



Brachial plexus injury after anterior shoulder dislocation : A case report

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Brachial plexus injury is a rare complication of anterior dislocation of the shoulder : nine cases have been reported in the literature. We report a unique case of anterior dislocation of the shoulder with associated brachial plexus palsy involving the posterior and medial cords. This is the first reported case of such an injury.

Previous case reports of brachial plexus palsy in association with anterior shoulder dislocation are reviewed. Conservative management affords good recovery from these injuries over a period of up to 18 months.

Keywords : brachial plexus injury ; shoulder dislocation.

CASE REPORT

A 32-year-old man fell onto his left side while intoxicated and sustained an anterior dislocation of the left shoulder with an avulsion fracture of the greater tuberosity.

On arrival he was unable to move the left shoulder, elbow, wrist and fingers. He had paraesthesia and reduced sensation throughout the left upper limb.

His shoulder was reduced in the accident and emergency department under midazolam using Kocher's method and he was discharged in a poly sling and wrist splint.

He was followed up as an outpatient at 1, 2 and 4 weeks. At 4 weeks, he still had severe pain in the left shoulder and upper limb. He could not abduct the shoulder nor move the elbow, wrist or fingers,

although he had slight thumb movement. The entire left upper limb remained numb.

MRI of the neck and left brachial plexus one week later showed no obvious soft tissue injury, with the rotator cuff intact. Some oedema, suggestive of nerve injury, was noted around the axillary vessels.

Nerve conduction studies at this time showed all nerves to be in continuity, with a denervation pattern suggestive of injury to the posterior and medial cords.

DISCUSSION

Peripheral nerve injuries after anterior shoulder dislocation are common (3) ; injuries to the brachial plexus are rare. The mechanism of injury is traction, as nerves are stretched over the dislocated humeral head. The site of nerve injury has been related to arm position during dislocation (1). A fall

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with the arm in full abduction and internal rotation causes major tension on all cords. Extension of the elbow and wrist distracts the medial cord ; with the elbow flexed, the posterior and medial cords are under tension.

There are 9 reported cases of brachial plexus palsy after anterior shoulder dislocation in the literature (2, 4, 5) : 5 of complete and 4 of partial palsy. Of the partial brachial plexus palsies, one involved all three cords. One case involved the medial cord only and two involved the posterior and lateral cords only. Our case uniquely describes injury to the posterior and medial cords after anterior shoulder dislocation.

Eight of the nine published cases of brachial plexus injury in association with anterior shoulder dislocation were caused by simple low-energy falls, the other by atraumatic abduction and external rotation of the shoulder.

Occlusion of the axillary vessels was associated with the brachial plexus injury in 3 of the 9 cases ; good peripheral pulses were restored after shoulder reduction in all instances.

Associated avulsion of the greater tuberosity of the humerus occurred in 6 of 7 cases complicated by brachial plexus palsy. No fracture was present in the seventh case. The remaining two case reports did not specify the presence or absence of associated fracture.

Management of the brachial plexus injury was conservative in every case. Physiotherapy consisted of passive joint mobilisation to prevent stiffness. The use of electrical stimulation to reduce muscle wasting was also specified in two cases.

Four of the 9 patients made a full recovery from their brachial plexus palsy over periods of 8 to 18 months ; another four made near-complete recovery (all with minor residual sensory changes, and one also with slight limitation of shoulder and metacarpophalangeal movement) over 7 to 12 month periods. In the ninth case neurological recovery was later complicated by a hemiparesis of the injured side.

Our case follows the trend of previously reported brachial plexus injuries after anterior shoulder dislocation with regard to low-energy mechanism and associated greater tuberosity fracture. Review of the literature suggests that good recovery can be expected over subsequent months with conservative management alone.

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