Injuries of the shoulder. Fractures and dislocations. Etiology and treatment of muscle and tendon injuries. Diaphyseal fractures of the upper arm

Ferenc Urbán
Joints of the shoulder area
Examination of the shoulder

**Inspection** – symmetry, deformities
  - Bryant sign – level of the axilllas
  - Calloway test – circumference of the shoulder
  - Deformity of the AC joint

**Palpation** – tenderness
  - swelling
  - concavity
Function

• Anteflexion – 160-180°
• Retroflexion (extension) – 45-60°
• Abduction – 170-180°
• Adduction – 45-75°
• External rotation – 80-90°
• Internal rotation – 60-90°
Scratch test by Apley

1. The patient touches the upper margin of the contralateral scapula behind the head – abduction with external rotation
2. The patient touches the apex of the scapula – adduction with internal rotation
Examination of stability

• Drawer or translation test – with and without rotation of the arm
• Apprehension test – 90° abduction with external rotation → dislocation, subluxation, défense
• Sulcus sign – the arm is pulled down
Biceps test according to Yergason

- Forced elbow flexion and supination leads to pain or clatter at the bicipital sulcus in tenosynovitis, subluxation or instability
Sternoclavicular dislocation

- Presternal dislocation

- Retrosternal dislocation – possibility of the compression of the trachea, esophagus, vessels

Dislocation = Luxation
Acromioclavicular dislocation

Classification according to Tossy

- Distorsion
- Subluxation
- Dislocation

88 lbs

176 lbs
Tossy III. type AC dislocation

Debrecen plate

Cerclage

Resection

Tension band wire

Bosworth screw

Transarticular pinning

„Piano key phenomenon”
Debrecen plating
Fractures of the clavicle

Conservative tr. with turnister

Operative:

- MIPO
- TEN
- ORIF
- DC plate
- Reconstruction plate
Clavicular fx of the acromial part
Fractures of the proximal humerus

- Surgical neck
- Anatomical neck
- Major tubercle
- Comminuted fractures
- Fracture dislocations

Classification according to Neer I-VI.
Humerus proximal

Displaced Fractures

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<th>4-part</th>
<th>Articular Surface</th>
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<tr>
<td>Anatomical Neck</td>
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<td>Surgical Neck</td>
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<td>Fracture-Dislocation</td>
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<td>Head-Splitting</td>
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Neer I-VI
Conservative treatment

• Déssault – only for first aid

• Depression of breathing !!!
Conservative treatment

- Gilchrist or sling
- Early functional treatment
  - Non displaced fx
  - Old patients

Function before morphology
Threaded pin fixation
Extraction of the implant
Semi rigid fixation

H. Resch - Der Unfallchirurg
8.2003 Helix
Absolute stable OS

PHILOS

T-plate
Prosthesis
Four-part-fracture
Glenohumeral dislocations

- **Anterior** (96-97%)
  - Preglenoidal
  - Subcoracoideal
  - Subglenoidal
- **Posterior** (3-4%)
- **Rarities:**
  - Subclavicularis
  - Supracoracoidealis
  - Luxatio erecta
  - Intrathoracalis
Rare shoulder dislocations

Posterior – 3%

„luxatio erecta“
Reduction

- Artl
- Hippocrates
- Kocher
- Stimson
- Spaso
Bankart laesion: tear of the glenoid labrum

Marginal fracture of the glenoid

Hill-Sachs laesion – impression of the humeral head
Glenohumeral instability
Bristow-Laterjet operation

Not anatomical repair
Bankart op. – refixation of the labrum: open or asc.
X-ray after Laterjet operation
Scapular fractures

- 1% of all fractures

**Treatment:** basically conservative

**Operative:** Displaced cavitas and process and severely displaced or unstable fx
Stable & unstable sc.fx
Rotator cuff

- M. supraspinatus
- M. infraspinatus
- M. teres minor
- M. subscapularis

Acut – traumatic tears
Chronic - degenerative
Impingement syndrome
Diagnostics: 2 view X-ray
Lidocain-test

- Impingement syndrome and rotator cuff tears
Ultrasound
Surgical approach between the ant. and medial head of the deltoid
• **Rockwood**

• **Neer** – without coronal resection
Acut rotator cuff tear and direct suture

- Sonography
Rotator reinsertion with Mitec-anchor
Follow up

- 2 weeks innervation
- From the 3rd week exercises with anteflexion
- From the 7th week active exercises
Rupture of the tendon of the biceps’ long head

• No anatomical repair
• Keyhole plastic
Distal biceps tendon rupture

- Rare – appr. 3% of all biceps tendon ruptures
- Deficit in supination
- Reinsertion
Humeral shaft fractures

• Mechanism
  ➢ Direct
  ➢ Indirect

• Open
• Closed
Check the function of the radial nerve!!!
Conservative treatment

Böhler plaster

Thoracobrachial Abduction Plaster
Long oblique or spiral fx

• Hanging cast
Plaster with Gilchrist
When callus occurs

• Brace
Plastering
Operative treatment

- **Intramedullary**
  - Intramedullary splinting by wires
  - TEN
  - Marchetti-Vicenzi nailing
  - Hackettal nailing
  - IM nailing

- **Extramedullary**
  - Plate OS
    - Wide or narrow DC plate
IM splinting
IM nailing

Retrograd

Anterograd
Injury of the radial nerve – treated by sural graft
Thank you for the attention!