Musculoskeletal system diseases

ARTHRITIS

- Inflammatory
  - Crystal
    - [1] Gout
  - Infective
    - [1] Reactive
    - [2] Septic
  - Auto immune
    - [1] RA
    - [2] SLE
    - [3] A.S.
    - [4] P.A
    - .... etc
- Non - inflammatory
  - Osteoarthritis

inflammatory arthritis : (General)

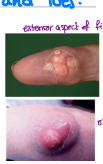
↳ swelling and redness of several joints , onset : over 24 hours , duration: several weeks with early morning stiffness. (30 mins)

- Pain worsen with REST , predominant small joints of Hands and feet.
- triggering (ring + middle finger) → Block extension → Nodular tendon thickning / fibrous thick. of flexor sheath.
- Risk factors → Smoking
- features → wt loss , muscle loss, fever, Lymphodenopathy , prominent PIP or MCP joint swelling wasting of interossei , restriction to full extension of knee

Gout :

↳ - crystal induced arthritis (mimic septic arthritis) , start overnight or early morning (due to rise in serum urate) , most severe joint pain (with septic A.)

- Localised , red , tender, hot First metatarsophalangeal joint
- cause joint pain , sign of renal failure , Alcoholic liver disease.
- Tophi (swelling joints) → Firm irregular subcutaneous crystal collection (Mono Sodium urate monohydrate) Common sites are: olecranon (elbow) bursa , ear helix , extensor aspect of fingers , Hands, Knees and toes. White apperance , may ulcerate & discharge crystals or secondary infected.
- Risk factor → High Alcohol intake
- inherited in polygenic fashion.



Reactive Arthritis:

↳ post infective cause of joint pain. cause eye redness

- Features → inflammation of (urethra - conjuctiva - iris - enthesitis (tendon or ligament))
  rash [Keratoderma Blenorrhagica] → Keratenized skin mucosy discharge.
  mouth ulcers - Balanitis (ulcers on prepuce and glans) → penis infl.
- Risk factors → sexually transmitted diseases. [Can't see, Can't pee, Can't climb tree]

Septic arthritis:

↳ Cause pain in Both rest and movement
- most severe joint pain, develops over few hours
- Features: swelling, tenderness, redness, reluctance to move the joint actively or passively.
  fever, malaise

rheumatoid arthritis

↳ Cause joint pain, predominant small joints of hands and feet.
Features: R. Nodules (firm, non tender, ± pericardial effusion, vasculitis, Raynaud phenomenon, low grade fever, wt loss, subcutaneous Lymphoadenopathy, splenomegaly, Leg ulcers, malaise, scleromalacia ↳ [Blue Sclerae]
Risk factors: Smoking.
PE: small dark red spots due to capillary infarct → Nail fold
in extensor surface of forearm → positive anti-CCP, Ant. dislocation of the wrist
- Cause loss of lordosis / Lateral flexion in neck, subluxation - ulnar deviation at MCP

systemic lupus erythromatus

↳ cause joint pain, small joints of hands and feet.
Features: photosensitive rash, mucocutaneous ulcers, alopecia (non scarring), fever, pleural± pericardial effusion, diaphramatic paralysis, pulmonary fibrosis, Raynaud ph., lymphopenia.
wt loss, low grade fever, malaise, small dark red spots. (most of features are similar to RA)
PE: rash on cheeks & bridge of nose. (Butterfly shaped)

Ankylosing Spondylitis

↳ cause joint pain [common spinal problem].

- cause ↑ lordosis of neck, ↓ lordosis of lumbar spine. and thoracic spine pain
- Features: IBD, psoriasis, enthesitis, iritis, aortic regurgetation, apical interstitial fibrosis.

More common in Pt with human leucocyte antigen B27

- Back and buttock ache and stiffness

psoriatic Arthritis

↳ medium / Large joint swelling [seronegative]

- psoriasis, Nail pitting, onycholysis, enthesitis (→ inflammation of the enthesis (insertion site of tendon & ligaments on bone surface)), dactylitis. (→ inflammation of the finger and the joints)
- erythema with DIP joint swelling
- Features: scleritis (↳ infl of sclera → severe), episcleritis. (↳ infl. of episcleral layer → benign and self-limiting)

gonococcal arthritis

↳ Flitting pain (start on one joint then moving to others)

- STD [with ① reactive A. ③ Hepatitis B ② HIV]

temporal Arthritis

↳ Features: Headache, Jaw pain on chewing, Scalp tenderness.

Systemic Sclerosis

↳ cause joint pain, skin tightening, telangiectasia (→ purplish), Raynaud Phenomenon, calcific deposits in fingers, pulmonary fibrosis.

rheumatic fever

↳ cause joint pain, Flitting pain (start on one joint then moving to others)

osteomalacia

↳ diffuse pain, (extra: Soften of bones in Children mainly Because of vit. D dificency)

- Antiepileptics cause it

Single gene defect:

↳ Charcot Marie tooth

osteogenesis imperfecta + [Blue sclerae]

Ehlers Danlos syndrome

Marfan syndrome

Muscular dystrophy.

Sjögren syndrome

↳ Features: Dry eyes , xerostomia (dry mouth), salivary gland enlargement
Raynaud phenomenon , Neuropathy.

Adult onset Still's disease

↳ Features: Rash , fever , Hepatomegaly , Splenomegaly.

Non-inflammatory Arthritis : [osteoarthritis]

↳ progressive joint pain (>40 yrs) , worsen with exercise, medium or Large joint swelling

- Nodal osteoarthritis → DIP joints of hands and CMC joint of thumb.
  ↳ Bony expansion
- polygenic inheritance
- Crepitus with movement of radiocarpal joints, loose body of the knee.
- restriction to full extension of the knee.

- General examination is written with each disease above ↑.

Spine

Cervical Spine

History: MC symptom is pain / difficulty turning the head and neck

PE: Look: posture, deformities, scars, swelling

Feel: spinous processes, paraspinal ms, supraclavicular fossa, thyroid, tenderness

Move: Active Look to

① Floor: Flexion (0-80)

② upward: extension (0-50)

Flexion-extension arc = 130°

③ put ear on shoulder: (0-45) Lateral flexion

④ right / left shoulder: (0-80) Lateral rotation

*Torticollis (wry neck)

① SCM contracture

② trauma

③ pharyngeal infection.

Thoracic Spine

Least mobile - normal kyphosis

more → rotational

History: young: Disc - Scheuerman - Axial spond.

Adult: Degenerative + osteoporotic fracture

Any age: tumor, infection.

PE: Look: posture, scars, Hair patch, deformity

Feel: spinous prosseces (T_1-T_{12}) - para spinal soft tissue

Move: arm crossed → sitting → rotate.

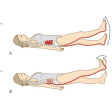
special tests:

① Schober's test

Forward flexion

Normal = > 20 cm

② Siatic nerve stretch test (L4-S1)



③ femoral nerve stretch test (L2-4)

④ Flip test

Lumbar Spine

L1-L5 → L4 at pelvic brim

Spinal cord end at L2

History:

Acute disc prolapse: young, ↑ By coughing + straining.

osteoporotic fracture: middle age comorbidity, ↑ By move., Localised

degenerative disc di: Chronic, intermittent, Stiffness <30min

lumbosacral canal stenosis: diffuse, Buttocks + thighs, ↓ Spine flexion

Infl: insidious, morning ✗, Stiffness 30 mins

Infection: acute, progressive

malignancy: unremiting pain, wt loss, sleep ✗

Cauda equina syndrome: sensation & motor & Bladder ✗

PE: Look: deformity, hair patch, scar, rash, ms wasting, lordosis

Feel: Spinous process para spinal tissues percussion.

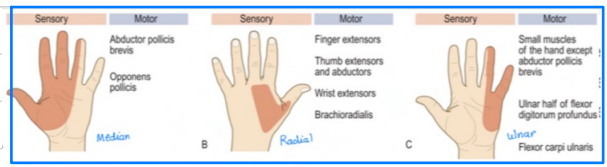
Move: Flexion (touch toes) extension (10-20 degree) Lateral flexion

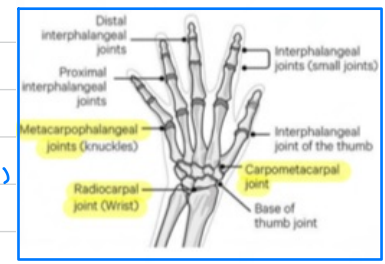
Hand and wrist

→ Anatomy

Wrist movement : Flexion , extension, adduction, abduction .

PIP & DIP : (Hinge) → flexion , extension only.



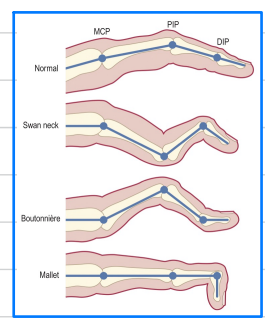


→ History

vague / diffuse : reffered pain, compressive Neuropathy (CTS)

→ Physical Examination

↳ Look for erythema, swelling of MCP (synovitis produce loss of inter Knuckle indentation on dorsum hand), spindling (swelling prox & dist → PIP affected), fractures, Long fingers (Marfan), dupuytren contracture, wasting of thenar eminence (CTS), wasting in small hand ms (T1 lesion), Nail fold infarcts, psoriasis, Nail changes.



↳ Feel for Hard swelling (Bony) soft (synovitis), sponginess, palpate and squeeze all joint for tenderness.

Ask pt flex + extend their finger → triggering.

De Quervain tenosynovitis (swelling- tender - crepitus) → abductor pollicis longus - extensor pollicis brevis.

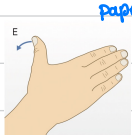
↳ Move

① Active Fist then extend, grip (squeeze 2 fingers) (prayer sign +reverse) → (CTS)

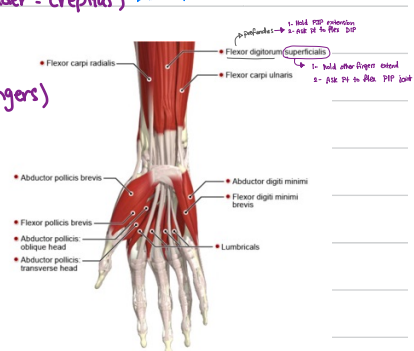
② Passive Move each finger, flex + extend wrist

③ Radial, ulnar, median Nerves.

paper - scissors - stone and OK signs



Radial N. · Ulnar N. · Median N. · Anterior interosseous N.



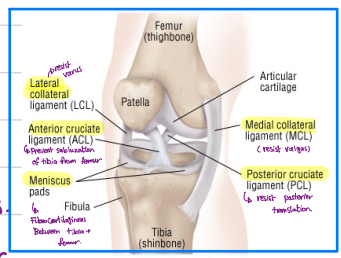
Extensor + Flexor pollicis Longus → 1- hold proximal phalanx of pt thumb 2- Ask Flex + extend IPJ

Knee

→ Anatomy

↳ Hinge Joint , synovial capsule (under quadriceps , 5cm above sup. patella) , Bursae (Ant: suprapatellar + prepatellar + infra patellar) Posterior bursae (in popliteal fossa).

Flexion → Hamstring ms Extension → quadriceps ms + tendon , patellar tendon , tibial tubrisity.



→ History

Pain → ① Generalised pain tibiofemoral joint

② Ant. pain Patellofemoral Joint

③ Medial / Lateral pain collateral lig. / meniscal tears.

Swelling → Normal 1-2 mL , Haemarthrosis , mensci are avascular

Locking → ⟶

Instability → Four main lig. rupture / patellar dislocation.

Locking

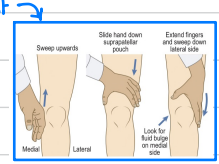
Two common causes in the knee are a ① loose body, such as from osteochondritis dissecans, osteoarthritis or synovial chondromatosis, and a ② meniscal tear. Bucket-handle and anterior beak meniscal tears are especially associated with locking. Posterior horn tears commonly cause pain and limit movement in the last few degrees of flexion. Meniscal tears also cause local joint-line tenderness. Congenital discoid meniscus may present with locking and clunking.

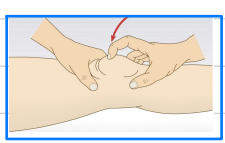
→ Physical Examination

↳ Look for valgum , varum , scars , erythma , rashes , Muscle waste , thigh girth (20 cm above tibial tubriosity) , Leg length deformity , swelling (Housmaid Knee → enlarged prepatellar bursa , Baker's cyst → , synovitis , Joint line enlargment in Popliteal fossa.

↳ Feel Warmth , effusion , patellar tap ⟶

Bulge / ripple test ⟶





* Localised tibial tub. tender. suggest Osgood Schlatter disease.

↳ Move

Active flexion and extension (Normal 0-140°)

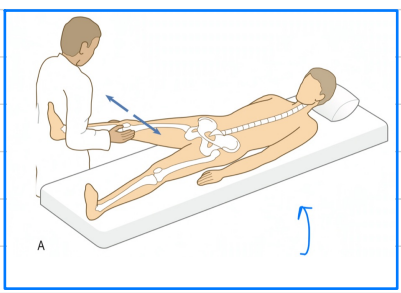
passive flexion and extension. (Full extension at 0°) ristriction ? ① meniscal tears (upto 10° normal) ② osteoarthritis ③ infl. arthritis.

① Collateral Ligaments

Fully extended Knee → Normally No abduction or adduction

rupture ligament → Movement occur

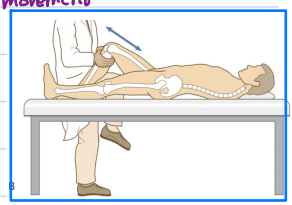
partialy torn (strained) → pain but joint not open.



② Cruciate Ligaments

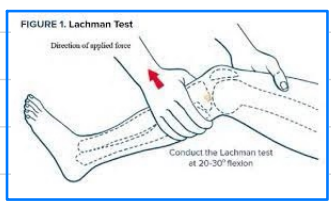
Anterior 90° flexion, Dr thigh on Pt foot, hand behind tibia and thumb over tub. Pull tibia anteriorely. >1·5 cm movement

ACL rupture.



Posterior ↗ same but push tibia backward.

Lachmann test flex 30° Knee, hand behind tibia hand grasp thigh, pull tibia forward



③ Meniscal test (McMurray)

Cause effusions - joint line tenderness

Medial valgus stress

Lateral varus stress

④ patellar apprehension test

- Look for patellar bursa swelling
- feel for tenderness (enthesitis - tendonitis)

① - push patella laterally + flex Knee
↳ resist ? dislocation