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ORIGINAL ARTICLE

Analysis of 64 cases of coracoid process fractures

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ABSTRACT:

Background: Isolated coracoid process fracture is a rare injury. Acute subscapularis tears are also uncommon and frequently associated with trauma rather than degenerative processes. The present study was conducted to assess cases of coracoid process fractures. **Materials & Methods:** 64 patients of coracoid process fractures of both genders were enrolled. A through clinical examination was carried out. Parameters such as fracture type, treatment method and concurrent injuries were evaluated. **Results:** Out of 64 patients, 41 were males and 23 were females. Type I was seen in 10, type II in 17, type III in 27, type IV in 6 and type V in 4 patients. The difference was significant (P< 0.05). Outcome was excellent in 48, good in 14 and fair in 2 cases. The difference was significant (P< 0.05). **Conclusion:** Maximum cases were of Eyres' anatomical classification type III. In maximum cases, outcome was excellent.

Key words: Acromioclavicular, coracoid process fractures, shoulder

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INTRODUCTION

Fractures of the isolated coracoid process are uncommon injuries. Acute subscapularis tears are also uncommon and frequently associated with trauma rather than degenerative processes. Acromioclavicular (AC) or glenohumeral joint dislocation, scapula corpus fractures, clavicular fractures, humerus proximal end fractures, or rotator cuff tears are frequently accompanied by coracoid process fractures in the shoulder girdle.[1] According to estimates, the incidence of scapular fractures ranges from 3% to 13%, accounting for 1% of all fractures and 5% of shoulder fractures. There are very few isolated coracoid injuries documented in the literature, making them an uncommon occurrence.[2] Treatment for coracoid process fractures remains controversial, and coracoid fractures (CFs) can be overlooked.If the fracture is severe, displaced, or associated with a dislocated shoulder or other significant injuries, surgery may be necessary to realign the bone and stabilize the joint. This could involve using screws or plates.[3]

There are two different kinds of CFs: type I fractures, which occur behind the coracoclavicular ligaments, and type II fractures, which occur in front of the ligaments. The strong scapula-clavicular link may be destroyed by a type I fracture.[4] Type I fractures are tip or epiphyseal fractures; type II fractures are mid-process fractures; type III fractures are basal fractures; type IV involves the superior body of the scapula; and type V involves extension into the glenoid fossa, according to Eyres' anatomical categorization.[5]The present study was conducted to assess cases of coracoid process fractures.

MATERIALS & METHODS

The present study comprised of 64 patients of coracoid process fractures of both genders. All enrolled patients gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. A through clinical examination was carried out. Parameters such as fracture type, treatment method and outcome were evaluated.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total-64		
Gender	**Males**	**Females**
Number	41	23

Table I shows that out of 64 patients, 41 were males and 23 were females.

Table II Distribution of cases based on Eyres' anatomical classification

Type	Number	P value
Type I	10	0.05

Type II	17	
Type III	27	
Type IV	6	
Type V	4	

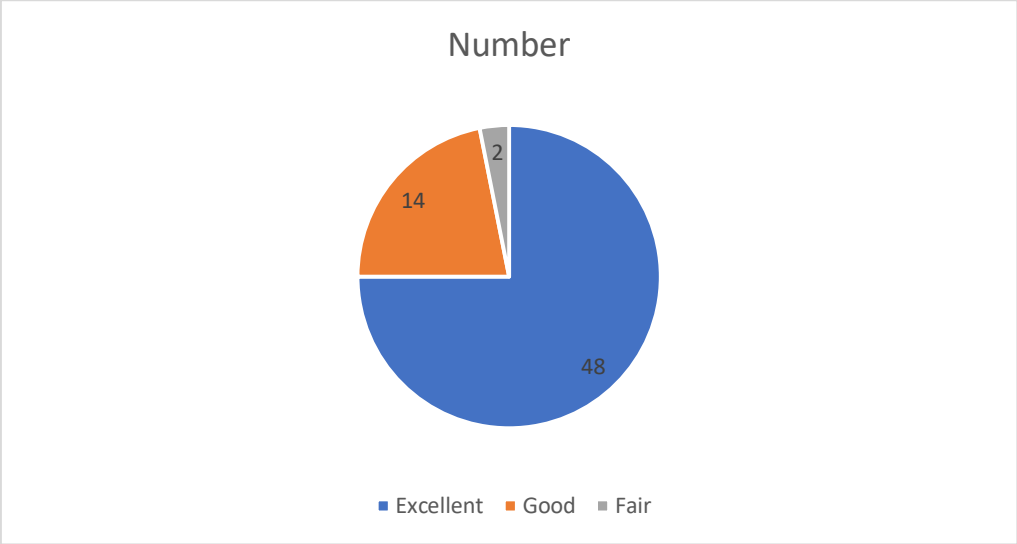
Table II shows that type I was seen in 10, type II in 17, type III in 27, type IV in 6 and type V in 4 patients. The difference was significant (P< 0.05).

Table III Evaluation of treatment outcome

Outcome	Number	P value
Excellent	48	0.01
Good	14	
Fair	2	

Table III, graph I shows that outcomewas excellent in 48, good in 14 and fair in 2 cases. The difference was significant (P< 0.05).

Graph I Evaluation of treatment outcome



DISCUSSION

About 5% of all scapular fractures are coracoid process fractures, making them a rare injury. Acromioclavicular injuries, clavicular fractures, shoulder dislocations, and other shoulder suspensory complex injuries are frequently linked to it.[6] Because it disrupts the coracoclavicular ligament and causes an unstable connection between the scapula and the clavicle, it is advised that a coracoid process fracture at the base of the process may require surgical intervention.[7,8] Conversely, conservative treatment is an option for coracoid process fractures that occur distal to the coracoclavicular ligament.[9]The present study was conducted to assess cases of coracoid process fractures.

We found that out of 64 patients, 41 were males and 23 were females.In their investigation, Yoo et al[10] found that a 61-year-old man driver had experienced injuries to his right shoulder two days prior. A displaced coracoid process fracture was discovered on the axillary lateral view during the initial radiologic assessment. The fracture of the coracoid process was confirmed by three-dimensional computed tomography. There were no more shoulder girdle fractures or dislocations, however it was shifted inferiorly by roughly 2.5 cm. Conservative therapy may be adequate from the perspective of coracoid fracture classification. Despite modest pain that hindered a thorough examination, the patient's physical examination indicated a positive belly press test and internal rotation lag indication. A complete and retracted tear of the subscapular tendon was discovered during a shoulder magnetic resonance arthrography (MRA) for additional assessment. Acute tear was indicated by Goutallier grade 1 fatty infiltration seen on sagittal MRA. There was no sign of a shoulder dislocation, such as a Hill Sachs lesion or an anteroinferior labral rupture.

We found that type I was seen in 10, type II in 17, type III in 27, type IV in 6 and type V in 4 patients. In their review, Ogawa et al[11] found 97 studies with 197 patients (average age 37.0±16.9 years; 131 men and 33 women). 77% of CF cases were classified as type I, and 19% as type II. Multiple abnormalities of the superior shoulder suspensory complex were present in 69% of patients with type I CF. 71% of isolated type I CF patients received conservative treatment, but 76% of type I CF patients with numerous disruptions received surgical treatment. The results of both conservative and surgical treatments were usually

satisfactory, and 60% of patients were followed up for more than six months, despite the differences in evaluation techniques.

We found that outcome was excellent in 48, good in 14 and fair in 2 cases. According to research by Guttentag[12] and Goos[13], athletes and patients who performed strenuous manual labor had their coracoids fractures conservatively treated, but the outcomes were subpar. Both internal screw fixation and open reduction surgery are options for treating coracoid fractures. Although the anterior route is the most commonly employed technique, a posterior approach can also be used for indirect reduction and fixation.

Pederson et al[14]reported a case of a dislocated epiphyseal fracture to the base of the coracoid process with AC joint dislocation in a 14-year-old ice-hockey player following direct impact to his left shoulder. Since magnetic resonance tomography revealed intact AC and coracoclavicular ligaments, we initiated non-operative treatment with immobilization and unloading of the shoulder by an abduction brace allowing limited rotation for 6 weeks. This treatment resulted in complete recovery after 8 weeks and return to full sports on first league level after 3 months. Non-operative treatment of coracoid base fractures with concomitant AC-joint injury in the adolescent can result in excellent functional results and early recovery. Wang et al[15] enrolled cases found two separate mechanisms--direct trauma to the shoulder girdle and sudden pull on the coracoid process by the conjoined tendons of short head biceps and coracobrachialis muscles--appear to be responsible for this unusual triple lesion. Open reduction with coracoid screw and acromioclavicular fixation, combined with an All-dredge repair to replace the ruptured coracoclavicular ligaments, resulted in an excellent outcome.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that maximum cases were of Eyres' anatomical classification type III. In maximum cases, outcome was excellent.

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