Concomitant Fracture of the Coracoid Process and the Acromion: Report of a Case

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A 25-year-old male motorcyclist presented with severe right shoulder pain after a collision with a car. Physical examination revealed gross swelling, bruising, tenderness and restricted range of motion of his right shoulder. Coracoid and acromial fractures were noted. Open reduction and internal fixation were performed. We arranged progressive rehabilitation programs for functional recovery of the shoulder. The recovery was favorable at 1 year of follow-up.

Key words: acromial fracture, coracoid fracture

Introduction

Coracoid fracture is a rare orthopedic condition, accounting for only 2% to 13% of all scapular fractures and approximately 0.1% of all fractures¹⁻⁴. It is usually the result of a direct trauma or by avulsion of the biceps tendon²,⁵. The fracture is often neglected but can be detected using careful evaluations⁶⁻⁸. We present an unusual case of fracture of the coracoid process and the acromion simultaneously.

Case Report

A 25-year-old male motorcyclist presented with severe right shoulder pain after a collision with a car and was brought to our hospital for emergency service. The patient did not have any history of trauma to his right shoulder prior to this accident. He sustained a direct blow to the anterolateral point of the right shoulder. Physical examination revealed gross swelling, bruising, tenderness and restricted range of motion over his right shoulder. No neurovascular deficits were detected. A displaced coracoid fracture and a nondisplaced acromial fracture were noted on the anteroposterior radiograph of the right shoulder (Fig. 1). Open reduction and internal fixation with a malleolar screw and washer through the direct muscle splitting approach were performed under general anesthesia the day after admission. During the first 2 weeks after surgery, he was permitted to perform circular and pendulum exercises. Progressive passive and active shoulder movements were started after 2 weeks and the patient regained full range of motion after 6 weeks (Fig. 2). The patient maintained good muscle power and achieved functional recovery at 1 year of follow-up without any complaints.

Discussion

Coracoid fracture is an uncommon injury and has been addressed only in limited series¹⁻⁵,⁸⁻¹⁰.
Fig. 1  Anteroposterior view of right shoulder after trauma  
There is a displaced coracoid fracture and an undisplaced acromial fracture

Fig. 2  Scapular lateral view of right shoulder after 6 weeks
Ogawa et al. classified the fractures into those in front of and those behind the coracoclavicular ligaments\(^{(3,11)}\). These fractures are usually caused by a direct injury or violent contraction of the biceps tendon\(^{(2,4,11)}\). They may be isolated and can also occur with associated injuries, such as acromioclavicular separation, clavicular fracture, superior scapular fracture, acromial fracture, scapular spine fracture, shoulder dislocation, rotator cuff tear, or glenoid fracture\(^{(2,5,7-9,11)}\). No concurrent musculocutaneous or axillary nerve injuries have been reported.

Misdiagnosis is common because the fracture is not readily seen on anteroposterior radiographs and further views from different projections are usually needed if it is highly suggested clinically\(^{(4,6,8,11)}\). To date this fracture is best seen on the Stryker notch view\(^{(11)}\).

These injuries can be managed using conservative or operative means, although most researchers recommended the former\(^{(2,3,8,11)}\). We considered that the surgical treatment for displaced coracoid fractures protects early mobilization\(^{(2,3,11,12)}\). In our case, the direct muscle splitting approach with a minimal incision was safe and easy to carry out. A short period of sling protection and supervised exercises may prevent the limitation of the range of motion of the shoulder. Recommendations of starting a progressive rehabilitation program after the reduction have been reported starting the fourth week after the operation\(^{(2)}\). We found advanced the physiotherapy by 1 week was adequate in this patient. The patient probably benefited from the rigid link between the clavicle and scapula through the stabilization of the coracoid fracture.

In conclusion, emergency physicians should always be aware of the possibility of the coracoid fracture and accompanied injuries. Careful assessment of the mechanism of injury and cautious physical examinations should diminish the misjudgments and lead to better prognoses. Surgery is one of the choices of treatment for coracoid fractures which also provides relatively good functional outcomes.

### References

同時發生的喙突與肩峰骨折：病例報告

林茂森 1,2  鮑卓倫 2  蔡光超 1

一位二十五歲機車騎士在與汽車擦撞後產生了右肩剝痛。理學檢查發現他的右肩明顯腫脹，壓痛以及活動受限。放射學檢查顯示出右肩喙突與肩峰骨折，而採行了開放性復位內固定術來治療。術後配合著消炎的維護治療，我們幫助這位患者達到良好的功能性恢復，並且在一年的追蹤時期均無任何不適。

關鍵詞：肩峰骨折，喙突骨折