

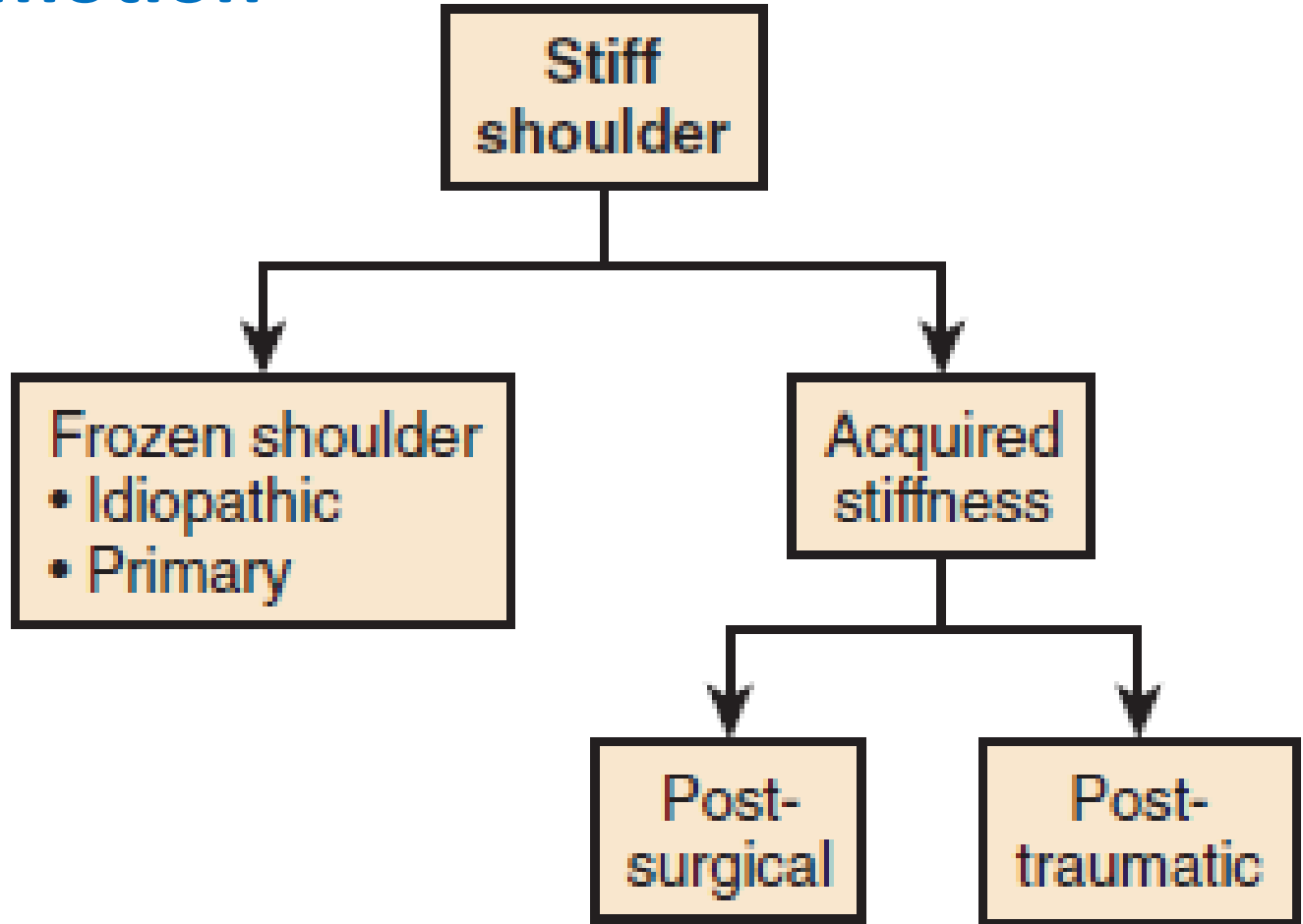
# **Approach to stiffness after shoulder fractures**

**M.N. Naderi, MD**

Fellowship in shoulder surgery

- **Stiff shoulder**

significant loss of both active and passive shoulder motion



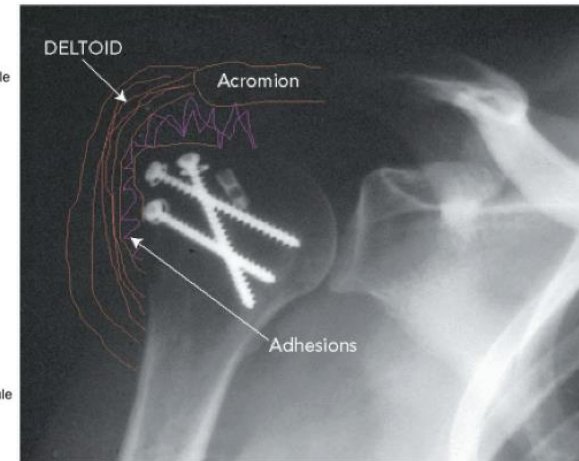
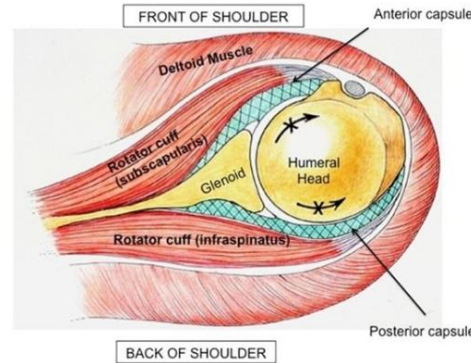
# Secondary stiff Shoulder

- does not follow a predictable course like idiopathic frozen shoulder
- Shoulder stiffness is most common complications after a PHF



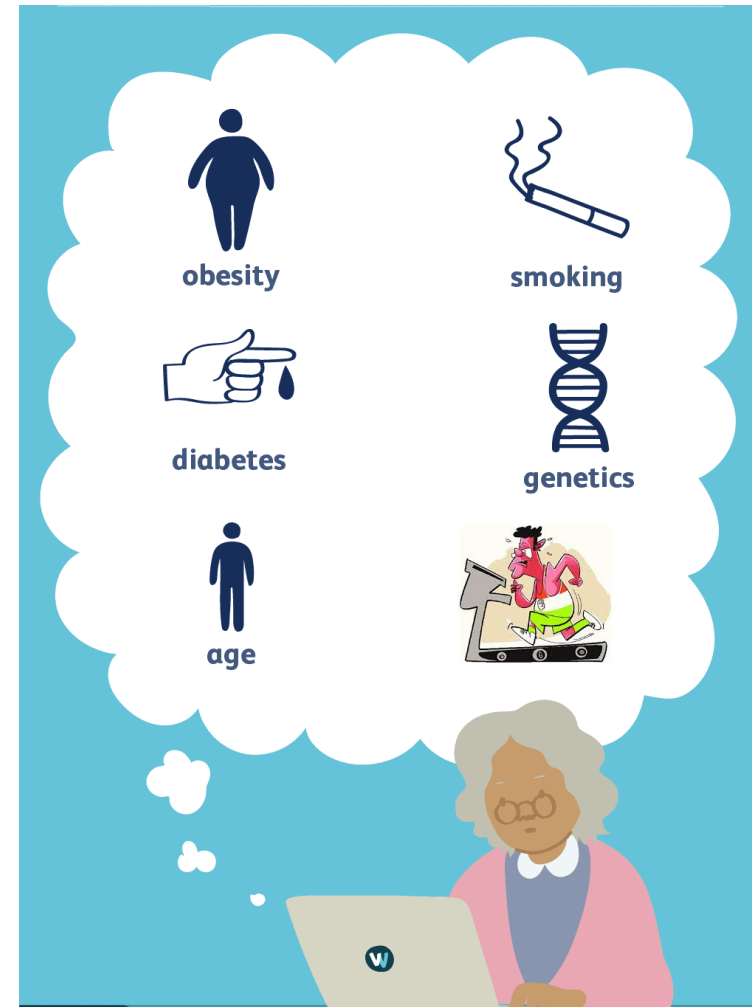
# Causes for secondary shoulder stiffness

- **Soft tissue,**
  - Capsular contracture
  - Sub acromial adhesion
  - Tendon shortening
- **Bony causes**
  - Malunion
    - Humeral head
    - Tuberosity
  - AVN
  - Heterotopic bone formation
  - DJD



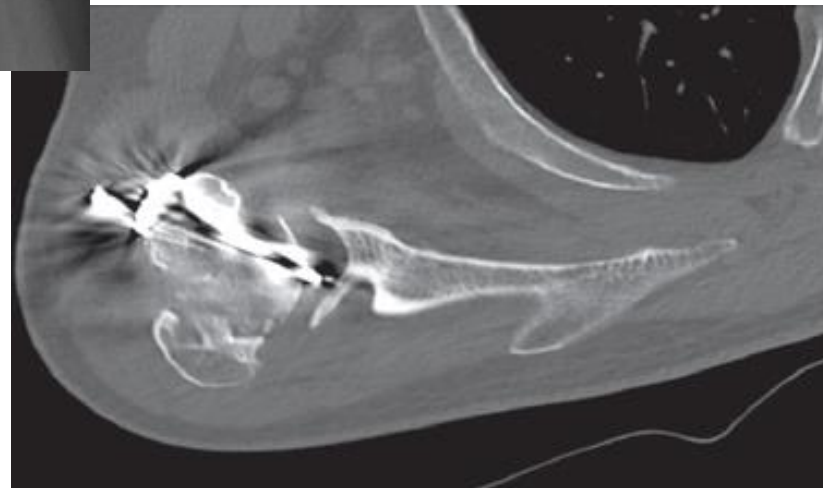
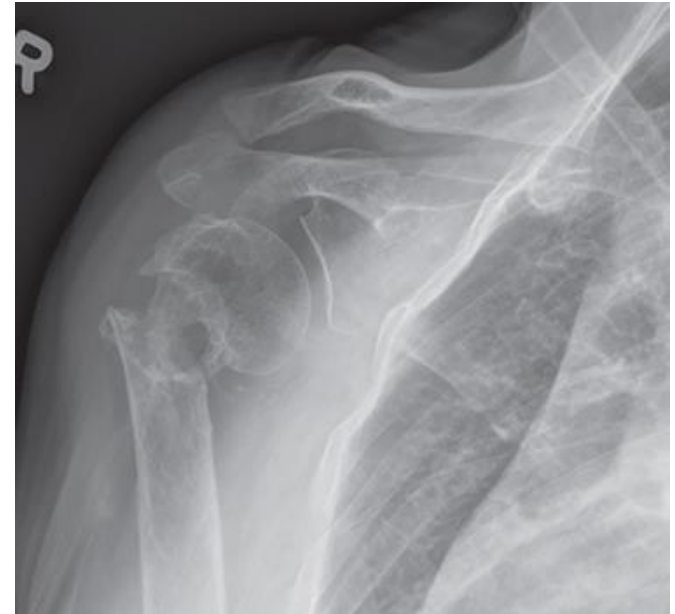
# Contributing factors

- **Age**
- **Severity of initial injury**
- **Duration of immobilization**
- **Endocrine disorders**
- **Patient noncompliance with rehabilitation**



# Evaluation

- X-ray
- CT scan
- MRI



## Shoulder stiffness related to hemiarthroplasty

more favorable outcomes with early intervention due to the presence of soft tissue contractures with chronic injuries



# Treatment

- **Conservative**
  - PT
  - Manipulation
- **Injection**
- **Surgery**
  - Hardware removal
  - Arthroscopic release
  - Correction of malunion





# When do start Rehabilitation?

- early physician-directed PT program should be performed for fx (fx managed operatively and nonoperatively)



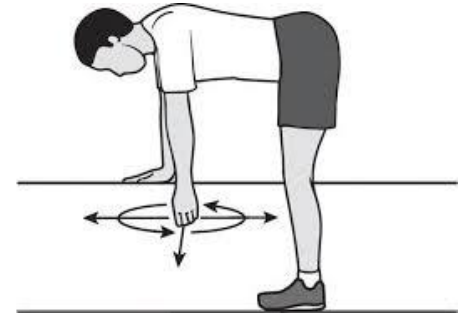
**to minimize stiffness**



# Protocol for Physiotherapy after PHF

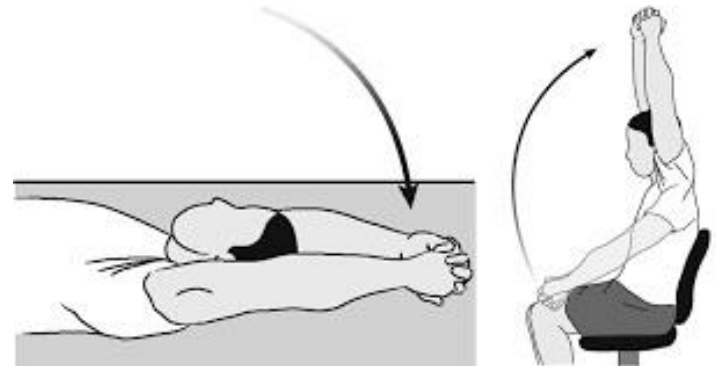
- **1 - 3 weeks**

- Arm Immobilizer
- Passive ROM in all directions as tolerated -  
Do not force or stretch



- **3-6 weeks**

- Begin active assisted exercises



- **6 weeks +**

- Progress to full active exercises in all ranges
- Begin rotator cuff strengthening (pain free)

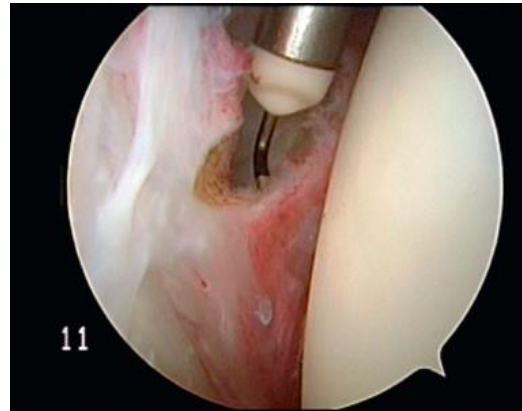
# Treatment

- **Conservative**
  - PT
  - Manipulation
- **Injection**
- **Surgery**
  - Hardware removal
  - Arthroscopic release
  - Correction of malunion



# Treatment

- **Conservative**
  - PT
  - Manipulation
- **Injection**
- **Surgery**
  - Hardware removal
  - Arthroscopic release
  - Correction of malunion/nonunion



# Summary



- **Stiffness : common complication after PHF**
- **Early supervised rehabilitation → better outcome**
- **In resistant cases ? beware of potential complications (malunion, impingement,AVN,,)**

**Thank you for attention**

