NON-UNION OF A FRACTURED CORACOID PROCESS AFTER DISLOCATION OF THE SHOULDER

A CASE REPORT

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A patient with a fractured coracoid process in association with a dislocation of the shoulder is reported. The fracture was not recognised initially, and early mobilisation was encouraged; the widely separated fracture did not heal and a painful pseudarthrosis developed.

We believe that this association may not be as rare as generally supposed, and emphasise the importance of careful clinical examination in patients with shoulder dislocation. If a coracoid fracture is suspected, lateral or oblique radiographs should be taken to confirm the diagnosis. A further radiograph after reduction is a useful precaution.

Dislocation of the shoulder is a common injury. However, an associated fracture of the coracoid process seems very unusual, and we have found only two cases reported in the English literature (Benchetrit and Friedman 1979; Wong-Pack, Bobechko and Becker 1980).

This present report concerns a patient whose persistent pain and limited movement after dislocation of the shoulder proved to be due to a fractured coracoid process. As the diagnosis was initially missed, mobilisation was encouraged too early; the widely displaced fragment did not heal and the patient developed a painful pseudarthrosis.

CASE REPORT

A 53-year-old labourer was involved in an accident on June 2, 1984. While loading a truck, he fell backwards landing on his right hand; his upper limb, which was extended and abducted, was violently rotated laterally. He felt immediate pain and could not move his shoulder.

On examination typical subacromial flattening was obvious, and routine radiographs confirmed the diagnosis of shoulder dislocation (Fig. 1). The humeral head was reduced under local anaesthesia; a Velpeau sling was applied and retained for three weeks. Mobilisation exercises were then encouraged.

Seven weeks after the accident the patient was referred to us complaining of pain, especially on abduction and lateral rotation of the shoulder, movements which were considerably restricted. There was slight tenderness below the lateral one-third of the right clavicle. Neurovascular examination of the limb was normal.

The initial anteroposterior radiograph made us suspect a fracture of the coracoid process, but an oblique axillary view centred at the coracoid showed the injury more clearly (Fig. 2). The lateral axillary view was not helpful in this case because the acromion obscured the coracoid process.

He was given a sling and analgesics for three weeks, but the symptoms did not subside. Shoulder function remained impaired and there was slight tenderness over the coracoid process. Radiographs at that time disclosed non-union of the coracoid fracture, the distal part of which remained unstable, moving downwards with every muscular contraction (Fig. 3), so clearly operation was indicated.

Throughout a deltopectoral approach the distal fragment of the coracoid process was removed; the short head of the biceps, coracobrachialis and pectoralis minor muscles were reattached to its proximal end. The postoperative course was uneventful. He wore a sling for five weeks, after which shoulder movements and progressive strengthening exercises were begun. At the follow-up examination six weeks later the symptoms had almost disappeared and the patient was able to resume his work with minimal discomfort.

DISCUSSION

Fracture of the coracoid process is believed to be very uncommon (Germain and Poilleux 1971). Fractures without other injury have been described by Benton and Nelson (1971), DeRosa and Kettelkamp (1977) and several others (Rounds 1949; Piulachs, Nogue-Tutor and Piulachs 1975; Zilberman and Rejovitzky 1981). In 1973 de Mourgues et al. reported five cases and Féry and Sommelet in 1979 reported 10. A simultaneous fracture of the coracoid process and the superior border of the
scapula medial to the coracoid was described by Wolf, Shoji and Chuinard (1976), and stress fractures have been reported in sportsmen (Boyer 1975; Sandrock 1975). However, the most frequently reported association of a fractured coracoid is with acromioclavicular dislocation (Protass, Stampfli and Osmer 1975; Smith 1975; Zettas and Muchnic 1976; Montgomery and Loyd 1977; Lasda and Murray 1978; Bernard, Brunet and Haddad 1983); the fracture may result from direct trauma or from avulsion of the coracoclavicular ligaments (Benton and Nelson 1971).

When Benchetrit and Friedman (1979) reported their case in which a fracture of the coracoid process was associated with a subglenoid shoulder dislocation, they pointed out that the association was easily missed. It seems likely that many similar cases have been undetected. The lateral axillary view proposed by most authors for diagnosing a fractured coracoid process (Benton and Nelson 1971; Benchetrit and Friedman 1979) cannot be used when the shoulder is dislocated. Furthermore, after reduction has been achieved, usually only an anteroposterior radiograph is taken. As the signs and symptoms of the fractured coracoid itself are non-specific, the presence of a shoulder dislocation tends to dominate the picture and the fracture is easily missed.

There are two probable mechanisms for the production of a fracture of the coracoid process when the shoulder dislocates. One is that strong traction on the muscle attached to the process results in avulsion. The other, a more likely explanation, is that direct impact of the dislocated humeral head causes the fracture. The first mechanism might occur with subglenoid dislocations, as in Benchetrit and Friedman’s case, and the second with anterior dislocations, as in our case.

Conservative treatment is usually considered to be adequate for coracoid fractures (Féry and Sommelet 1979), but immobilisation must be maintained until consolidation has been achieved, and especially if the fragment had been widely displaced; otherwise non-union may occur.

There have been few reports of pseudarthrosis of the coracoid process, a condition which is thought to have few symptoms (Germain and Poilleux 1971; Piulachs et al. 1975). In our case, however, it was the cause of persistent pain and restricted movement. When we achieved stability by removing the fragment and reattaching the coracoid muscles, the symptoms were relieved and function regained.

REFERENCES


