

# CURRENT CONCEPTS IN ROTATOR CUFF TEARS AND SUBACROMIAL IMPINGEMENT

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# Conflict of Interest

None

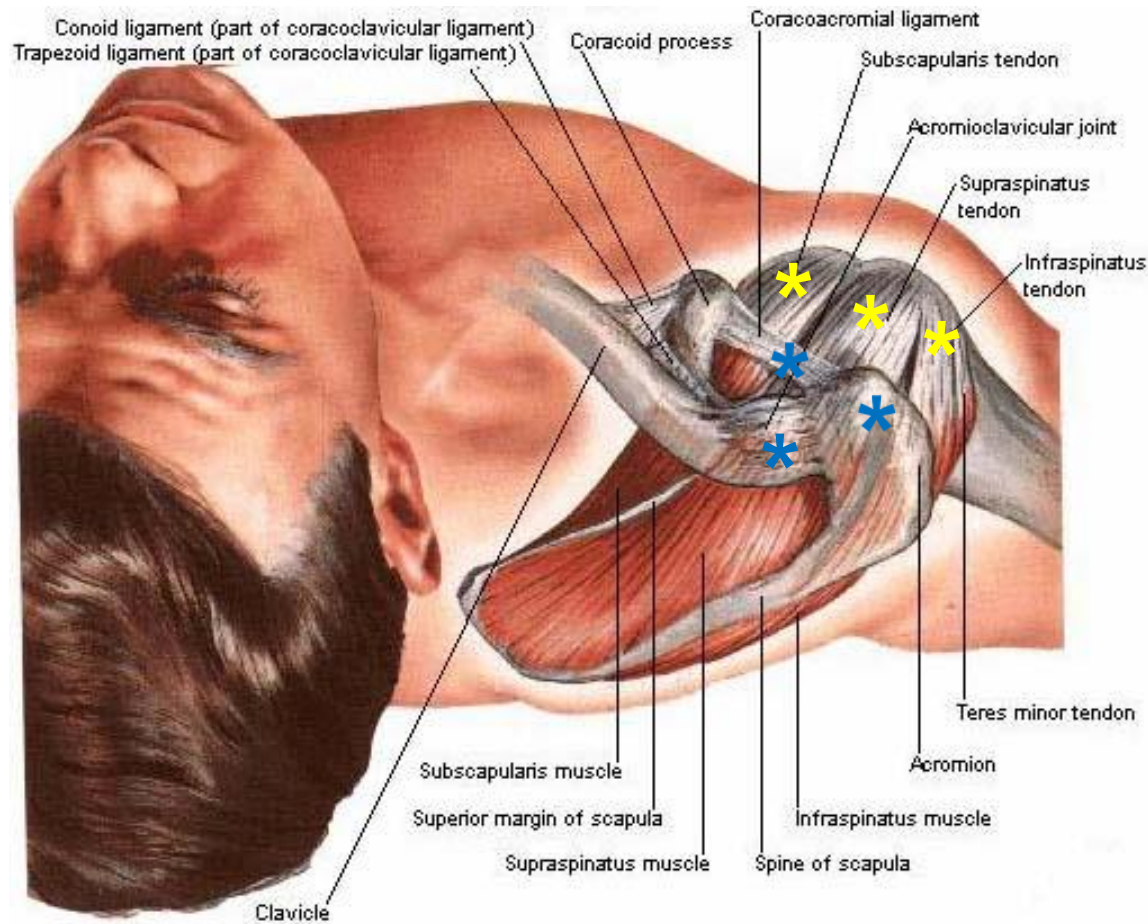
# Subacromial Impingement Syndrome



# Overview

- ⦿ Anatomy
- ⦿ Pathogenesis
- ⦿ Clinical presentation
- ⦿ Investigations
- ⦿ Treatment

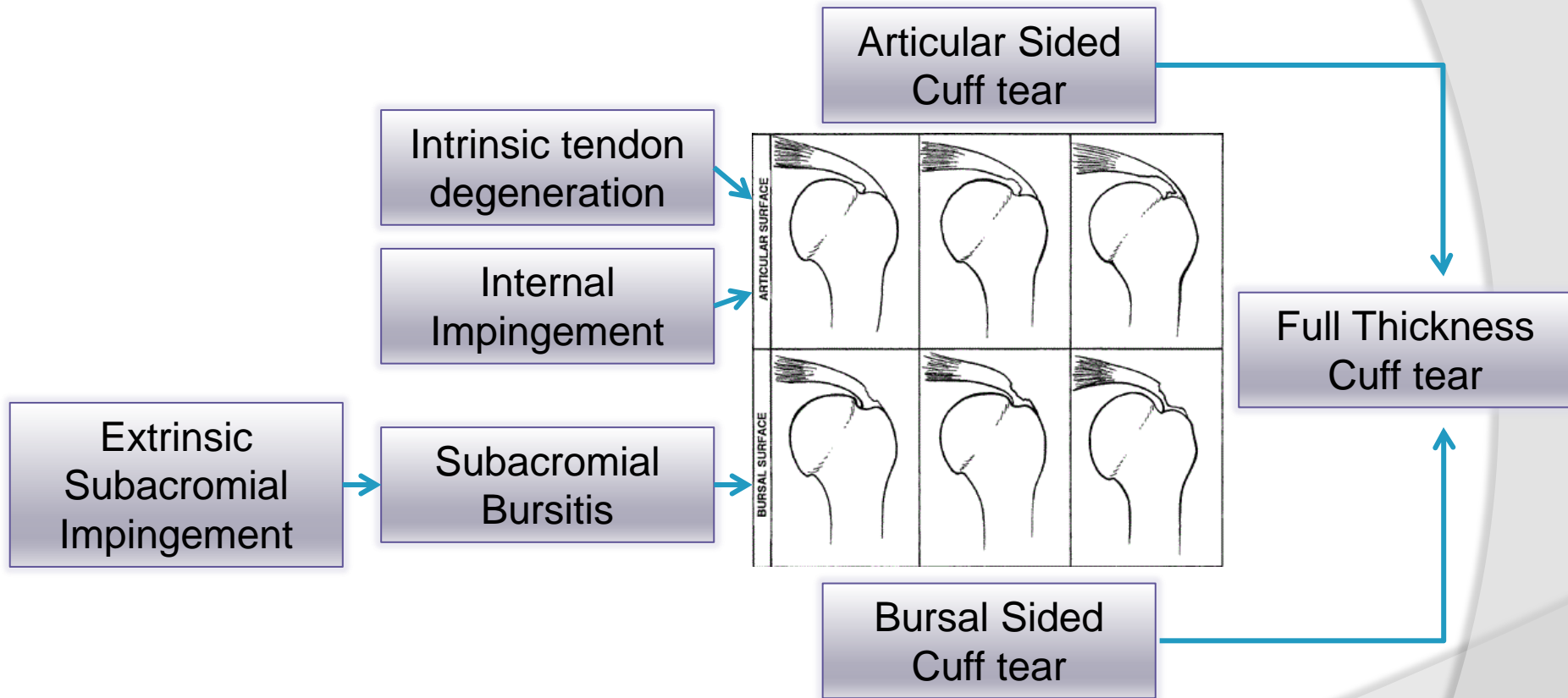
# Anatomy of the Rotator Cuff



# Overview

- ⦿ Anatomy
- ⦿ Pathogenesis

# Pathogenesis



# Overview

- ⦿ Anatomy
- ⦿ Pathogenesis
- ⦿ **Clinical presentation**



# Clinical Presentation

- Asymptomatic rotator cuff tears are common
  - Over 60 yo – 60% incidence
  - Over 80 yo – 80% incidence
- Pain
- Weakness of elevation
- Co existing pathology common:
  - AC joint osteoarthritis
  - LHB tendinopathy



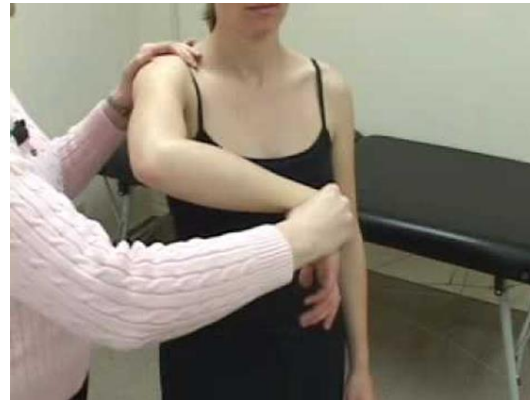
# Clinical Presentation

## ⦿ Scenario 1

- 60 yo lady
- Pain over right shoulder after carrying heavy shopping bag
- Constant ache in shoulder radiating down outer aspect of arm
- Can't lie on right side at night due to pain
- Can't hang up the washing or reach to get things from top cupboard

## ⦿ Scenario 1 continued...

- Physical examination:
  - Tender over lateral aspect of acromium
  - Full range of active elevation
  - Painful arc at 130°
  - Slightly reduced internal rotation
  - Rotator cuff power intact – Jobes “empty can” test
  - Positive impingement sign



## ⦿ Scenario 1 continued...

- Likely diagnosis
  - Subacromial impingement and bursitis
  - +/- rotator cuff tendinopathy/tear
- Aim of treatment
  - Relief of pain
  - **Maintain** shoulder range of motion and strength

# Clinical Presentation

## Scenario 2

- 45 year old man
- Previously fit and well
- Fall off the back of the ute at work and landed on the right shoulder
- Can move the arm below shoulder level and normal hand function
- Unable to lift arm up to scratch his head

## ⦿ Scenario 2 continued...

### • Physical examination:

- Unable to actively elevate right shoulder or externally rotate
- Normal elbow, wrist and hand
- Normal sensation in arm
- Able to passively elevate arm to 170°
- Mildly positive impingement sign



## ◎ Scenario 2 continued...

- Likely diagnosis
  - Acute, traumatic rotator cuff rupture
- Aim of treatment
  - **Restoration** of shoulder function
  - Early rotator cuff repair

# Clinical Presentation

## ⦿ Scenario 3

- 80 year old lady
- Long standing history of shoulder troubles
- Has been functioning reasonably well at home and puts up with the discomfort
- Looks after her frail husband at home
- Was putting away 2L bottle of milk into fridge when felt sudden pain in right shoulder
- No longer able to comb hair



## Scenario 3 continued...

- Physical examination:
  - Unable to actively elevate right shoulder or externally rotate
  - Passive shoulder elevation to  $140^{\circ}$  with pain
  - Normal elbow, wrist and hand function
  - Positive impingement sign



## ◎ Scenario 3 continued...

- Likely diagnosis

- Acute on chronic rotator cuff tear
- Complete rotator cuff tear on a background of chronically degenerative cuff

- Aim of treatment

- Pain relief
- **Regain** as much shoulder range of motion and strength as possible

# Overview

- ⦿ Anatomy
- ⦿ Pathogenesis
- ⦿ Clinical presentation
- ⦿ **Investigations**

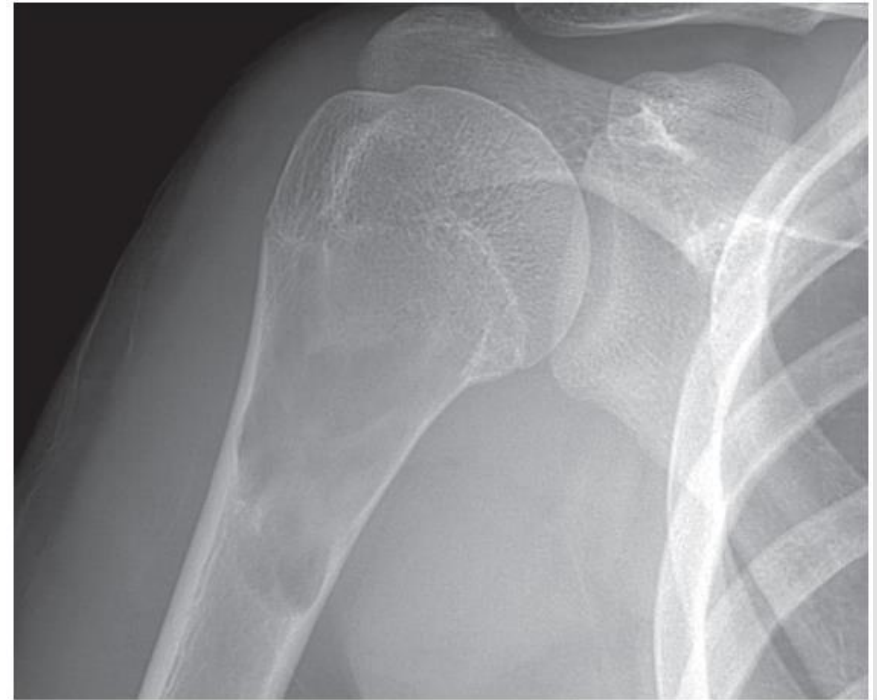
# Investigations

- ◎ 1<sup>st</sup> investigation should always be a plain Xray of the shoulder
  - Readily accessible
  - Cheap
  - Helps exclude other pathologies
  - Helps guide treatment
  - Look for acromial morphology
  - Subacromial spurs

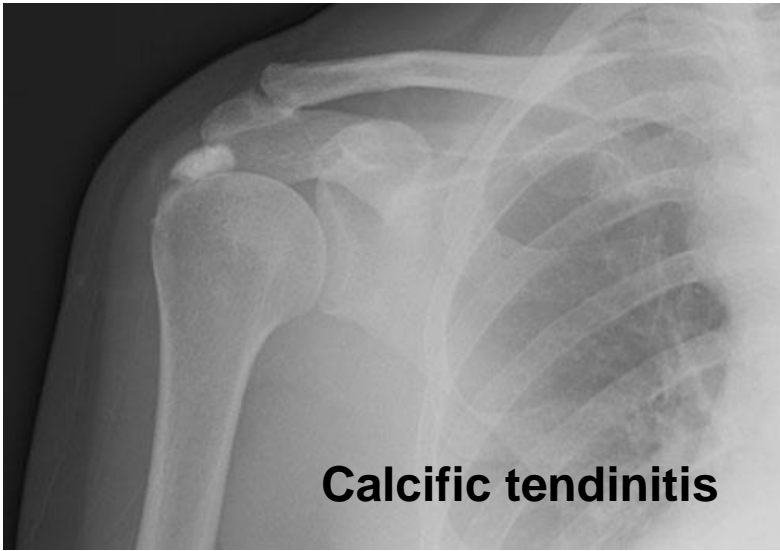
# Things not to miss ...



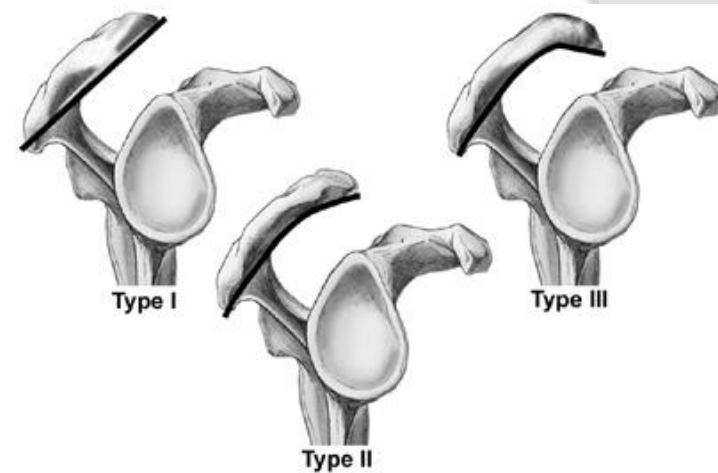
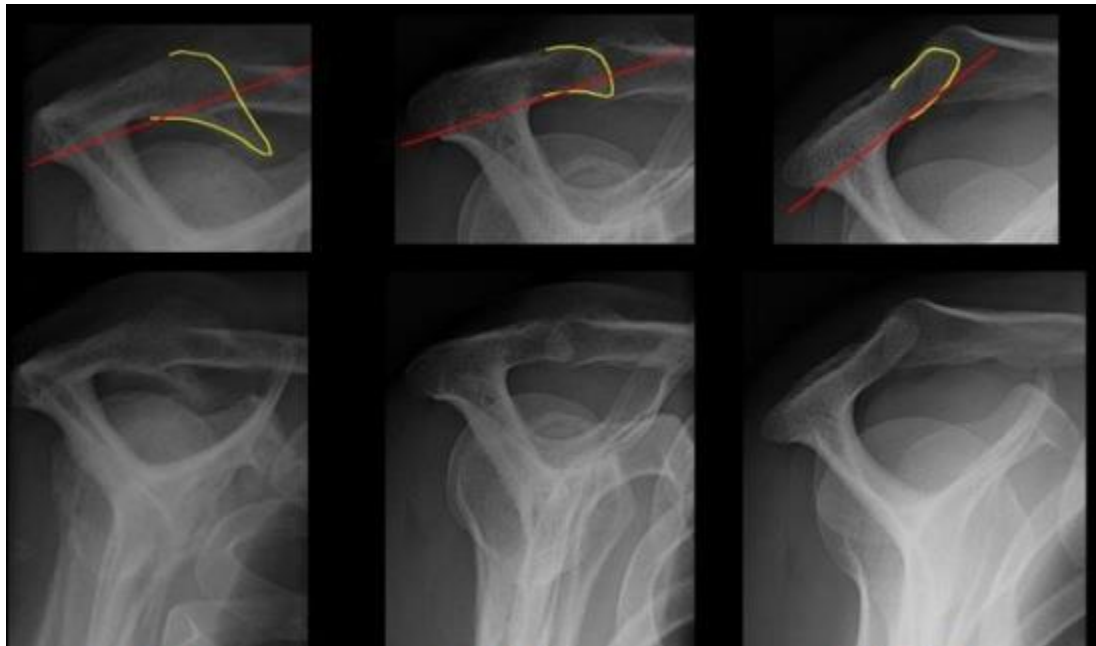
Fracture



Tumour



# Acromial morphology



# Investigations

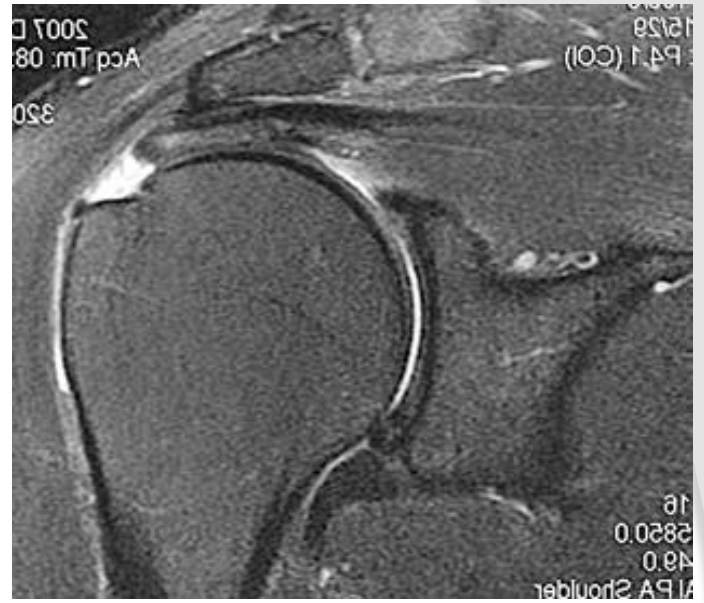
## ⦿ Ultrasound

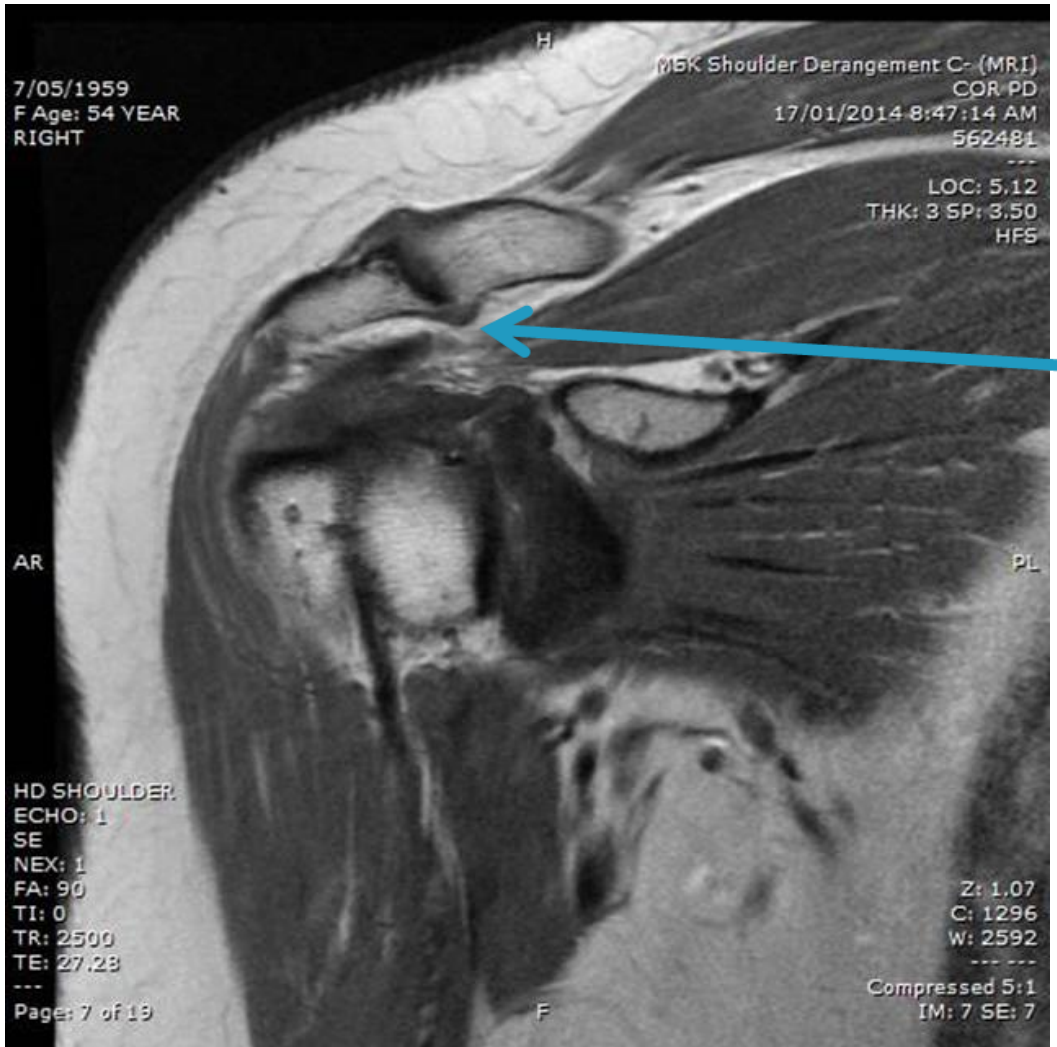
- Easily accessible
- Cheap
- Dynamic study – useful for impingement

## ⦿ MRI

- Better at showing anatomy
- Look for other pathology
- Helps plan for surgery
  - Look for fatty degeneration in rotator cuff
  - How far cuff edge has retracted







# Overview

- ⦿ Anatomy
- ⦿ Pathogenesis
- ⦿ Clinical presentation
- ⦿ Investigations
- ⦿ **Treatment**

# Treatment

	Scenario 1	Scenario 2	Scenario 3
Age	60	45	80
Presentation	Pain with shoulder elevation	Acute inability to elevate arm	Background of pain and difficulty elevating arm
Diagnosis	Subacromial impingement/bursitis +/- cuff tear	Acute, traumatic cuff tear	Acute on chronic cuff tear
Investigations	<ol style="list-style-type: none"> <li>1. Xray</li> <li>2. Ultrasound</li> </ol>	<ol style="list-style-type: none"> <li>1. Xray</li> <li>2. MRI</li> </ol>	<ol style="list-style-type: none"> <li>1. Xray</li> <li>2. Ultrasound</li> <li>3. MRI</li> </ol>
Goal of treatment	Relieve pain Maintain ROM	Restore ROM and strength	Relieve pain Regain ROM and strength

# Treatment

	Scenario 1	Scenario 2	Scenario 3
Age	60	45	80
Diagnosis	Subacromial impingement/bursitis +/- cuff tear	Acute, traumatic cuff tear	Acute on chronic cuff tear
Goal of treatment	Relieve pain Maintain ROM	Restore ROM and strength	Relieve pain Regain ROM and strength
Treatment options	<ol style="list-style-type: none"> <li>1. Subacromial injections</li> <li>2. Physiotherapy</li> <li>3. Subacromial decompression +/- rotator cuff repair</li> </ol>	<ol style="list-style-type: none"> <li>1. Expedited surgery – rotator cuff repair</li> </ol>	<ol style="list-style-type: none"> <li>1. Subacromial/intra articular injections</li> <li>2. Physiotherapy</li> <li>3. Surgery:               <ol style="list-style-type: none"> <li>a. Limited subacromial decompression</li> <li>b. Attempted rotator cuff repair</li> <li>c. Tuberoplasty</li> <li>d. Arthroplasty</li> </ol> </li> </ol>

# My Approach

- ◎ Scenario 1
  - Initial trial of subacromial injection of 40mg depo medrol and 2% lignocaine
  - Physiotherapy to maintain ROM and cuff strengthening exercises
  - If Xray shows no subacromial spur and Type 1 acromium, trial of up to 3 SAI every 3 months
  - If Xray shows subacromial spur or Type 2/3 acromium, recommend arthroscopic subacromial decompression if 1<sup>st</sup> injection gave minimal/short term symptom relief

# My Approach


- ◎ Scenario 2
  - Expedited surgery recommended to allow repair of rotator cuff
  - Arthroscopic +/- open rotator cuff repair

# My Approach


- ◉ Scenario 3
  - Trial of subacromial or intra articular injection of corticosteroid and local anaesthetic
  - Physiotherapy to strengthen remaining periscapular muscles to improve ROM
  - If ongoing pain – consider surgical treatment
    - MRI to assess amount of cuff retraction and integrity of muscle
      - Cuff edge retracted to glenoid
      - Fatty degeneration of muscle belly
    - If xray shows degenerative, cuff tear arthropathy – recommend reverse total shoulder replacement
    - Irreparable cuff tear – limited acromioplasty and tuberooplasty



# Question 1

- A 60 year old man presents with 2 months of right shoulder pain after lifting a heavy shopping bag onto the kitchen table. The pain is constant and he cannot lie on his right side at night. He localises the pain over the tip of the shoulder and down the lateral aspect of the arm. What investigation should be ordered first?
  - A. MRI right shoulder
  - B. Xray right shoulder 
  - C. CT right shoulder
  - D. Ultrasound right shoulder

# Question 2

- A 35 year old, right hand dominant carpenter presents to your clinic after falling from a pushbike. On examination, there are some superficial abrasions around the right shoulder but no focal bony tenderness to suggest any fractures. He is unable to actively elevate his right arm past shoulder height. His neurological examination in the right arm is normal. He was sent for an xray which was normal. What treatment should be considered next?
  - A. Refer to physiotherapy
  - B. Refer for an ultrasound of the shoulder
  - C. Refer to orthopaedics 
  - D. Refer for MRI of shoulder

# Thank you



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