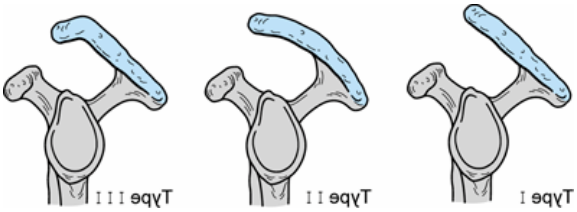
SCAPULAR FRACTURE

Vasu Pai

Relevant Anatomy



Hooke Curved Flat

Acromion

Bigliani's Types of Acromion I ,II,III

1/3 with II being around 40%

Os Acromialae: 10% and bilateral in 40%

A Pre acromial

B Meso acromial

C Meta acromial

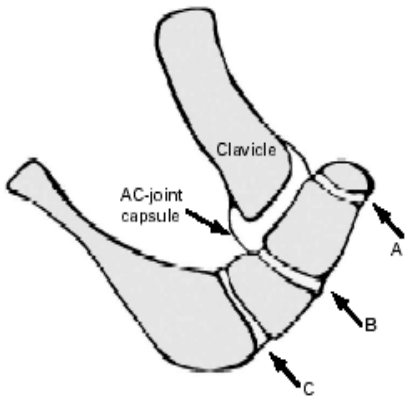


Fig. 1

Facts

Look for associated injury:

Ipsilateral rib fracture with Hemo-penumoTx is a common combination

May have fracture clavicle [Floating shoulder]

Brachial plexus injury

Closed head and face injury

Causes

MVA. - 60%

Fall from height - 20%

Others - 20%

Associated Injuries:

Clavicle fractures 15 - 40%

Rib fractures 25 - 50%

Pulmonary injuries 15 - 55%

Humeral fractures 12%

Brachial Plexus 5-10%

Of scapular fractures, the glenoid 40% fractures.

36% of anterior rim fractures, 19% of posterior rim fractures, and

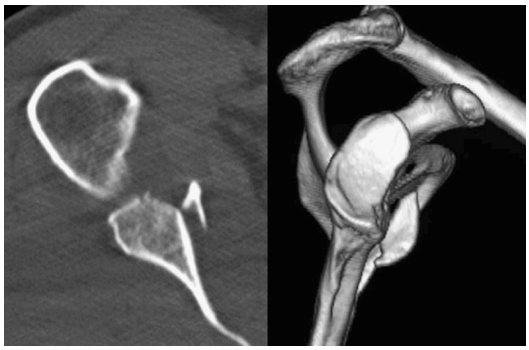
45% of short oblique fractures

Clinical Evaluation

These are typically high energy injuries, assessment should begins with the A,B,C's.

C/O shoulder pain after trauma.

Shoulder often held in abduction and external rotation Evaluate for tenderness, ecchymosis, soft tissue injury. Document axillary, median, ulnar, radial nerve function and radial pulse.



Xray / Diagnositc Tests

AP, scapular lateral and axillary views.

CT scan with 2-3 mm cuts

Chest X ray to rule out associated injuries.

Classification [Idelberg] of scapula

Type I Glenoid rim [Ant or Post]

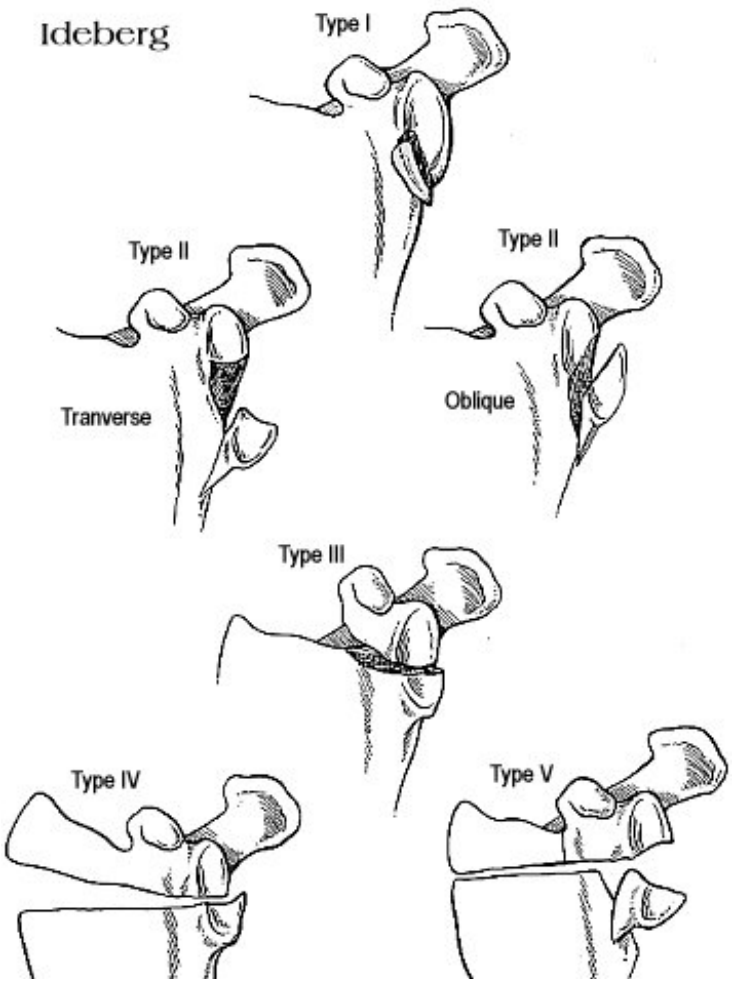
Type II Glenoid to the lateral border

Type III Superior 30-50% of the glenoid surface with the coracoid,

Type IV Involve medial border of the scapula,

Type V Combination

Type VI Combination and severe comminuted.



Glenoid Rim

I Nondisplaced / minimally displaced : immobilization in a sling for 1 week followed by progressive ROM and physical therapy.

II Displaced (subluxation of humeral head
>10 mm displacement,
>1/4 of glenoid cavity anteriorly
>1/3 of the glenoid cavity posteriorly
>5mm articular step-off)

Treatment

Consider: Intra-articular or extra-articular
Displaced or undisplaced
Associated injury: Presence of floating shoulder
Joint stability
Age of the patient and medical comorbidities

Recommended treatment

Ia – Anterior rim fracture: If unstable - Ant. Henry's approach - ORIF with a screw

If comminuted - excise & tricorticate iliac graft(Eden)

Ib Fix through posterior approach

II – Glenoid fracture: When step is more than 5 mm and joint is incongruous

Posterior approach and IFS fixation

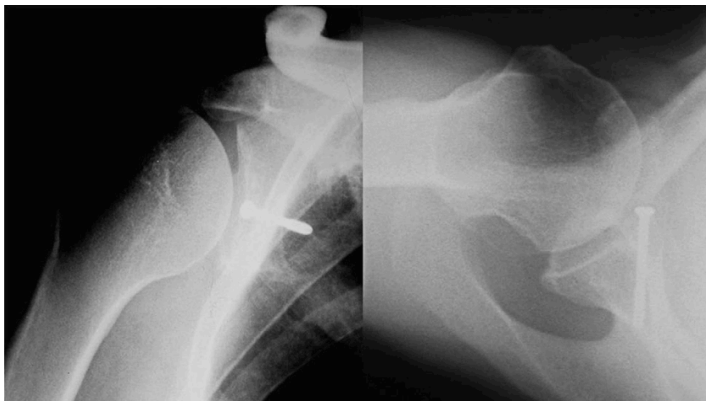
III IV, V- Post-sup approach and Lag screw

VI Non-operative

Repair of displaced anterior glenoid rim fractures has been advocated: to restore articular congruity, glenoid concavity, and glenohumeral stability.

DePalma recommended that fractures that involve at least 25% of the glenoid area or are displaced at least 10 mm should be repaired. Itoi showed that a fracture width greater than 21% of the glenoid length created instability and that capsulolabral repair after excision of these fractures.

postoperatively.



Arthroscopic glenoid fracture repair offers advantages of enhanced visualization and diminished morbidity, but published studies into the arthroscopic treatment of glenoid rim fractures have been limited to a few case reports.

Posterior Approach

Patient on **lateral position**

Incision along cranial to caudal along the spine of the scapula

Elevated the flap: elevating deltoid subperiosteally from the scapular spine

Internervous plane between the teres minor and infraspinatus

[Do not go between Minor and major to avoid damage to axillary nerve

Posterior capsule is incised from the humerus and elcvated superiorly exposing the glenoid.

Fracture is identified, reduced and fixed using standard AO techniques.

Fixation is generally provided with 3.5 mm reconstruction plates, and / or 3.5mm or 4.0mm cannulated screws.

Keep in mind the majority of the scapula is paper-thin.

Adequate bone stock to hold screws can be found: in the glenoid neck, coracoid process, base of the scapular spine, and lateral border of the scapular body. Irrigate

Closure: stitch the aponeurotic flap with drill holes in the spine

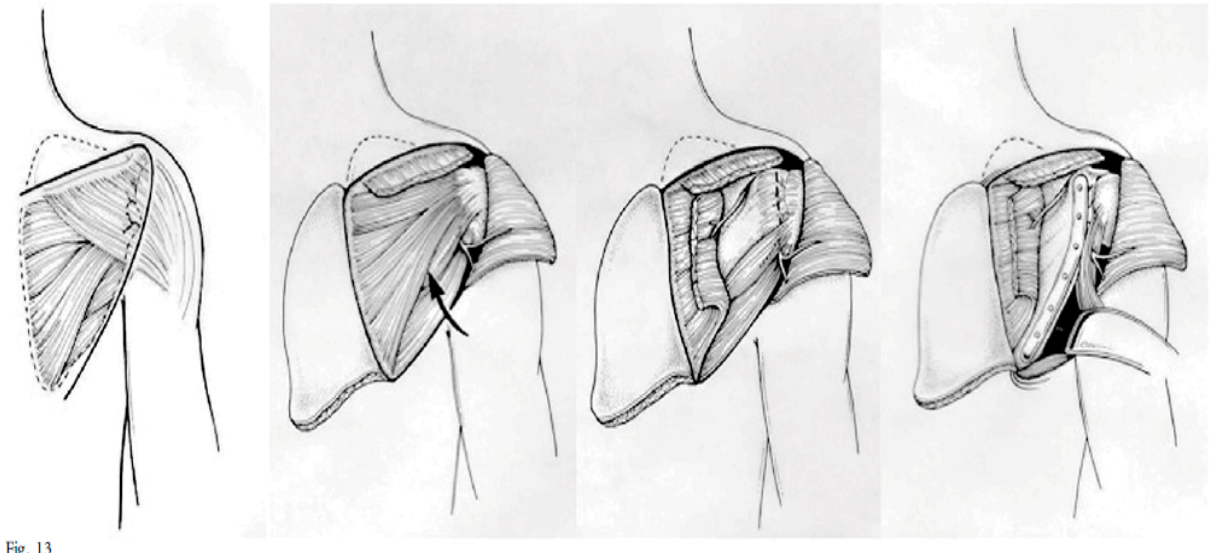
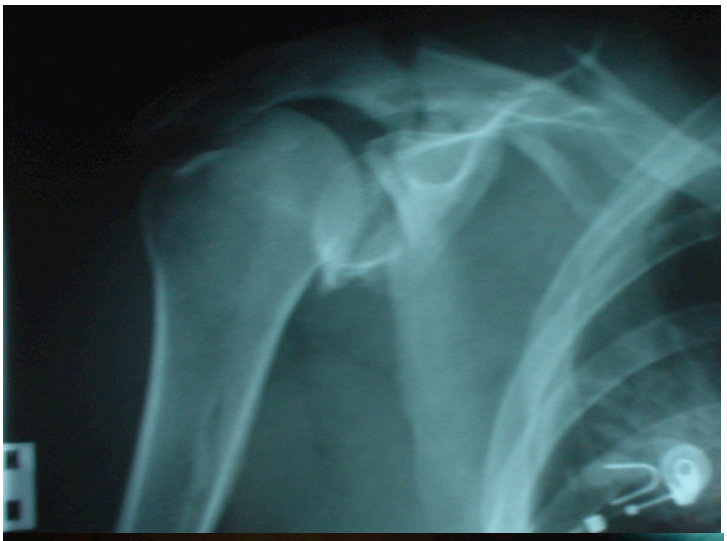
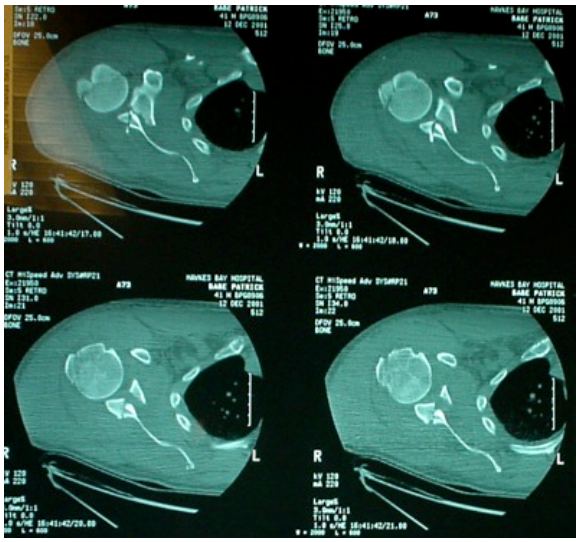


Fig. 13

Glenoid Fx Follow-up Care

Shoulder immobilizer with gentle pendulum, elbow/wrist/hand ROM immediately. Generally





patients remain in the sling for 6 weeks. Has limited use of the extremity for 10-12 weeks and must refrain from heavy physical activity for 4-6 months. 90% G-E results

Concept of floating shoulder

Stabilise at one level or both levels or no levels. Not clear.

Trend: fix both or Fix clavicle and check Glenoid reduction.

However recent: report on 20 patients treated Non-op: 17 had excellent and 3 had good results.

[Edwards. JBJS 82A: 774]

Complications

Heterotopic Ossification

Nerve injury: axillary N

Glenohumeral arthritis

Nonunion and Malunion

Infection

Stiffness

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