



Atraumatic retrosternal dislocation of the clavicle

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Atraumatic retrosternal dislocation of the clavicle is an exceedingly rare event and three out of four previously reported cases lack any radiological evidence. We report the case of a 30-year-old male patient who presented an atraumatic retrosternal dislocation of the clavicle without a history of previous injury and underlying pathology. The diagnosis was delayed and established by a CT scan ten days after and initial presentation of the symptoms. A successful, stable, closed reduction under general anaesthesia was performed ten days after the initial presentation, having a cardiothoracic surgeon immediately available. There was no recurrence and the patient remains asymptomatic 18 months later.

INTRODUCTION

Atraumatic retrosternal instability of the clavicle is an exceedingly rare event and very little has been written about it (3, 4).

Acute traumatic retrosternal dislocation of the clavicle although rare is well known and may be easily missed (11). Closed reduction is almost always possible in the first 48 hours and after that period of time the chances for success are less (10).

We report the case of a patient who presented atraumatic retrosternal dislocation of the clavicle, in which the diagnosis was delayed and who was treated successfully by closed reduction, ten days after the initial presentation.

CASE REPORT

While on vacation, a 30-year-old right-handed male nurse of our Hospital, experienced severe pain in his left shoulder and paraesthesias down to

his left arm without having sustained any shoulder injury. No abnormalities were detected on clinical and radiographic examination at an accident and emergency department of a District Hospital.

On return home, 10 days later, he attended the Athens Naval Hospital and in addition to his initial symptoms, he complained of a tight feeling in his throat and difficulty in swallowing of two days onset. Physical examination disclosed limited and painful active range of motion of the left shoulder. There was tenderness over the left sternoclavicular joint with mild soft tissue swelling. The neurovascular status of the left upper extremity was normal. No generalised ligamentous laxity was found. Family history was negative.

Plain roentgenograms were inconclusive, showing a superior migration of the medial end of the clavicle. Computed tomography scan showed a posteromedial dislocation of the clavicle in the left sternoclavicular joint (fig 1).

An emergency closed reduction under anaesthesia was performed. The patient was anaesthetised and positioned supine with a sandbag between the scapulae. The arm on the affected side was abducted to 90° and extended to 20°. Lateral traction was

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Fig. 1. — CT scan showing the retrosternal dislocation of the clavicle.

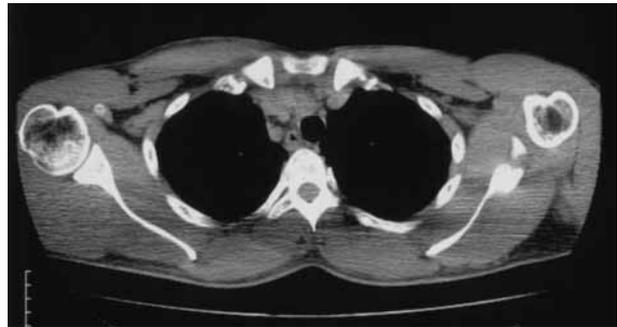


Fig. 2. — CT scan at three weeks after the reduction

applied to the arm while counter traction was applied to trunk. A sterile towel clip was applied to the medial end of the clavicle, which was pulled anteriorly and laterally. After two attempts the surgeon felt a distinct jump as the clavicle reduced and the patient was placed in a figure-of-eight clavicular strap. Post reduction radiographs showed a normal joint.

On awakening the patient was free of the pain, paraesthesias and dysphagia.

The clavicular strap was removed after three weeks and physiotherapy commenced. Repeat CT scan at that time showed a normal joint (fig 2).

He returned to his normal work six weeks post reduction, and in the last follow-up evaluation, 18 months after the reduction, there was no recurrence and the patient remained asymptomatic.

DISCUSSION

Atraumatic retrosternal instability of the clavicle is an extremely rare event and very little has been written about it. We reviewed the English literature by performing a Pub Med search using the key words : sternoclavicular, dislocation, spontaneous, atraumatic, subluxation, posterior, anterior. We were able to find only two previous reports.

In 1993, Martin *et al* (3) reviewing the literature, found only three previous cases of dislocation, all poorly documented and without roentgenographic confirmation, and they reported a new case of their own which was treated with closed reduction under general anaesthesia but the dislocation recurred

and further attempts at reduction were not recommended.

Six years later, Martinez *et al* (4) reported a case of atraumatic spontaneous subluxation of the joint in a 19-year-old woman without any known underlying pathology. The patient was treated operatively using the gracilis tendon to reinforce the anterior sternoclavicular ligament.

The diagnosis of retrosternal dislocations of the clavicle may be easily missed (11), as in our case, and this is known to have implications for the patient's treatment and prognosis. CT scan has become the investigation of choice to establish the diagnosis as it shows both the dislocation and the relationship of the large vessels, oesophagus and trachea to the sternoclavicular joint (11).

The literature suggests that closed reduction is almost always possible in the first 48 hours and after that period of time the chance of success is less (10). Despite the 10-day delay, a closed reduction was worth trying, as advised by Wirth and Rockwood (13), having with us a cardiothoracic surgeon immediately available, in case the dislocated clavicle acted as tamponade against a lacerated vessel, with subsequent severe haemorrhage on reduction (14).

A review of the English language literature discloses a 30.4% complication rate attributable to the displaced proximal clavicle involving the trachea, oesophagus, brachial plexus and large vessels (6). In order to reduce the increased morbidity and mortality associated with this injury any suspicion on clinical grounds warrants a CT scan (6).

This case highlights two important points. First, the value of the CT scan as the imaging modality of choice, for establishing an accurate and early diagnosis of these uncommon conditions which have a potential for considerable morbidity. Secondly, the obscurity of the pathogenesis and aetiology as well as the rarity of this condition.

The sternoclavicular articulation is a diarthrodial, synovial joint which is stabilised by several ligaments and it is involved in practically every movement of the upper extremity. Despite the fact that the joint is small and incongruous, its ligamentous supporting structure is so strong and is designed in such a way that it is actually one of the least commonly dislocated joints in the body (13).

Violent direct or indirect trauma (13) and underlying joint pathology such as ankylosing spondylitis, infection (8), generalised laxity (7), condensing osteitis of the clavicle (12) and tumours (2) may affect the stability of the sternoclavicular joint rendering it unstable.

On the other hand it is well recognised that trauma is not essential for the occurrence of a spontaneous anterior dislocation and a "strain" alone is sometimes sufficient (8). Many previous reports are found in literature (5, 7, 8, 9) presenting the occurrence of spontaneous anterior sternoclavicular dislocation during routine activities such as sleeping, combing hair (5), or "reaching" and "lifting" (9).

The fact that the posterior capsular ligaments are substantially stronger than the other sternoclavicular ligaments (1) lessens the possibility for them to fail by a single application of a trivial force to an otherwise healthy joint.

We could hypothesise that a minor repetitive trauma gradually stretching the ligaments and a final single application of a minor "strain" could be sufficient to produce a posterior dislocation. If this was the case, one should expect an insidious onset of symptoms and furthermore the condition should be more frequently reported in literature, as are the spontaneous anterior dislocations.

In conclusion,

We do not have a certain answer regarding the aetiology or the pathogenesis of retrosternal dislo-

cation of the clavicle without underlying joint pathology and history of trauma.

CT scan is the imaging modality of choice to exclude this extremely rare condition in any patient having symptoms and signs arising from the sternoclavicular joint, whether these are associated with symptoms of compression of anatomical structures in the upper mediastinum, or not.

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