SHOULDER PAIN

SHOULDER PAIN IS USUALLY CAUSED BY PROBLEMS LOCAL TO THE SHOULDER, BUT MAY REPRESENT REFERRED PAIN → AMI, DIAPHRAGMATIC IRRITATION (FROM INTRA-ABDOMINAL PATHOLOGY)

EPDIEMIOLOGY:

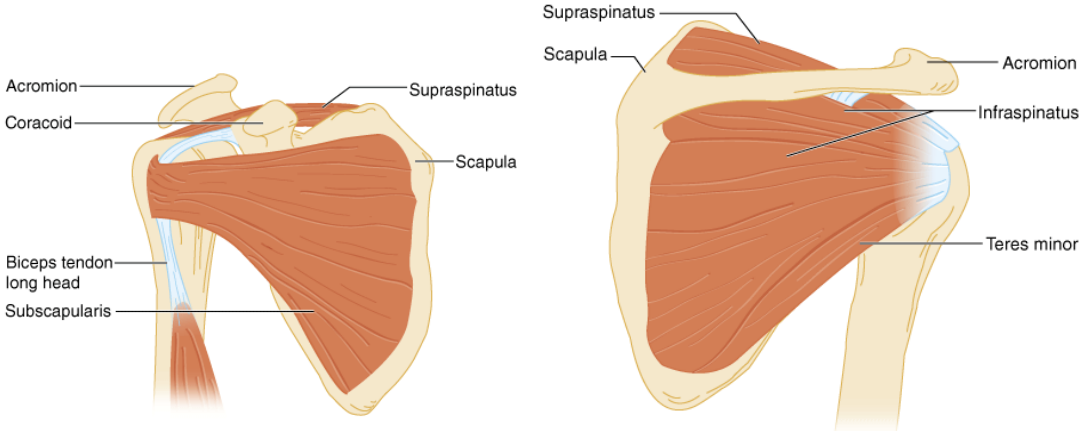
- In descending order of frequency, the most common causes of NONTRAUMATIC SHOULDER PAIN ARE:
  - Rotator cuff tendinopathy
  - Impingement
  - AC joint disease
  - Adhesive capsulitis
  - Referred pain

FUNCTIONAL ANATOMY:

- Designed for mobility in all directional planes, rather than for stability

BONES, JOINTS AND MUSCLES:

- Humerus, clavicle and scapula make up bony structures
- Four joint so fhte shoulder → glenohumeral, AC, SC and scapulothoracic
- Although G-H is the most mobile joint in the body, it is the least stable → stability is improved by:
  - Glenoid labrum → increases the surface contact of the humeral head
  - Three glenohumeral ligaments
  - Rotator cuff → subscapularis, infra and supra-spinatus and teres minor



- The deltoid acts as a powerful and independent elevator of the arm → along with pectoralis major they are the primary source of movement of the upper extremity
- CORACOACROMIAL ARCH:
  - Arch is formed by the coracoid process posterioly, by the accromion anteriorly and by the coracoacromial ligament → forms the roof of the arch
  - The humeral head provides the floor

- This arch defines the space within which the tendons of the rotator cuff, the long head of biceps and the subacromial bursa must function

IMPINGEMENT SYNDROME:

- **INCLUDES SUBACROMIAL BURSITIS, ROTATOR CUFF TENDINITIS, SUPRASPINATUS TENDINITIS, PAINFUL ARC SYNDROME**

PATHOPHYSIOLOGY:

- Repetitive overhead use of the arm or movement of the shoulder above the horizontal causes encroachment on the subacromial space by the humeral head
- Oedema and haemorrhage of the rotator cuff can advance to tendinitis with subsequent fibrosis and thickening of the tendons

CLINICAL FEATURES:

- The presenting symptom is paion the develops insidiously over a period of weeks to months → typically located over the anterolateral acromion → interferres with sleep, especially if person sleeps with their arm overhead
- To isolate supraspinatus → abduct the arm to 90 degrees and flex to 30 degrees. Pain or weakness against resistance indicates injury to supraspinatus
- To isolate infraspinatus and teres minor → externally rotate the shoulder with arm against body and elbow flexed → rotate arm outwards
- To isolate subscapularis → place hand behind back and attempt to push the examiner's hand away → the "lift-off test)
- MANOEUVRE OF NEER → classic impingement test → prevent scapular rotation while raising the arm smoothly in full forward flexion → positive sing is pain in the arc between 70 to 120 degrees → cannot be used to stage impingement
- DIAGNOSIS IS PRIMARILY CLINICAL → based on history of chornic shoulder pain with a full range of motion, weakness of the rotator cuff and positive responses to provocative manoeuvres

TREATMENT:

- GOALS → reduce pain and inflammation and to prevent progression
- Relative rest and activity modification → minimise overhead activities
- NSAIDS to relieve inflammation
- ICE, 3-4 tiems daily to affected shoulder
- Gentle ROM exercises → pendulum swings
- Stretching and strengthening → physio referral
- Corticosteroid injections → beware intra-tendon injection → can lead to necrosis and rupture

ROTATOR CUFF TEARS:

PATHOPHYSIOLOGY:

- Patients present with shoulder pain after acute traumatic injury, chronic injury or acute extension of chronic impingement

    - Acute tears account for only 10% of injuries → glenohumeral dislocation is a common causes of acute rotator cuff tears → especially in older first-time dislocators (i.e. >40)
- Full thickness → surgical management, partial → conservative

CLINICAL FEATURES:

- PATIENTS COMMONLY REPORT A HISTORY OF GRADUAL AND PROGRESSIVE PAIN, WHICH IS USUALLY WORSE AT NIGHT
- Pain is usually diffuse, but commonly localises to lateral aspect of upper arm
- An acute rotator cuff tear produces immediate significant pain and disability → active motion is limited with inability to abduct or externally rotate the arm against even minimal resistance
- THE DROP ARM TEST → positive if the patient is unable to hold or lower a fully extended arm at 90 degrees of shoulder abduction without dropping it
- Crepitus and pain are usually present on ROM exercises

DIAGNOSIS:

- Very difficult to distinguish a full-thickness tear from partially torn cuff
- Diagnosis is primarily clinical based on finding of rotator cuff weakness on examination in those with a history of chronic shoulder pain or acute shoulder pain after significant trauma
- Arrange follow up in one week when the shoulder is less painful
- No radiographic findings are diagnostic → MRI/US most sensitive

TREATMENT:

- Emergency care is to provide support, protection and pain relief and to help prevent further dysfunction and disability
- After acute injuries → exclude NV injury and then arrange follow up within a week
- Complete tears usually require surgical repair → usually within three weeks prior to retraction, fibrosis, tendon degeneration and muscular atrophy have occurred → better functional results

CALCIFIC TENDINITIS:

PATHOPHYSIOLOGY:

- A self-limiting disorder characterised by calcium crystal deposition within one or more tendons of the rotator cuff
- In time, the calcium undergoes PAINFUL REABSORPTION with subsequent healing of the tendon
- Middle aged patients most commonly affected
- Underlying cause remains uncertain
- Supraspinatus by far the most commonly affected tendon

CLINICAL FEATURES:

- Patients report mild pain at rest with a "catching" sensation, but usually present in the RESORPTIVE PHASE with incapacitating pain that occurs due to vascular proliferation, formation of granulation tissue and calcium crystal extravasation into the subacromial bursa
- ADHESIVE CAPSULITIS is the most common complication
- Any motion reproduces significant pain, often worst at night

DIAGNOSIS:

- Shoulder x-rays help localise deposits and can demonstrate signs of impingement → calcification is found in the rotator cuff of 7% of patients older than 30 → many asymptomatic
- Diagnosis should be considered in any patient with acute shoulder pain

TREATMENT:

- Similar to that for impingement syndrome and non-operative treatment is successful in 90% cases
- During an acute attack → NSAIDs and opioids may be required in addition to ice application
- Gentle and progressive ROM exercises should be emphasised
- In 10 % → arthroscopic or open surgery may be needed

<u>ADHESIVE CAPSULITIS:</u>

PATHOPHYSIOLOGY:

- COMMONLY REFERRED TO AS "FROZEN SHOULDER" → begins as painful inflammation of the glenohumeral joint, followed by eventual fibrosis of the joint capsule and restriction of shoulder motion
- Condition resolves with conservative treatment in most patients within a year or two, although some are left with residual stiffness

DIAGNOSIS:

- Pain is typically diffuse and aching, poorly localised and often extends down upper arm
- Worse at night and present at rest
- Limited active and passive ROM is typical → disuse atrophy often present
- Pain not reproducible with palpation but present at limits of motion

TREATMENT:

- Goals → reduce pain and initiate restoration of motion and function → avoid immobilisation unless absolutely necessary
- NSAIDS, ice useful
- Aggressive physical therapy aimed at stretching the capsule and restoring normal glenohumeral biomechanics
- Oral steroids may have short term benefit, but not maintained beyond six weeks

- Refer patients who have not obtained relief from prolonged conservative treatment

DISORDERS OF THE BICEPS TENDON:

PATHOPHYSIOLOGY:

- Result from progressive impingement or from isolated tendon inflammation or injury
- The labrum may be torn near the long head of biceps insertion → SLAP (superior Labrum A-P) lesions

CLINICAL FEATURES:

- Bicipital tendinitis is characterised by acute, intense and localised pain at the anterior aspect of the shoulder
- Pain at rest and night pain often present

DIAGNOSIS:

- Palpation of the tendon within the bicipital groove reproduces the intense pain
- Forearm supination also reproduces pain, especially when resistane is applied
- YERGASON TEST → examiner resists forearm supination with the elbow flexed, positive if pain is reproduced at the proximal bicipital groove
- MR arthography is diagnostic test of choice for bicipital tendinitis and SLAP lesions

TREATMENT:

- Tendinitis and subluxation are managed conservatively with brief use of a sling as needed for support and comfort
- Analgesics and anti-inflammatory agents may be used in conjunction with relative rest, ICE and elevation
- Bicipital tendinitis usually resolves with conservative therapy

OSTEOARTHRITIS:

- Primary OA is rare → secondary OA occurs after recurrent dislocations, fractures or underlying rheumatologic, metabolic or endocrine disorder
- NSAIDs, and gentle ROM exercises are key → surgical options are evolving if these measures fail

OTHER CAUSES OF SHOULDER PAIN:

- **THE NECK is the most common source of pain referred to the shoulder → e.g.** degenerative disc disease of C5-6
- Brachial plexus injury → viral neuritis → usually self-limiting
- Vascular injury → AXILLARY ARTERY THROMBOSIS
- Compression of the suprascapular nerve, becomes trapped beneath the transverse ligament at the level of the suprascapular notch

- THORACIC OUTLET SYNDROME → compression of the brachial plexus and blood vessels proximal to the shoulder → patients have medial trunk of brachial plexus involved with numbness and tingling of the fingers with a weak grip
- PANCOAST TUMOUR → apical lung malignancy may compress brachial plexus and cause shoulder pain