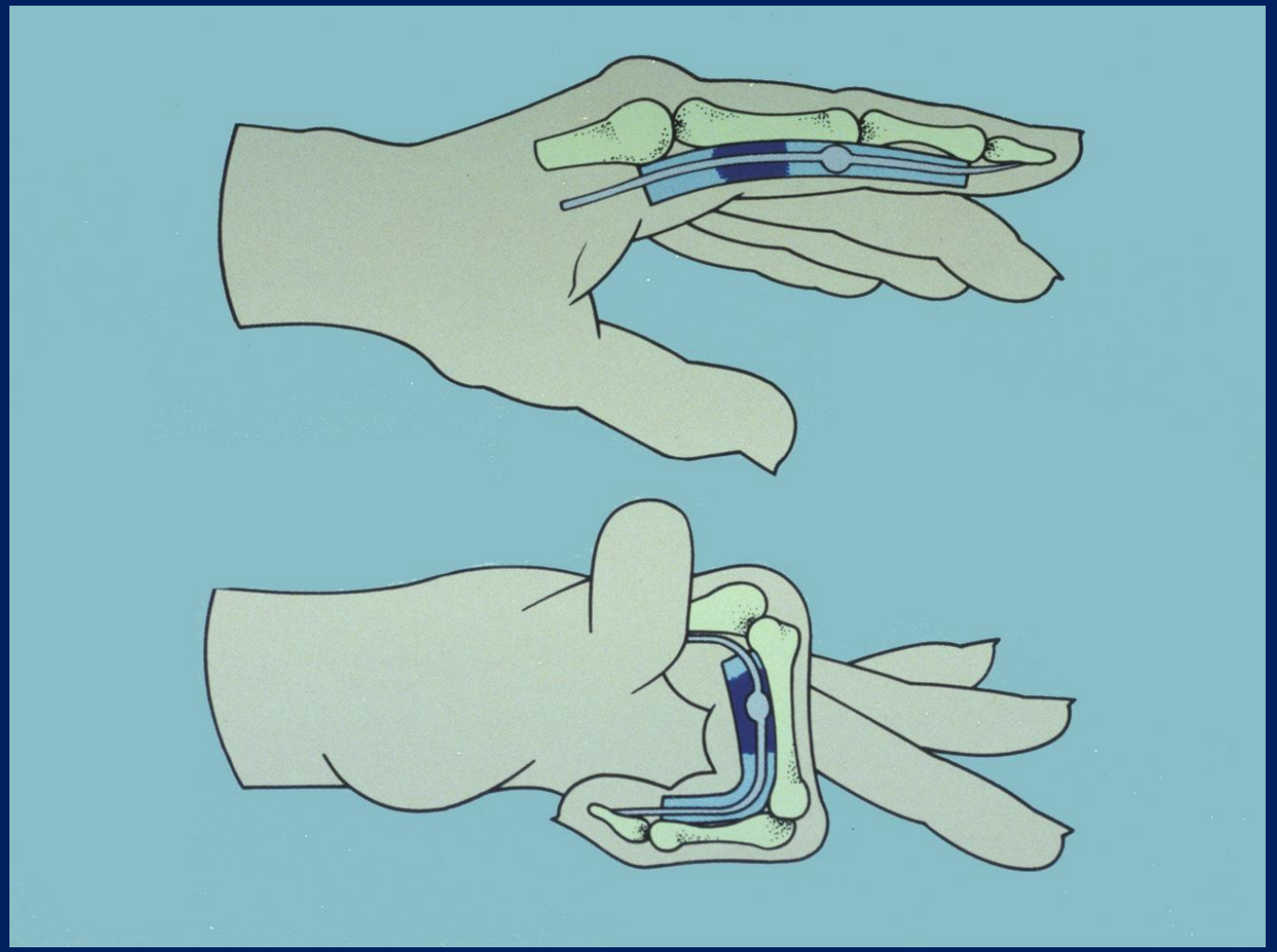
Carpal tunnel



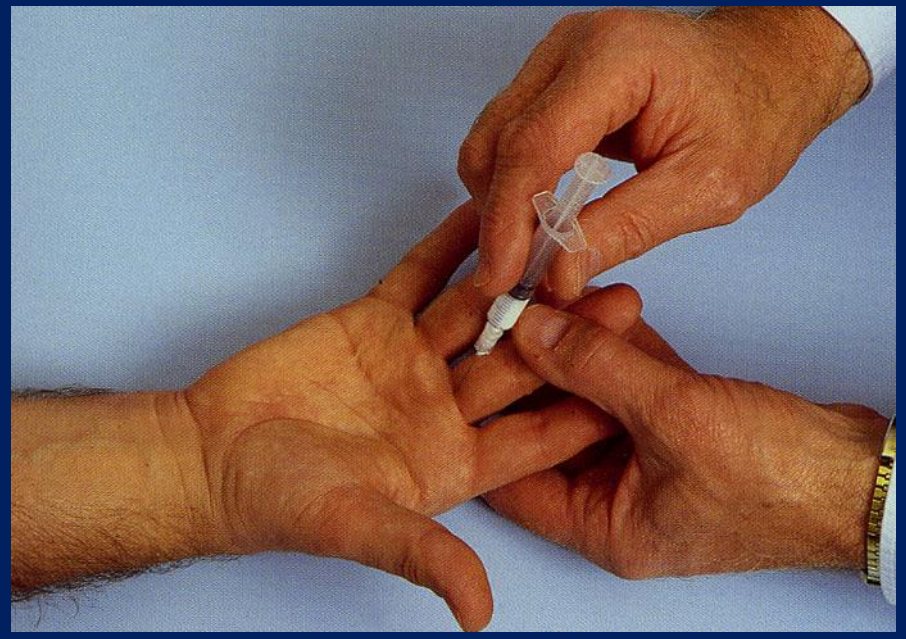


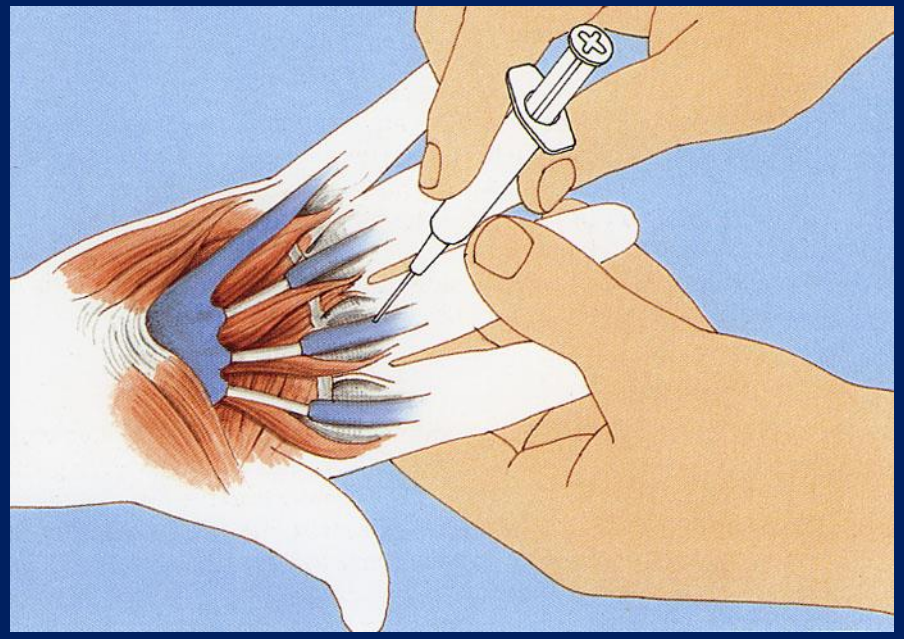
**I recommend injection on the ulna side of the medial nerve

Flexor tenosynovitis

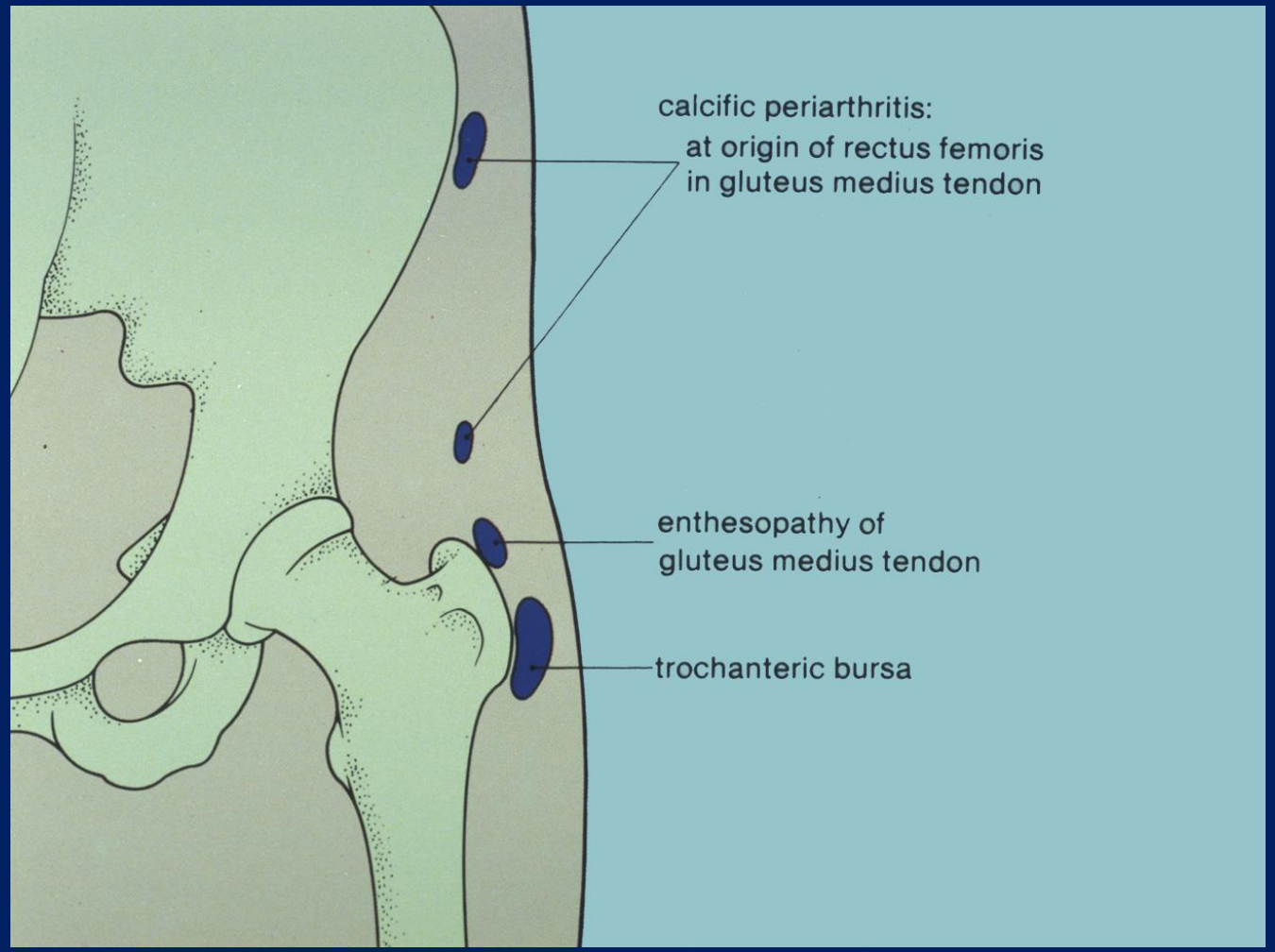


Flexor tenosynovitis

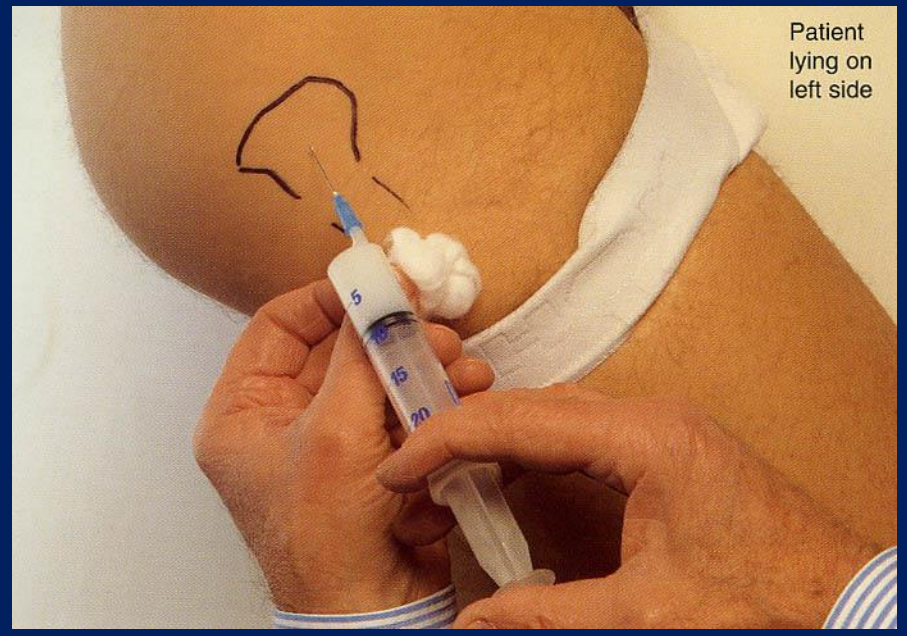


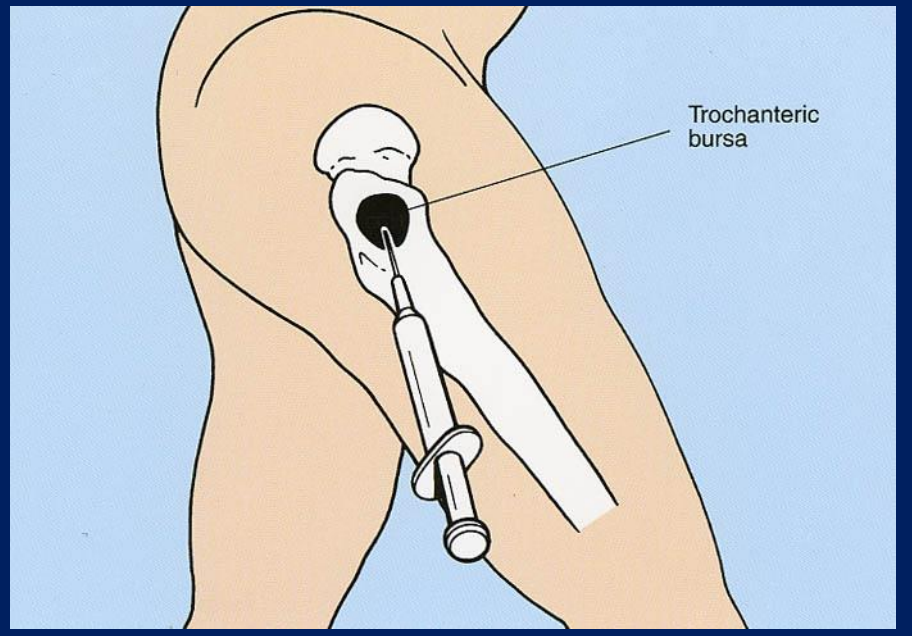


Trochanteric bursitis
Gluteus medius tendinitis

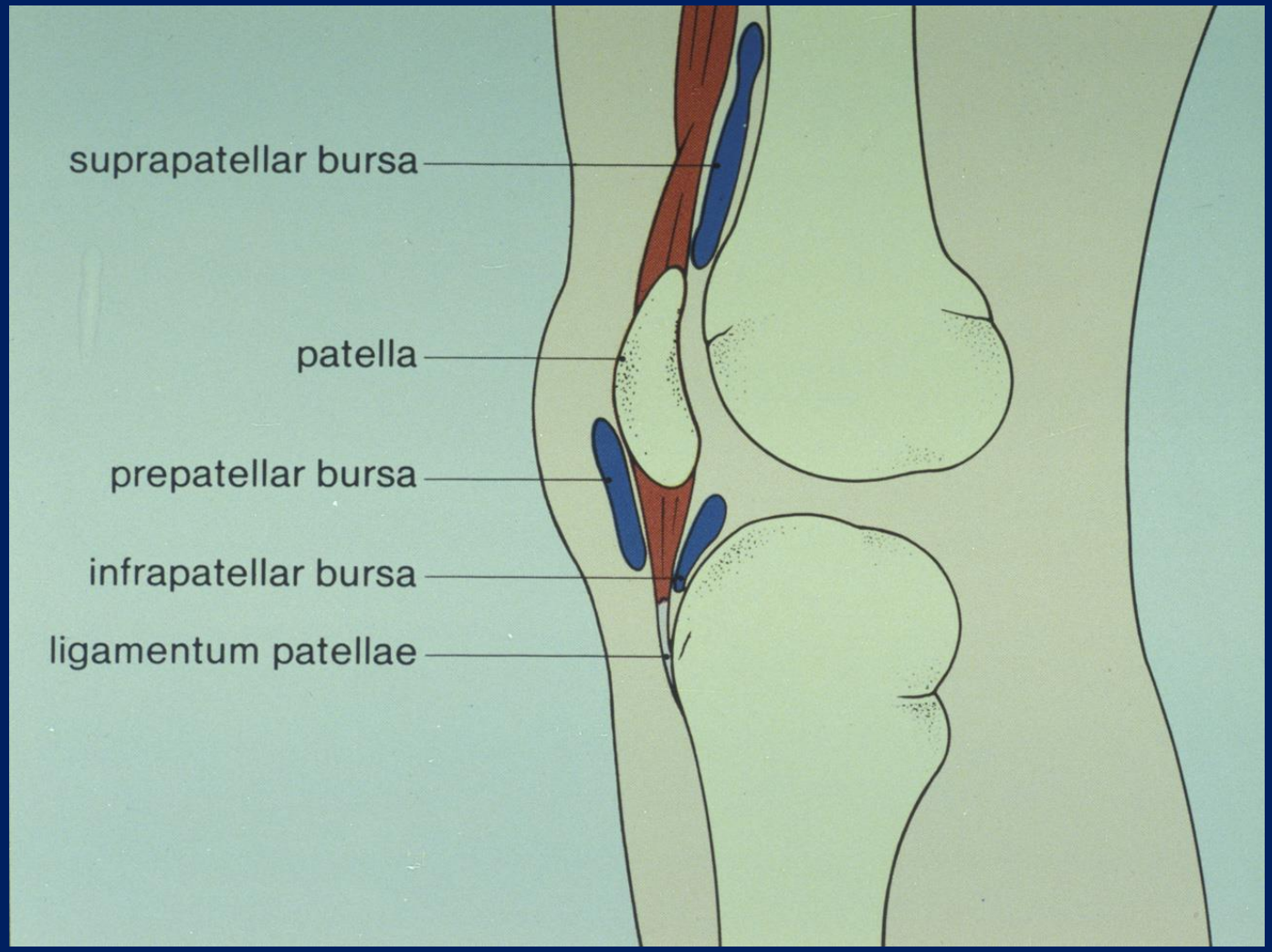


Trochanteric bursitis

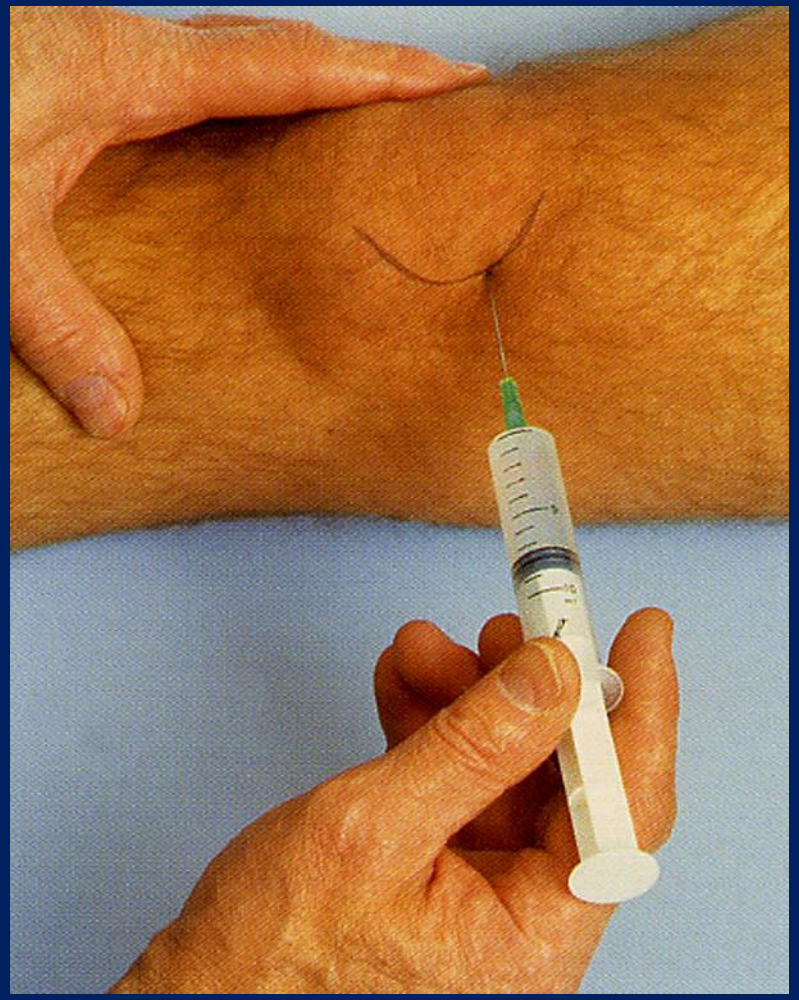


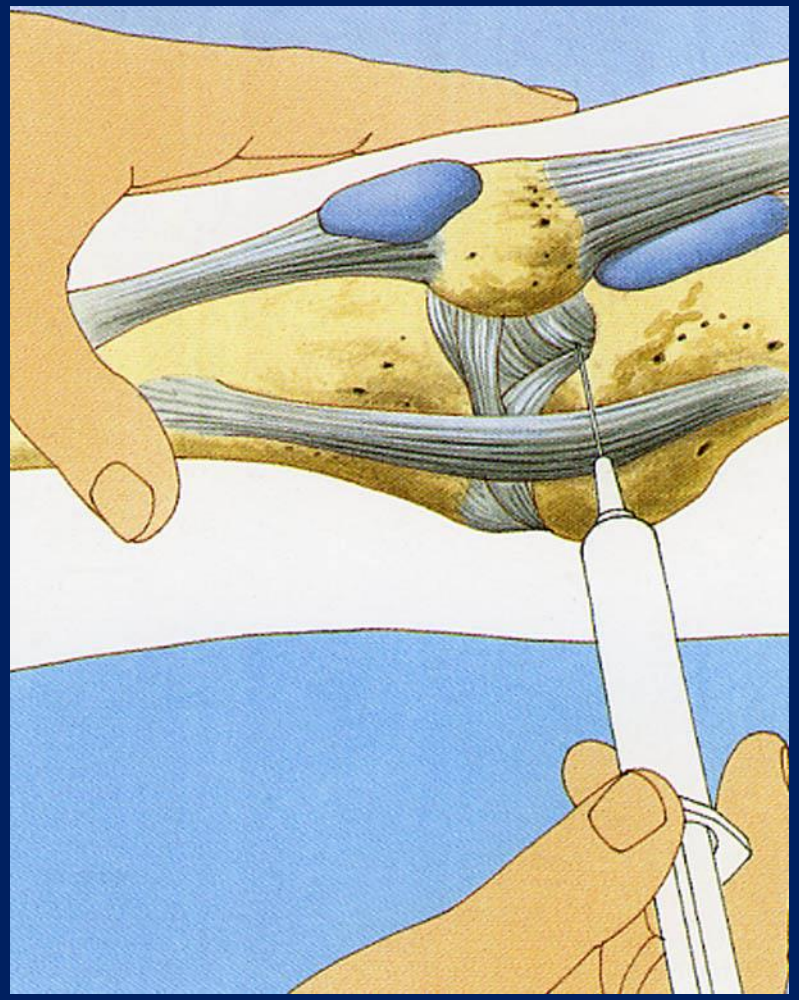


Knee


suprapatellar bursa
patella
prepatellar bursa
infrapatellar bursa
ligamentum patellae

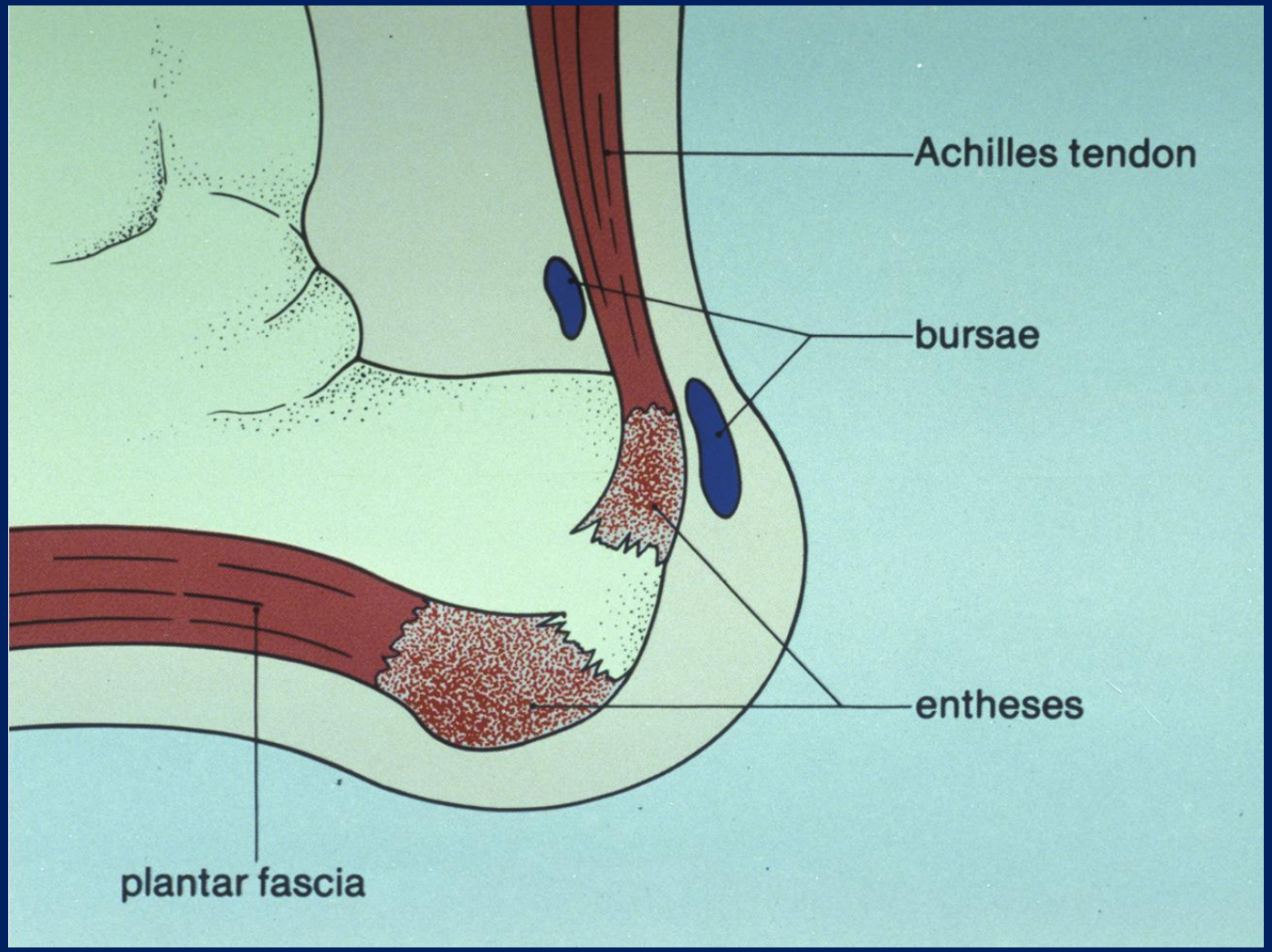
Knee – medial approach





Achilles tendinitis

(never inject)



Summary

- **Joint aspiration is an important diagnostic technique**
- **Intra-articular steroid is a useful therapeutic technique**
- **Low risk with good technique**