RETROSTERNAL DISLOCATION OF THE CLAVICLE

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Dislocation of the clavicle, either at the acromial or sternal end, is much less common than fracture; and retrosternal dislocation is so unusual that there is little reference to it in the literature. Standard text-books on fractures and dislocations ignore the condition completely, or dismiss it in a few lines. The rarity of the injury, the typical signs and symptoms, and the grave potentialities, have prompted presentation of this case.

A youth, seventeen years of age, was admitted to the Toronto General Hospital on March 18, 1948. Four days before admission he was scuffling with a group of boys and fell to the ground. As he lay on his left side, supporting his weight on the left shoulder, another boy fell on his right shoulder. He felt a painful buckling sensation at the inner end of the left clavicle. The limb was immobilised in a figure-of-eight bandage. During the next three days he complained of severe pain in the region of the sterno-clavicular joint, a tight feeling in his throat, and difficulty in swallowing. His mother noted that, for the first time in his life, he snored when asleep. Physical examination showed discolouration of skin over the clavicle with generalised swelling. There was difficulty in palpating the sternal end of the bone which is usually so prominent. Attempted abduction of the limb, whether active or passive, gave rise to severe pain in the region of the sterno-clavicular joint. Radiographic examination confirmed the clinical diagnosis of retrosternal dislocation (Fig. 1).

The next day, at operation, a transverse incision was made over the medial end of the clavicle, crossing the sterno-clavicular joint. Part of the clavicular head of the left sternomastoid was divided. There was disruption of the joint, haemorrhage into surrounding tissues, and tearing of the capsule. The articular disc was still attached to the sternal part of the joint. Even under direct vision it was not possible to reduce the dislocation by pulling on the abducted limb. The clavicle was therefore grasped with bone forceps and lifted forcibly from beneath the sternum into its normal position. A Compree wire was introduced into the bone at the junction of the inner and middle thirds, threaded across the sterno-clavicular joint into the manubrium sterni, and left protruding at the lateral extremity of the incision. Repair was reinforced by fascial sutures passed through drill-holes in the sternum and clavicle as described by Bankart (1938). The limb was immobilised in a plaster spica for two months, after which time the wire was removed.

Discussion—The inner end of the clavicle is attached firmly by strong ligaments to the sternum and first rib. The capsule, strong in its anterior and posterior distribution, is relatively thin in the superior and inferior areas. The oblique plane of the joint almost invites dislocation, and it is the strength of the costo-clavicular ligament, anchoring the clavicle to the first rib, which protects it. This ligament must necessarily be torn in dislocation of the joint.

Retrosternal dislocation may occur from direct or indirect violence. Examples of both types of injury have been recorded. In one case the patient was kicked by a mule. In another the injury was a blow on the lateral aspect of the shoulder (Greenlee 1944). In the case now reported the injury was due to indirect violence.

In establishing the diagnosis the history is often of assistance, particularly when, after direct or indirect injury to the sterno-clavicular joint, there is local pain and tenderness, limitation of abduction of the limb, dysphagia, snoring due to tracheal pressure, and evidence on physical examination of loss of the normal prominence of the medial end of the clavicle. The diagnosis is confirmed by radiographic examination which should include oblique projections, stereograms, and laminograms.

The potentialities of this dislocation are so great that the rarity of the injury is indeed fortunate. Death has been recorded from tracheal laceration. There is also danger of injury

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to the great vessels of the superior mediastinum with haemothorax—a complication which caused the death of a Canadian Army dispatch rider at Nijmegen in 1944 (Dewar, F. P., personal communication). The oesophagus and thoracic duct might also be involved.

Manipulative reduction by traction on the abducted limbs is seldom successful. In the case now reported it was impossible to reduce the dislocation by traction even when the parts were exposed at operation. Moreover, in the few cases in which closed reduction has been successful, there has usually been redisplacement. The degree of damage to joint capsule and extra-articular ligaments is such that reconstructive surgery is usually indicated. Sometimes the sternal end of the clavicle has been removed. In other cases it has been fused to the sternum. In this case, fascial repair with internal fixation was successful.

**Summary**—Retrosternal dislocation of the clavicle is an unusual injury. Serious complications may arise from damage to the trachea, the great vessels of the mediastinum, the oesophagus, and the thoracic duct. Operative reduction and reconstruction of the ligaments is the most reliable treatment.

Acknowledgment is made to Dr R. I. Harris, Associate Professor of Surgery in the University of Toronto, and Chief of the Division of Orthopaedic Surgery of the Toronto General Hospital, for his helpful criticism.

**REFERENCES**