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A CASE OF POSTERIOR STERNO-CLAVICULAR DISLOCATION

By

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Lateral clavicular dislocations are far more common than medial clavicular dislocations. The latter occur in 3 different forms: anterior, upper and posterior. The last-mentioned groups are often included under one and the same heading by a number of authors, because both these dislocations occur simultaneously more than often than not. Of the medial clavicular dislocations the presternal are incomparably the most common. Contrasted with the retrosternal type the incidence for presternal dislocations varies according to different authors from 4: 1 to 20: 1. A surgeon as experienced in the treatment of fractures as Böhler declares that he has never seen a retrosternal clavicular dislocation (1). Judging from the literature the complete clavicular dislocation appears to be still rarer. Beckman (2) has described one such dislocation in a 13 year old boy.

In consequence of a case of retrosternal dislocation observed and treated at the Orthopedic Clinic, Allmänna Sjukhuset, Malmö, I searched the literature and it seems as if only about 35 cases of this type have been published. Since no similar case appears to have been reported from the Scandinavian countries I have considered a short account of our case to be quite justified.

Case report: A 20 year old metal worker, previously fully fit, received an injury in two different circumstances first in October 1952, and secondly in January 1953 during wrestling. This revealed itself to be at least in the last instance a retrosternal clavicular dislocation. The first time he fell on his right shoulder joint during a wrestling match suffering severe pain on the right side of his neck radiating down towards the shoulder. He found it difficult to move the head, for the least turn accentuated the pain. On examination at the outpatient department here on the same day it was found that he had a right-sided muscular torticollis. Roentgen examination of the cervical

spine proved negative. After some weeks he no longer had the slightest trouble. No information exists on the state of the sterno-clavicular joints but it seems possible that at least a subluxation was present on the right side, to judge from the resemblances between the subjective symptoms of both instances of injury.

On the 25/1 1953 he came to the hospital again—that is 3–4 months later—with a similar condition. During a wrestling match some hours before the examination he had fallen headlong onto the mat on the right side of his shoulder and neck as the result of a cross-hold, simultaneously pressing heavily on his right shoulder forwards and inwards. Immediately he felt severe pain on the right side of his neck travelling down towards the clavicle and sternum and also radiating towards the right shoulder and upper arm. When movements of the cervical spine were attempted the pain became much worse. He reported no swallowing or respiratory trouble at all. He himself declared that he had experienced the same feeling each time. In the latter instance, however, the pain had been considerably stronger.

The injured man exhibited a right-sided torticollis with his head fixed, twisted to the right and leaning slightly forwards. Above the right sterno-clavicular joint a diffuse swelling could be seen and one palpated a depression of the medial end of the clavicle. Movements of the right shoulder caused pain over the sterno-clavicular joint radiating on the right side of the neck up towards the ear. There was normal sensibility in the right arm and also the arm reflexes were normal. Tomography of the right sterno-clavicular joint revealed a distinct dislocation about 1½ cms dorsally of the medial end of the clavicle without any obvious displacement upwards. (Fig. 1).

Manipulative reduction was first attempted without success. On operation which was performed with ether narcosis,—after renewed but unsuccessful attempts at manipulative reduction—the joint was exposed by a small curved incision. The medial end of the clavicle was found to be completely displaced backwards with the meniscus remaining on the sternal joint surface. Both the anterior and posterior ligaments were torn. After very powerful pulling ventrally and laterally, using a hook, and simultaneously drawing back the right shoulder region the dislocation was overcome. Since the position did not appear to be stable the ends of the joint were fixed together with a wire passed through drill holes; these were placed so that the canal drilled in the clavicle lay deeper than the corresponding canal in the sternum, and thus the medial end of the clavicle was pulled slightly forwards. The wire was fastened above a button with pull-out-wire. Then the capsule, the ligament and the skin were sutured. The arm was fixed

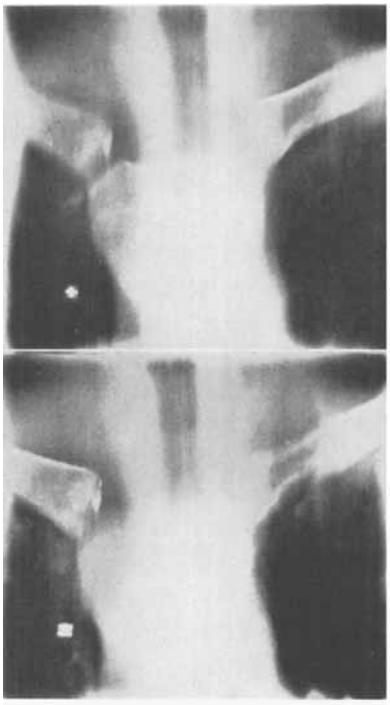

Fig. 1.
Tomography before operation.

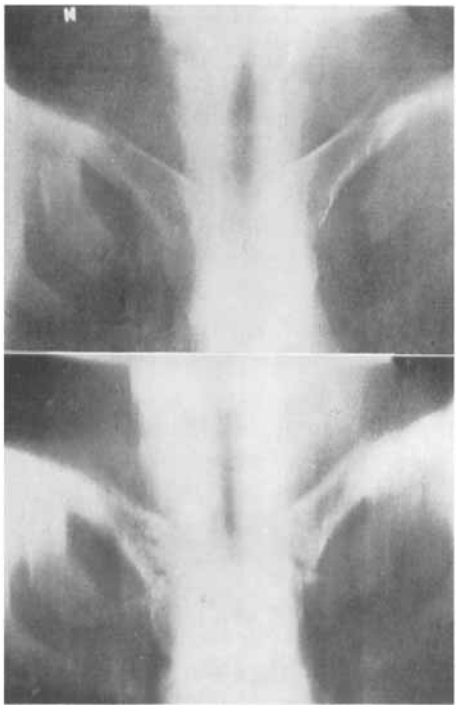

Fig. 2.
Tomography after operation.

to the thorax for a period of 10 days. After 3 weeks the button and the pull-out-wire were removed and 4 weeks after the operation the injured man was again at work with only an insignificant reduction in the mobility of his shoulder. After a further 2 weeks there was full mobility in the shoulder and no trouble in the region of the operation. At the follow-up 4 months after the operation he reported complete freedom from symptoms. He carried out heavy work for a few months after this without any trouble at all. On objective examination a normal condition of the medial end of the clavicle was found without any signs of a subluxation position. There was free mobility in the shoulder joints. Considerably strength was present. Tomography revealed a completely normal position of the clavicle and its articular surface opposite the sternum. (Fig. 2).

It is obvious that no uniform operative technique can have been developed for these conditions because they are so rare. Almost all the authors who have described this type of dislocation have only experience of one isolated case.

Treatment is either conservative or operative. Not to take any pre-

cautions in the case of such a dislocation even if the patient is completely free of trouble, is regarded as far too risky since there is the danger that the organs behind the clavicle and the sternum can be affected, the trachea, the oesophagus, the blood vessels or the nerve plexus. A fresh trauma which effects a further medial displacement of the dislocated retrosternal clavicle can cause no little injury to these organs. Wehner (3) has described such a case where a tracheal lesion occurred with fatal results. The same year Niessen (4) published a case in which the brachial nerve plexus had been injured involving a temporary, slowly passing paresis of the shoulder musculature. In addition cases of blood vessel compression (5) are to be found reported in which the pressure was caused by the dislocated medial end of the clavicle.

In conservative treatment the surgeon attempts to reduce the dislocation by strongly pressing the shoulder backwards and simultaneously pulling the arm backwards and outwards with 90° of abduction in the shoulder joint. After a successful reduction the position is fixed with a normal figure-of-eight bandage. In a number of reported cases closed reduction was successful but no stable position was obtained and for this reason redislocation soon occurred, undoubtedly owing to widespread ligamental injury and possible dislocation of the meniscus. Operative reduction and some form of fixation were then recommended. Several authors argue in favour of primary operative measures and the following operative technique has been employed:

1. The chiselling away of the medial end of the clavicle, possibly a total resection of the whole clavicle or the changing of the retrosternal dislocation into a presternal.
2. An arthrodesis operation.
3. Fixation using osteosynthesis material or fascia lata, meniscus plastics or plastics employing the sternocleidomastoid or the subclavius muscles.

The first two methods are regarded today as far too non-physiological and have been abandoned. In those operations with different kinds of osteosynthesis material or in plastics using the fascia lata a number of authors have employed the same technique as in presternal clavicular dislocations. Here it is above all the methods of Bankart, Bunnell and Stapelmohr which are practised. The first two make use of fascia lata.

Stapelmohr (6) recounts in much detail the history of medial clavicle dislocation and publishes for the first time his technique in meniscus-plastics and occasional fixation with a pin. His procedure, however, is based entirely on cases with anterior dislocations.

All authors declare that they have achieved satisfactory results with the method they used, if we except both the previously mentioned cases of Wehner and Niessen. With respect to our own case the observation period is still too short (yet only ten months) for anything to be said about the final result. However a report was considered justified taking into account the rarity of this type of traumatic dislocation.

SUMMARY

The author discusses a case of retrosternal clavicle dislocation, operatively treated with good results.

RESUME

L'auteur discute un cas de luxation retrosternal de la clavicule dont le traitement opératoire a donné un résultat parfait.

ZUSAMMENFASSUNG

Der Verfasser diskutiert einen Fall von retrosternalen Klavikelluxation, mit gutem Erfolg operativ behandelt.

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