POST-TRAUMATIC OSTEOLYSIS OF THE OUTER END OF THE CLAVICLE

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Osteolysis of the acromial end of the clavicle after trauma was first described by Werder (1950). Madsen (1963) reviewed all eight previously reported examples of the condition and added eight further cases. Thus sixteen cases have been recorded, all from the Continent. The lesion has been regarded as a rarity, but it occurs more often than is generally recognised and may be overlooked or misinterpreted. The purpose of this paper is to summarise the essential features of the lesion and to report two cases seen recently in Great Britain.

CLINICAL AND RADIOGRAPHIC FEATURES

The condition may follow fairly severe injury to the shoulder. It has been reported as occurring as early as one month after injury. Most cases have followed dislocation or subluxation of the acromio-clavicular joint. In some of these the subluxation was not apparent at the time of the accident but became evident later. Absorption of bone from the outer third of the clavicle occurs. Radiologically the outer end of the clavicle usually becomes irregularly tapered but it may appear quite smooth. No more than three centimetres of bone have been lost in any recorded case and remnants of bone may remain between the acromion and the clavicle.

Symptoms are usually pain and a sense of weakness during abduction and flexion of the arm; they may persist for up to two years. Further trauma, even of a trivial nature, may provoke a recurrence of symptoms.

The pathogenesis of the lesion is not clear. It has been suggested that osteolysis follows changes in the autonomic nerves affecting the blood supply to the clavicle. Sometimes inequality of the pupils is found, the larger pupil being on the same side as the lesion. Such observations would lend support to the suggestion that the primary lesion is of the autonomic nervous system. Madsen (1963) suggested that inadequate treatment may predispose to osteolysis. The eventual bony damage is seemingly predetermined at the time of the initial trauma.

The diagnosis is unequivocal in cases in which a radiograph taken at the time of the accident shows no bone loss. Failing such radiographs, other conditions which may cause loss of bone from the outer third of the clavicle must be excluded, such as rheumatoid arthritis, scleroderma and hyperparathyroidism. It is thought, however, that difficulties in differential diagnosis are unlikely provided one is aware of the possibility of post-traumatic osteolysis of the clavicle.

CASE REPORTS

Case 1—A man aged thirty-one was referred for examination in connection with an accident insurance claim. He had injured his right shoulder in a car accident seven months before. A radiograph taken soon after the accident showed subluxation of the right acromio-clavicular joint, but the outer end of the clavicle was normal (Fig. 1). He was treated by bandaging for a week and then discharged. After the accident the patient was unable to resume heavy work for five months because of a sense of weakness in the shoulder. He was still suffering some discomfort in the shoulder seven months after the accident, but he had resumed heavy work. A radiograph showed tapering of the outer third of the right clavicle with loss of about a centimetre of bone (Fig. 2). The left clavicle was normal. The pupils were equal, and no clinical evidence of neurological disease could be found.

Comment—This case illustrates the possible medico-legal importance of the condition. When first seen, the original radiograph was not available and I was unaware of the condition. My report was therefore not as decisive as it would have been had I been aware of this entity at the time.

FIG. 1

FIG. 2

Case 1. Figure 1—Right shoulder just after the accident. There is some subluxation of the acromioclavicular joint. Figure 2—Right shoulder seven months after the accident, showing the loss of bone and irregular tapering of the outer third of the clavicle.

FIG. 3

Case 2—Right shoulder six months after the accident, showing osteolysis of the outer end of the right clavicle, the margins of which are smooth. There is subluxation of the clavicle and some fragments of bone between the clavicle and acromion. Ossification is also present in the coraco-clavicular ligaments.

Case 2—A man aged twenty-eight injured his right shoulder playing rugby football. A radiograph taken soon after the accident did not show any displacement of the acromioclavicular joint. The outer cortex of the right clavicle was intact. No specific treatment was given. He complained of severe pain in the shoulder for some months. Six months

after the injury it was noted that his shoulder was drooping. He had a full range of movement in the shoulder and complained only of slight discomfort. Radiographs showed that there was subluxation of the clavicle and about two centimetres of its outer end were missing (Fig. 3). The outer end was smooth and much ossification had appeared in the coraco-clavicular ligaments. Fragments of bone were seen in the gap between the clavicle and the acromion. This patient had unequal pupils but the smaller pupil was on the side of the injury. Otherwise no clinical evidence of neurological defect was found on detailed examination.

Comment—Even though there was no radiographic evidence of dislocation or subluxation of the acromio-clavicular joint at the time of the injury, subsequent events suggest strongly the possibility of such a lesion. Knowledge of the natural history of this condition enabled one to warn the patient of the danger of further trauma to the shoulder.

SUMMARY

1. Two cases of post-traumatic osteolysis of the outer end of the clavicle are reported.
2. The essential features of the lesion are summarised.
3. The possible medico-legal importance of the condition is mentioned.

I would like to thank Mr A. B. Watson and Mr T. S. Donovan for allowing me access to their case notes of these patients. I am grateful to Dr W. I. H. Bourne for permission to use the original radiograph of Case 1.

REFERENCES

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