

Open Reduction and Plating of Scapula and Acromion Fracture with Modified Judet Approach

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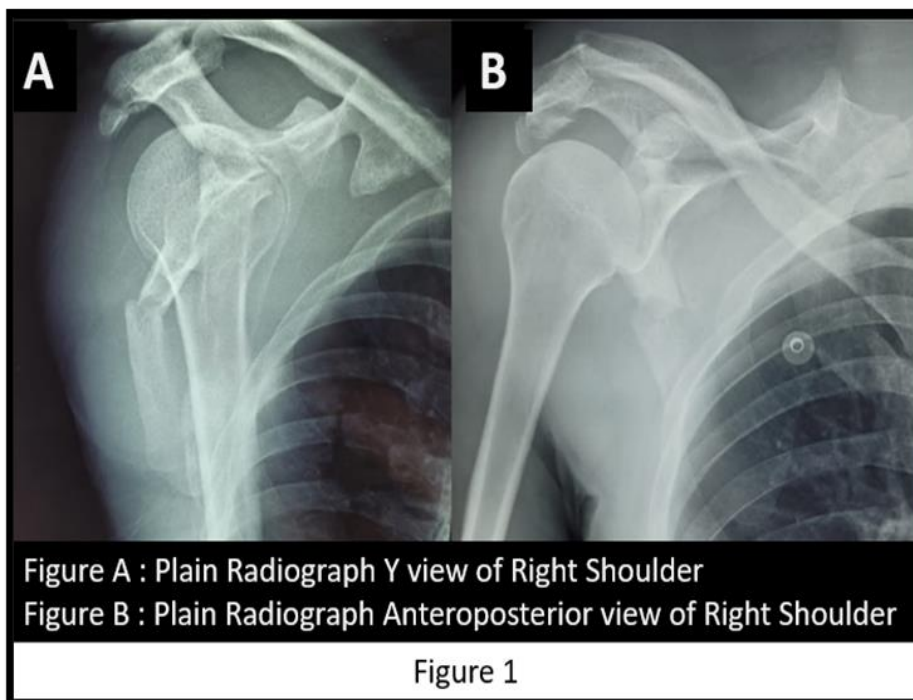
Abstract:- A percentage of 0.5% of all fractures are found to be scapular fractures occurring primarily in young to middle aged males. Traditionally, these fractures are results of high energy trauma and highly associated with life-threatening injuries as well as poly traumatized patients. Most common scapula fractures are extra-articular (scapula body or glenoid neck fractures) which has the incidence rate of 62% - 98%. Extraarticular scapular fractures treated operatively, reported good functional outcomes based on the DASH scoring system and has lower rate of complications. The standard surgical approach to plate scapula fractures is classic judet approach, however we are reporting a case of extraarticular scapula fracture and acromion fracture internal fixation using a modified judet approach. Modified judet approach was used to plate the scapula and acromion in view of, this approach allow surgical approach to body of scapula and acromion with minimal muscular dissection. Its crucial to achieve a good functional outcome of dominant hand by preserving the infraspinatus muscle and strength in external rotation of shoulder joint to aid in rehabilitation and faster recovery postoperatively.

I. INTRODUCTION

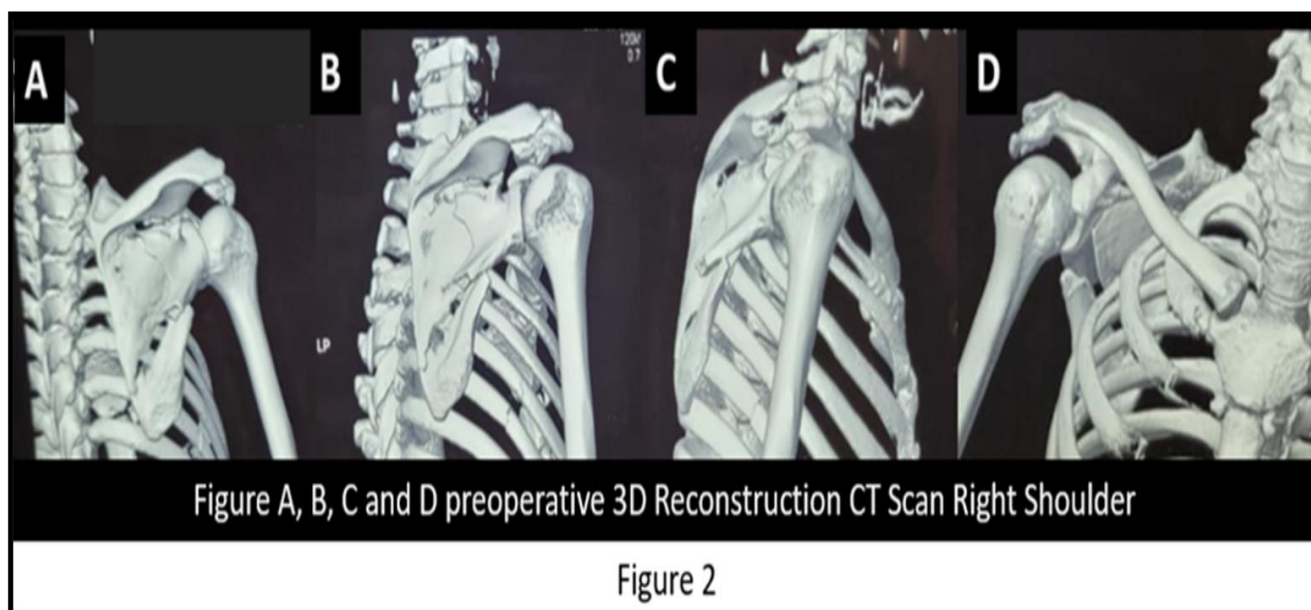
A percentage of 0.5% of all fractures are found to be scapular fractures occurring primarily in young to middle aged males [1]. Traditionally, these fractures are results of high energy trauma and highly associated with life-threatening injuries as well as poly traumatized patients [1]. Most common scapula fractures are extra-articular (scapula body or glenoid neck fractures) which has the incidence rate of 62% - 98% [1]. Extraarticular scapular fractures treated operatively, reported good functional outcomes based on the DASH scoring system and has lower rate of complications [1]. The standard surgical approach to plate scapula fractures is classic judet approach, however we are reporting a case of extraarticular scapula fracture and acromion fracture internal fixation using a modified judet approach.

II. CASE REPORT

35 Years Old Chinese Gentleman with no known medical illness, right hand dominant, working as car painter admitted to Emergency Department with chief complaint of right shoulder pain. Further history clerking, patient was riding motorcycle at speed of 60km/hour and hit a car. Patient was thrown out and landed on his right shoulder. He was wearing helmet. Post trauma, he was complaining of right shoulder. Patient was able to ambulate without aid. Denies loss of consciousness or retrograde amnesia. Patient was brought to Emergency Department by ambulance. On arrival, Vital signs was stable, noted multiple abrasion wound over the right shoulder. On examination there was significant bony tenderness over the right scapula region and limited range of motion of right shoulder. Other examinations was unremarkable. Subsequently, right shoulder xray was done and revealed comminuted fracture body of scapula with acromion fracture.

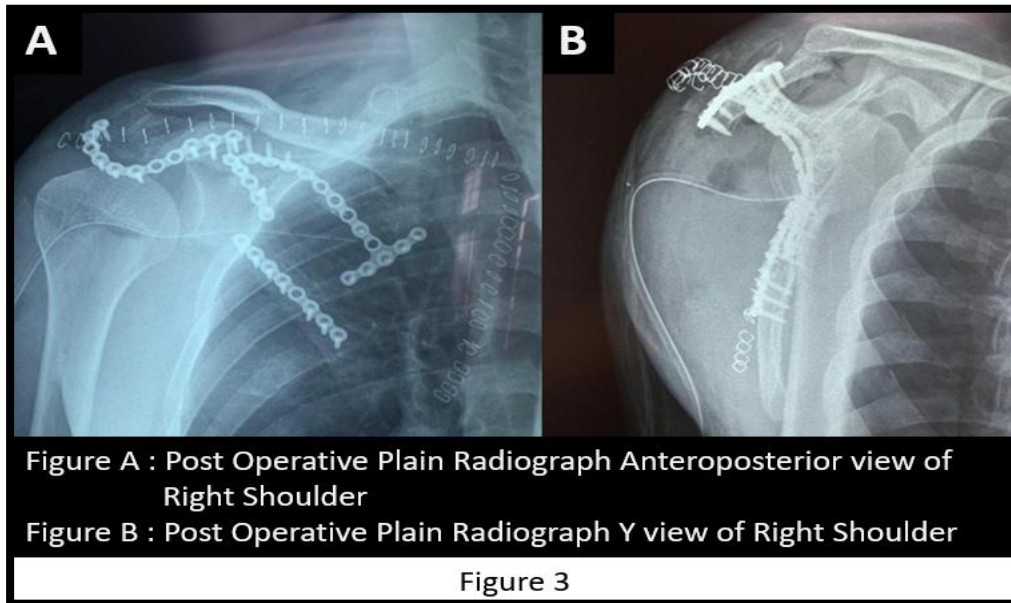


Computed tomography (CT) right shoulder was done as shown in Figure 2, reported as comminuted fracture body of right scapula extending to neck of scapula and right acromion fracture.



Patient was planned for operative management. Plating right scapula and acromion was done using modified judet approach. Intra operatively, noted extra articular comminuted fracture of right body scapula extending to neck of scapula. Scapula body fracture reduced and plated with 2 straight locking recon plate and a T-shaped locking

recon plate. Acromion fracture was reduced and stabilized with K-wire and plating done using locking recon plate. Post operative check xray (Figure 3) shows fracture was reduced and alignment was restored. Patient was discharged well home.



III. DISCUSSION

In extraarticular scapula fractures, there are few indications for operative treatment such as [2];

- Medial/lateral displacement $\geq 20\text{mm}$
- Angular deformity between fracture fragment ≥ 45 degree
- Medial/lateral displacement $\geq 15\text{mm}$ and angular deformity > 30 degrees
- Double lesion of superior shoulder suspensory complex (SSSC) with displacement of both lesions $> 10\text{mm}$
- Glenopolar angle (GPA) < 22 degrees
- Open fractures

Thus, we decided to treat this patient with operative management based on the indication as shown in Figure 1-2. In this case, modified judet approach was used to plate the

scapula and acromion in view of, this approach allows surgical approach to body of scapula and acromion with minimal muscular dissection [3]. In modified judet approach, skin incision is made along the scapula spine, at the lateral border of the scapula, vertical extension is done similar to classic judet approach [3]. However, in modified judet approach, infraspinatus muscle is not detached from the scapular fossa [3]. A blunt dissection of infraspinatus muscle is done through the internervous interval between the origin of infraspinatus and teres minor muscle. It allows adequate surgical exposure to the posterior glenoid, neck and lateral border of scapula. Moreover, modified judet approach has better recovery of infraspinatus strength in external rotation and functional outcome postoperatively[2].



IV. CONCLUSION

In this case, it's crucial to achieve a good functional outcome of dominant hand by preserving the infraspinatus muscle and strength in external rotation of shoulder joint to aid in rehabilitation and faster recovery postoperatively [2]. Which will allow this patient to have faster rate of recovery or return to work function compared to classic judet approach.

REFERENCES

- [1.] Lisa K, Erich M, Jeffrey A, Peter A, 2016, 'Functional Outcomes After Operative Management Of Extra-Articular Glenoid Neck And Scapular Body Fractures', The Journal Of Bone And Joint Surgery, Volume 98-A, Number 19, Pp.1623-1630. [Http://Dx.Doi.Org/10.2106/Jbjs.15.01224](http://dx.doi.org/10.2106/Jbjs.15.01224)
- [2.] Giuseppe P, Paolo P, Stefano C, Alessandro P, Giovanni M, Antonio C, 2018, 'Functional Outcomes And Clinical Strength Assessment After Infraspinatus-Sparing Surgical Approach To Scapular Fracture: Does It Really Make A Difference?', Porcellini Et Al. J OrthopTraumatol (2018) 19:15, [Https://Doi.Org/10.1186/S10195-018-0509-8](https://doi.org/10.1186/S10195-018-0509-8)
- [3.] William T, Jeffrey R, 2004, 'A Modified Judet Approach To The Scapula', Journal Of Orthopaedic Trauma, Volume 18, Number 10, Pp.696-699. Doi: 10.1097/00005131-200411000-00007.