Anterior dislocation of the shoulder with rotator cuff injury and brachial plexus palsy: A case report

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Anterior dislocation of the shoulder with associated rotator cuff rupture and brachial plexus injury is rare. To our knowledge, it has been reported only three times in the literature. However, in the previous cases, the rotator cuff injury was diagnosed and treated 3 weeks after the injury. We present a case of this unhappy triad in which the rotator cuff tear was confirmed and repaired acutely. The characteristics of this rare condition are discussed on the basis of our case and the published literature in order to improve early diagnosis and treatment of this lesion.

CASE REPORT

A 27-year-old righthanded male model was involved in a high-energy motorcycle accident and presented with an anteromedial dislocation of the left shoulder. The clinical examination showed complete motor and sensory deficit of the upper limb without a Horner’s sign. The radial and ulnar pulses were palpable. A closed reduction was performed with the patient under anesthesia. Standard radiographs of the shoulder revealed a concentric joint position, a Hill-Sachs’s lesion, and a small fracture of the superior part of the greater tuberosity (Figure 1). Therefore, magnetic resonance imaging (MRI) was performed to confirm any rotator cuff rupture and brachial plexus injury. Twelve months after surgery, active shoulder abduction and forward elevation were 160° and external rotation was 40°. The triceps and biceps muscles were quoted at M4, and the patient recovered wrist and finger flexion and extension.

DISCUSSION

Anterior shoulder dislocation may be commonly associated with retroclavicular or infraclavicular brachial plexus injury with an axillary nerve lesion. Moreover, anterior shoulder dislocation may be associated with rotator cuff tears in elderly patients. However, cases of concurrent anterior shoulder dislocation and brachial plexus injury with a traumatic rotator cuff tear are extremely rare. In our case, the brachial plexus injury was due to an anteromedial shoulder dislocation, as described previously. Nerve injury with a shoulder dislocation has been reported to occur after low-velocity trauma, because the distance between the anchorage points of nerves in the upper limb is short, which makes the nerves vulnerable to traction. However, in our case, rotator cuff injury associated with nerve lesions reveals a high-energy injury, resulting in a violent shoulder dislocation with significant migration of the humeral head. As a matter of fact, the patient in our case was younger than those in other publications, and the lesion of the rotator cuff cannot be explained by chronic tears of the tendons. Moreover, no muscular atrophy was visualized on MRI, and no tendon degeneration was noted during surgical repair of the rotator cuff.

The rotator cuff tear in this unhappy triad is rarely diagnosed in the emergency department, and in most of the published cases, the diagnosis was confirmed 3 weeks after the injury when rehabilitation was started. As a matter of fact, the diagnosis of a rotator cuff tear is difficult to confirm after reducing an anterior shoulder dislocation. However, the inability to abduct after shoulder dislocation points to a rotator cuff rupture or retroclavicular or infraclavicular brachial plexus palsy or both. In our case, a small fracture of the greater tuberosity aroused the suspicion of a supraspinatus tendon injury, and the diagnosis was confirmed with MRI. Therefore, in the case of a brachial plexus palsy associated with an anterior dislocation of the shoulder, standard radiographs of the shoulder after reduction have to be minutely examined. MRI or computed to-
mography arthrography has to be performed early to program surgical repair. In addition, the rotator cuff should be systematically studied in cases of brachial plexus palsy to avoid needless nerve surgery. Moreover, rotator cuff tears may probably increase the inferior prolapse of the humeral head when associated with nerve injuries. Electromyography must be proposed 3 weeks after the injury in the case of severe palsies or paralysis of the upper limb associated with a shoulder dislocation. In our case the nerve lesions were more serious, with complete infraclavicular brachial plexus palsy, and the return to previous range of motion and strength of the upper limb took longer than in other publications. Therefore, in our opinion, the prognosis depends essentially on brachial plexus recovery when the rotator cuff has been repaired early.

REFERENCES