Consequence of a nondisplaced fracture of the acromion – A rare case report of treatment by open reduction and recon plate fixation

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Abstract:
Displaced fracture of the acromion without associated shoulder injury occurs rarely. A 50 year old female presented with pain in the left shoulder following a fall from a 2-wheeler. She also had an associated history of head injury and blunt trauma to the chest. On examination, we found swelling & tenderness over the acromion and the lateral end of the clavicle. Movements were very painful. Plain Radiograph showed an undisplaced fracture of the acromion. (Figures 1.1 and 1.2). Due to her head and chest trauma, she was conservatively managed and treatment was given in form of strapping and a universal shoulder immobilizer. The patient came back for follow up after 3 weeks and a check radiograph showed displaced fracture. (Figure 2) This, if untreated could lead to impaired shoulder function.

Key words: Acromion; Reconstruction plates; Scapula; Shoulder Pain

Introduction:
Scapula has an important role in arm function. It sits congruently against the ribs and stabilizes the upper extremity against the thorax. It also links the upper extremity to the axial skeleton through the glenoid, the acromioclavicular joint, the clavicle, and the sternoclavicular joint [1].

Fracture of scapula occurs infrequently, the incidence being 3% to 5% of all shoulder girdle injuries and 0.4% to 1% of all fractures [2,3]. This low incidence of scapular fractures may be due to the scapula’s thickened edges, its great mobility with recoil, and its position between layers of muscle. The mean age of patients with fracture of the scapula is 35 to 45 years [4-6].
movements hence surgical reduction of the fracture was advocated. The fracture was approached from superiorly and anatomic reduction was done. Fixation was with the means of 2 Reconstruction plates. (Figures 3.1 and 3.2) These plates were pre-contoured on a cadaveric bone model as there is no contoured plate available in the market for acromion.

Post operatively, the patient was put on a sling and shoulder movements were started gradually. At the end of 8 weeks, patient had full range of motion and no functional disability. (Figure 4)

Figure 1.1 (Pre-Operative)

Figure 2 (Pre-Operative, Showing Displaced Fracture)

Figure 1.2 (Pre-Operative)

Figure 3.1(Post-Operative)
Acromion fractures are caused by high-energy trauma and, in general, accompany damage to surrounding organs and life-threatening injuries. Therefore, diagnosis and treatment are often delayed. Cases of minimally displaced fractures were unnoticeable without close observation [7]. This patient had an associated history of head injury, blunt trauma to the chest and plain radiograph showed an undisplaced fracture of the acromion. Hence we advised her to come after 3 weeks for followup. Doosup Kim et al in his study reported that delayed reconstruction group showed significantly lower pain scores and daily activity scores compared to the early fixation group [7].

In cases of nondisplaced acromion fractures, it is important that patients and families are properly informed about advantages and disadvantages of early surgery and delayed reconstruction. Especially when patients are young and active, the possibility of displacement during conservative treatment is to be stressed, and early surgery is to be more carefully selected [7].

With respect to the nondisplaced acromion fracture, there are very few case reports in the literature. Nondisplaced acromion fractures may displace if not protected. The fracture was approached from superiorly and anatomic reduction was done. Fixation was with the means of 2 Reconstruction plates. These plates were pre-contoured on a cadaveric bone model as there is no contoured plate available in the market for acromion.

Post operatively, the patient was put on a sling and shoulder movements were started gradually. At the end of 8 weeks, patient had full range of motion and no functional disability.

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