RETROSTERNAL DISLOCATION OF THE CLAVICLE

A Report of Two Cases

JEAN M. M. MCKENZIE, LONDON, ENGLAND
Formerly of the Orthopaedic Department, Royal Infirmary, Edinburgh, Scotland

Berkhina in 1935 pointed out that although posterior dislocation of the sternoclavicular joint was rare it might be a serious or even fatal condition. The two patients reported here were successfully treated by manipulation and were left with no residual disability.

Reports of forty-four cases have been found in the literature,* the earliest by Sir Astley Cooper (1824). Only nine dislocations were treated by conservative means, with results known to have been successful in seven. In one of the remaining two patients the clavicle redislocated after two weeks, and in the other the result was not known. Gunther (1949) reported on one of the seven patients on whom conservative treatment was successful; the other six were reported by Ferry, Rook and Masterson (1957), who advocated closed reduction. In all seven the results were good and there was no report of redislocation.

The remaining cases were all treated by open operation. Various techniques were used including open reduction with fixation by wire or pin, excision of part or all of the clavicle, and fusion or fascial repair of the sternoclavicular joint.

CASE REPORTS

Case I—A man of twenty-one was injured while playing rugby football. He was able to give a clear account of the mechanism of the injury. He had collided with a fellow player, receiving a hard blow on the posterior aspect of the right shoulder, and had fallen to the ground. The other player had then fallen on to the patient’s right, and upper, shoulder which was hunched forwards. There was immediate and severe pain in the region of the right sternoclavicular joint.

![Fig. 1](image1.jpg)
![Fig. 2](image2.jpg)

Case 1—Radiographs of the right sternoclavicular joint before reduction (Fig. 1) and after (Fig. 2). The restoration of the joint space is shown.

He was seen less than two hours later with a typical clinical picture. There was a depression and an obvious downward and backward displacement of the medial end of the clavicle, with no swelling and no complications. An oblique radiograph confirmed the diagnosis (Fig. 1).

* Schlegel (1922), Beckman (1923), Brown (1927), Taevernier (1927), Stapelmoehr (1932), Prat (1936), Greenlee (1944), Butterworth and Kirk (1952), Holmdahl (1954), Stein (1957).
Treatment and progress—With the patient anaesthetised in the sitting position—he was unable to lie flat because of excruciating pain—manipulative reduction was obtained with the patient supine. On this occasion reduction was accompanied by an audible and satisfactory “click” and the joint became stable. A figure-of-eight bandage was applied and an oblique radiograph confirmed the reduction (Fig. 2).

On awakening, the patient was delighted to be free of the pain. He was nursed supine with a sand-bag between the scapulae for four days and then allowed up. The figure-of-eight bandage was kept on for three and a half weeks. He returned to his normal work as a factory hand six weeks after the injury.

Three months after the accident there was a full range of shoulder-girdle movement, with slight discomfort at the injured joint with extreme rotation, or when throwing. This did not interfere with his work or his football training. There was only slight thickening of the right sternoclavicular joint.

Case 2—A schoolboy aged seventeen was injured while playing rugby football. He had dived for the ball and had struck the ground with his right shoulder, and had felt immediate pain in the region of his right sternoclavicular joint. He was seen in the casualty department, where an antero-posterior radiograph showed no fracture of the clavicle. He was thought, however, to have a crack fracture and was immobilised in a figure-of-eight bandage.

Twenty hours after the injury he was seen in the orthopaedic department. There was severe pain in the region of the right sternoclavicular joint, worse on deep breathing. There was also some dysphagia. He was able to lie flat but because of the pain he was unable to lift his head without assistance.
On examination there was marked swelling in the region of the joint, but despite this a depression could be felt in the region of the medial end of the clavicle. Oblique radiographs confirmed the diagnosis of retrosternal dislocation of the clavicle (Figs. 3 and 4).

Treatment and progress—The dislocation was reduced twenty-four hours after the injury. Reduction was difficult because of oedema but palpation confirmed the correct position of the clavicle and the joint was stable. A figure-of-eight bandage was applied. Radiographs confirmed the reduction (Figs. 5 and 6).

On awakening from the anaesthetic, the patient was symptom-free. He was kept supine for twenty-four hours and then allowed up. The figure-of-eight bandage was discarded after three and a half weeks, and the patient then returned to school. Eight weeks later he was completely free of symptoms, had a full range of shoulder-girdle movement and the only abnormal finding was a slight thickening of the right sternoclavicular joint.

METHOD OF REDUCTION

The anaesthetised patient is placed supine with a sand-bag between the scapulae and the arm on the dislocated side hanging over the side of the operation table. An assistant pulls the arm downwards towards the floor. The clavicle is then gripped by placing the fingers of both hands postero-superiorly and the thumbs inferiorly, and its medial end is pulled forwards, upwards and laterally.

DIAGNOSIS

The diagnosis is essentially clinical; Case 1 was typical in this respect. The patient sits with his neck flexed with his chin on his chest. The elbow on the affected side is flexed and supported by the opposite hand. There is no pain on breathing quietly but a deep breath causes severe pain in the region of the joint. The most striking feature is that the slightest movement of the affected limb causes such severe pain that the patient cries out. Dysphagia is a common symptom but was not present in Case 1; another feature, if the patient can lie supine, is inability to raise the head.

Despite the rarity of this lesion it is important to be aware of it, because the diagnosis will then be easy, as will be the radiological confirmation. Paterson (1961) advocated tomography as the surest way of making a diagnosis, but we have found oblique radiographs simpler and just as satisfactory. These views must be taken with the trunk so rotated that the vertebral column does not obscure the sternoclavicular joint.

In the pre-reduction right oblique radiographs (Figs. 1 and 3) it will be noted that there is no normal sternoclavicular joint space. This indicates that the right clavicle is displaced but gives no indication of the direction of the displacement. The left oblique view (Fig. 4) shows the normal left joint space overlapped by the end of the right clavicle; this indicates that the displacement is posterior.

DISCUSSION

Early diagnosis is imperative because, as pointed out by Ferry, Rook and Masterson (1957), closed reduction is rarely successful if attempted after forty-eight hours. The complications are often severe and, if not diagnosed, may prove fatal. From the anatomy of the region posterior to the joint the complications can be varied. Death from laceration of the trachea was reported by Wehner (1931) and by Kennedy (1949), who also reported a death from laceration of the innominate vein. Another severe lesion was that of a residual brachial plexus palsy reported by Niessen (1931).

Many different operative techniques for this condition have been described, but the successful conservative treatment of the two cases reported in this paper indicates that open operation is not essential if early diagnosis and treatment are achieved.
SUMMARY

1. Two patients with retrosternal dislocation of the clavicle are reported.
2. A method of closed reduction is described.
3. Diagnosis, and the interpretation of oblique radiographs of the sternoclavicular joint, are described.

I wish to express my sincere thanks to Professor J. I. P. James for reading and correcting the script of this article. I am indebted to him and to Mr George P. Mitchell for allowing me to publish these cases.

REFERENCES


TAVERNÉR (1927): Luxation rétro-sternale de la clavicule. Lyon Chirurgical, 24, 694.