# Case Report

2011/01/20

R2 翁浚睿 / VS 徐郭堯

## General data

- Age: 43
- Gender: female
- Patient ID: 2461665
- Occupation: hairdresser
- Marriage: single
- Past Hx: Bipolar I disorder
- Allergy: NKA
- Denied alcohol, tobacco or betelnut consumption

## Chief Complaint

- Right shoulder pain for 3 months after falling down

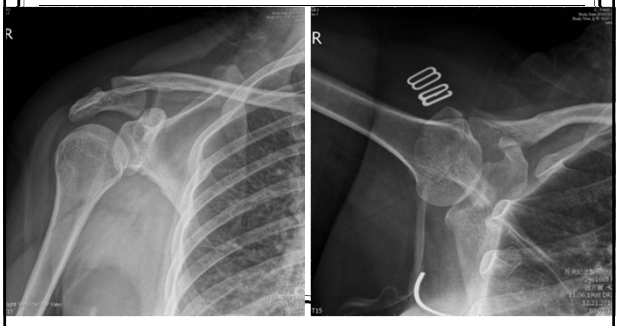
## Present Illness

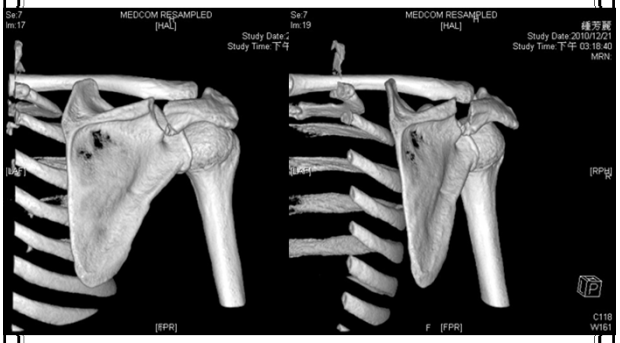
- Fell down from stairs in 2010/09
- Right shoulder contussion
- Painful sensation during movement

## Present Illness

- 12/21 came to our OPD
- 12/30 Admission

## 2011/12/21 OPD






## Physical Examination

- T:36.3/℃ P:88/min R:19/min BP:119/85/mmHg
- 身高:158CM (20101230) 體重:91.5KG (20101230) BMI: 36.6
- GENERAL APPEARANCE:
  Fair looking
- CONSCIOUSNESS:
  Clear, E 4 V 5 M 6
- HEENT:
  Sclerae: NOT icteric
  Conjunctivae: NOT pale
- NECK:
  No jugular vein engorgement
- CHEST:
  Breath pattern: smooth
  Breathing sound:bilateral clear and symmetric breathing sound

## Physical Examination

- HEART:
  Regular heart beat without audible murmur
- ABDOMEN:
  Soft and flat
  No tenderness; No rebounding pain
  Bowel sound: normoactive
- BACK:
  No knocking pain over bilateral flank area
- EXTREMITIES: Right shoulder
  abduction: 0~90, pain was induced at maximal degree
  foreward flexion:0~180
  backward extension:0~20
  tenderness over posterior shoulder area

## Lab Data

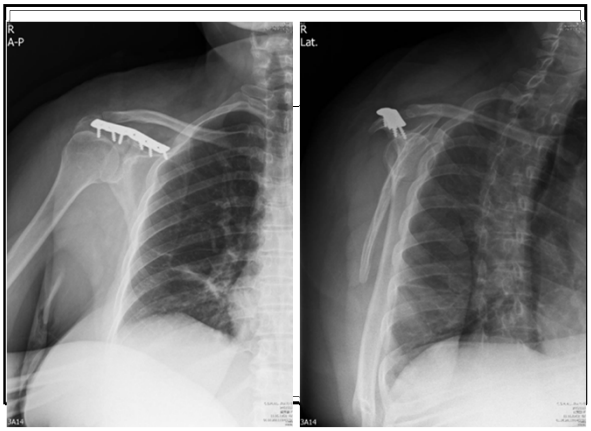
| | | | | | |
|---|---|---|---|---|---|
| WBC | 1000/uL | 10.6 | Platelets | 1000/uL | 219 |
| RBC | million/ | 4.89 | ESR | mm/hr | 6 |
| Hemoglobin | g/dL | 14.8 | Segment | % | 61.6 |
| Hematocrit | % | 45.1 | Lymphocyte | % | 31.7 |
| MCV | fL | 92.2 | Monocyte | % | 4.1 |
| MCH | pg/Cell | 30.3 | Eosinophil | % | 2.2 |
| MCHC | gHb/dL | 32.8 | Basophil | % | 0.4 |
| RDW | % | 12.9 | CRP | mg/L | 4.22 |

## Impression

- Right scapula spine fracture
- Bipolar I disorder

## Operation on 12/31

- Open reduction for right scapular nonunion with DCP 6H6S
- AC joint augement with Etibond
- Trapezium and Deltoid ligament augment with Etidond
- Pre-OP forward elevation 90 degrees
  ➔ 160 degrees post-OP
- Right shoulder ROM no limitation after ORIF




# Discussion

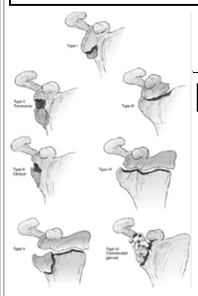
## Scapula fracture

- Relatively uncommon
  - 3~5% all shoulder fractures
  - 0.5~1% all fractures
- Protection from impact by large surrounding muscle mass
- Mechanism of trauma
  - High energy trauma
  - Indirect injury through axial loading on outstretching arm
  - Direct trauma from blow or fall through some point of shoulder
- Associated injury

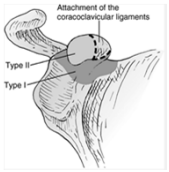
## Scapular fracture

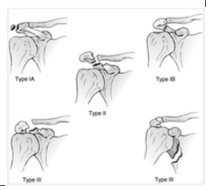
- Fractures of body and neck: >2/3
- Intra-articular fractures: 10%
- Fractures of acromial: 9%
- Fractures of coracoid process: 7%
- Scapular pine fracture: 6%

Ideberg classification of glenoid fracture

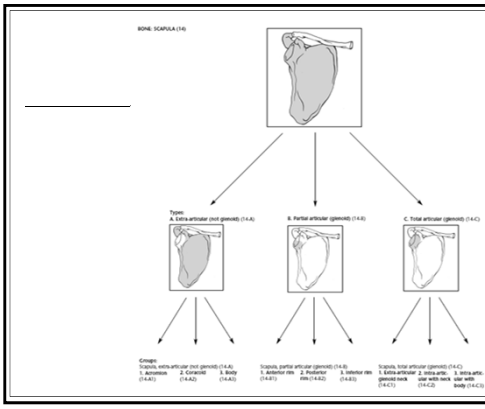


Classification of coronoid fracture



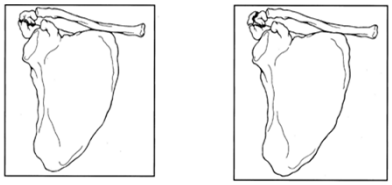
Acromion fracture classification



OTA classification of scapular fracture

**Subgroups:**
Scapula extra-articular (not glenoid) (14-A)
Acromion (14-A1)
**1. Acromion, noncomminuted** (14-A1.1)
**2. Acromion, comminuted** (14-A1.2)

A1



## Surgical indication

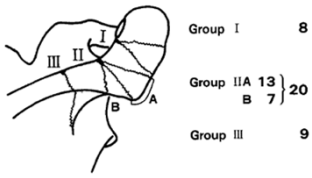
- Displaced intra-articular glenoid fracture involving >25% articular surface, with/without subluxation
- Scapular neck fracture with >40 degree angulation or 1cm medial translation
- Scapular neck fracture with associated displaced clavicle fracture
- Acromion fracture with subacromial space impingement
- Coracoid process fracture that results in functional A-C separation
- Comminuted fractures of scapular spine

Rockwood and Green's Fractures in Adults

## Fractures of the acromion and the lateral scapular spine

Kiyohisa Ogawa, MD, and Toyohisa Naniwa, MD, *Tokyo, Japan*

- 37 fractures lateral to spinoglenoidal notch
- Evaluate validity of handling these fractures as an acromion fracture
- Material and method
  - 37 fractures lateral to spinoglenoidal notch from 1980 to 1994




Group I 8
Group IIA 13, B 7 } 20
Group III 9

**Figure 1** Classification of fractures of anatomic acromion and lateral scapular spine according to anatomic location of fracture line

- Location of medial end of fracture line
- Group I
  - Posterior edge of A-C joint
- Group II
  - Anteromedial to acromial angle
- Group III
  - Spinoglenoidal notch

**Table I** Concurred shoulder injuries

| | |
|---|---|
| Scapula fracture | 33 |
| Coracoid | 19 |
| Superior margin | 10 |
| Others | 4 |
| Clavicle fracture | 4 |
| Acromioclavicular joint injury | 18 |
| Brachial plexus palsy | 4 |
| Suprascapular nerve palsy | 2 |
| Rotator cuff tendinitis | 1 |
| Biceps tendon rupture | 1 |
| Proximal humeral fracture | 1 |

**Table III** Associated injuries excluding shoulder injuries

| | |
|---|---|
| Severe lacerations/abrasions | 8 |
| Rib fractures | 7 |
| Skull fractures | 4 |
| Femur fractures | 3 |
| Cerebral contusions | 2 |
| Pneumohemothoraxes | 2 |
| Radius/ulna fractures | 2 |
| Knee fratures | 2 |
| Hemothorax | 1 |
| Facial fracture | 1 |
| Lumbar spine fracture | 1 |
| Humerus fracture | 1 |
| Pelvic fracture | 1 |

**Table II** Relationship between the fracture groups and concurrent shoulder injuries

| Major concurrent injury | | | Fracture group | | | |
|---|---|---|---|---|---|---|
| Coracoid fracture | Acromioclavicular joint injury | Clavicle fracture | I | IIA | IIB | III |
| | | | 2 | 3 | 2 | 5 |
| ★ | | | 1 | 2 | 1 | 1 |
| ★ | ★ | | 2 | 5 | 3 | 1 |
| ★ | ★ | ★ | | 1 | | |
| ★ | | ★ | 2 | | | |
| | ★ | | 1 | 2 | 1 | 1 |
| | ★ | ★ | | | | 1 |

## Assumed injury mechanism

- Group I & Group II
  - Indirect force to shoulder from lateral or posterolateral direction
- Group III
  - Direct force from the posterior or posterolateral direction
  - Infrequent associated shoulder injury

## Treatment

- Isolated / undisplaced fracture
  - Conservative treatment
- Significant downward displacement in group I / II
  - Surgery indicated➔ prevent subacromial impingement
- Marked displacement in group III
  - Surgery indicated

## Implant

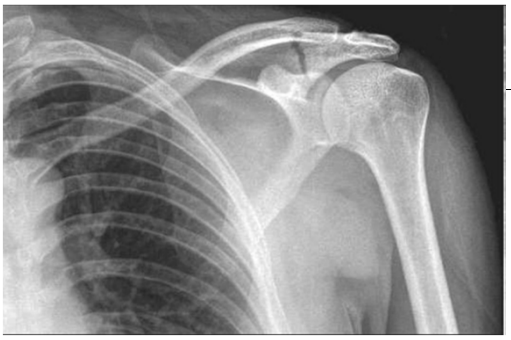
- Group I / II
  - Kirschner wiring and tension band wiring
- Fracture medial to acromial angle
  - Plate fixation

Int J Shoulder Surg. 2008 Jul–Sep; 2(3): 64–67. PMCID: PMC2840823
doi: 10.4103/0973-6042.42202

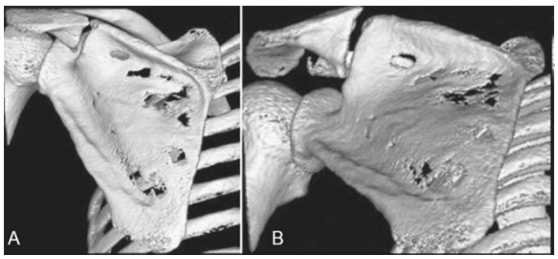

**Nonunion of a scapular spine fracture: Case report and management with open reduction, internal fixation, and bone graft**

Mohammed As-Sultany, Amol Tambe,[1] and David I. Clark[2]

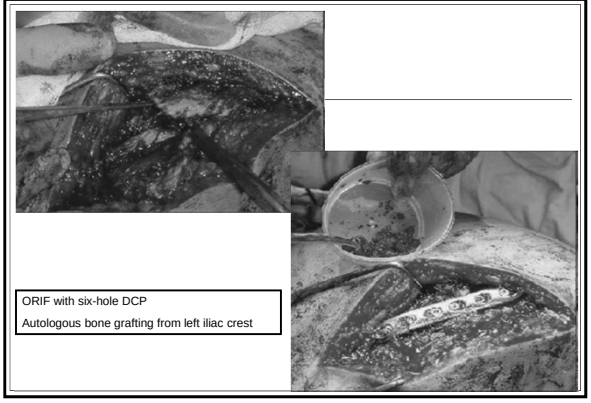
- 39 years old male
- Fallen directly onto the shoulder
- Isolated left shoulder pain
- Tenderness and bruising over lateral aspect of scapular spine
- Passive and active abduction / forward flexion ➔ uncomfortable beyond 90 degree
- Well-maintained internal/external rotation
- Motor power of rotator cuff ➔ grossly intact
- No neurovascular compromise



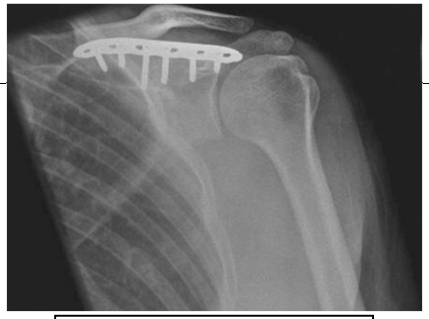
He received conservative treatment first




No evidence of healing after 6 months
Symptom persisted



ORIF with six-hole DCP
Autologous bone grafting from left iliac crest



Good bony union at 3 months post-operation
Symptom of pain subsided

## Author's opinion

- Sagging of lateral spine and acromion
  - ➔ narrowing of supraspintaus outlet
    secondary impinge rotator cuff
- Plate fixation more appropriate for more proximal and medially displaced scapular spine fracture
- Low threshold for operative fixation for young, fit and active patient

*Thanks for your attention*