

Shoulder Injury

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Interesting Case History – S/C Joint ‘Dislocation’ Part 1

‘Matt’ is a 16 year old rugby league player, who while making a tackle fell onto his anterior left shoulder. He had immediate pain and inability to lift his left arm. Attendants at the game felt he had fractured his clavicle, as there was swelling over the medial aspect of the bone. An ambulance was called, and the ambulance officers also felt the clavicle was fractured.

At Concord Hospital, X-rays ruled out a fracture and no other abnormality was seen. Matt was given a sling and released. Two days later when he was still unable to lift his arm, and came to see me.

On examination, he could not elevate his arm above 20°. His shoulder was excessively protracted and shortened on the left. He described his pain as being in the neck and upper trapezius region. He had swelling over the left sternoclavicular (SC) joint and medial clavicle.



On palpation, the SC joint was very tender, and the left medial clavicle was displaced superiorly relative to the right side. It did not appear to be anteriorly or posteriorly dislocated. Matt denied any symptoms of mediastinal compromise that might suggest a posterior SC dislocation –



dysphagia, shortness of breath, arm swelling or altered sensation. My preliminary feeling was that he had an unusual superior SC dislocation, and an AP X-ray comparing sides supported this.

Matt was advised to continue with the sling and fitted with a soft figure-of-eight bandage. However he did not tolerate this well, so I subsequently fitted him with a clavicular strap to maintain his shoulder in some retraction. Through his GP he received an urgent appointment with a shoulder specialist who ordered a non-contrast CT scan comparing sides. This showed posterosuperior SC ‘dislocation’ with medial displacement, and without any mediastinal compromise. A conservative approach to management was chosen.

SC Joint Injuries

The SC is a diarthrodial synovial joint. Most movement occurs between 0-90° of glenohumeral elevation, and the SC joint is capable of 30-35° elevation, 35° combined anterior and posterior translation, and 40-45° rotation. The SC joint has

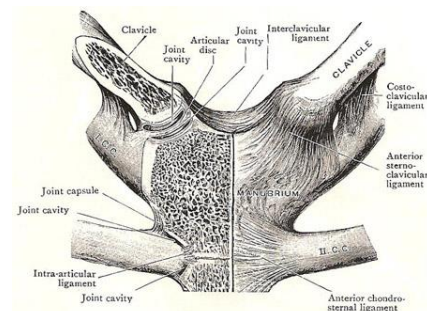
very little bony stability, so is supported by a strong ligament network. The anterior and posterior capsular ligaments provide the main support, and are assisted by the costoclavicular, interclavicular, and intra-articular disc ligaments.

Injuries to this joint are rare, accounting for 3% of shoulder injuries and only 1% of dislocations. Injuries can be minor sprains or subluxations, while dislocations involve significant ligament injury. Most SC dislocations are anterior, with posterior dislocations accounting for between 5% to 25% of total SC injuries. A literature search uncovered only 2 cases of superior dislocation.

Direct and indirect mechanisms of SC injuries are reported, usually from MVA's or contact sport. A direct blow to the clavicle can induce a posterior dislocation. A blow to the posterolateral shoulder is an indirect mechanism for posterior dislocation, while an anterolateral force is more likely to cause anterior dislocation. A small number of SC dislocations occur spontaneously.

The epiphysis of the medial clavicle is the last one of the long bones to appear. It does not ossify until 18-20 years, and does not fuse with the clavicular shaft until 23-25 years of age. For this reason, in any patient under 25 years, a SC ‘dislocation’ is more likely to be a physeal fracture. Often, CT scanning does not clearly delineate the physeal displacement. In Matt's case the injury is probably not a true dislocation. As the epiphysis stays with the sternum, it is possible for a medial clavicular physeal injury to occur with minor ligament damage.

Up to 30% of posterior SC dislocations or physeal injuries are complicated by mediastinal compression, with the most likely structures compromised being the trachea, and the brachiocephalic and subclavian veins. Other vulnerable structures include the oesophagus, pulmonary artery, internal mammary artery, brachial plexus, recurrent laryngeal nerve,



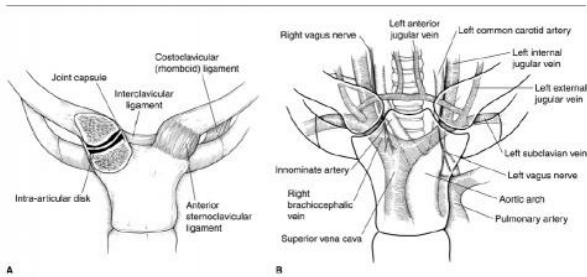


Figure 1 A, Bony and ligamentous anatomy of the sternoclavicular joint. The major supporting structures include the anterior capsule, the posterior capsule, the interclavicular ligament, the costoclavicular (rhomboid) ligament, and the intra-articular disk and ligament. B, Retrosternal anatomy. Note the proximity of the sternoclavicular joint to the trachea, aortic arch, and brachiocephalic vein.

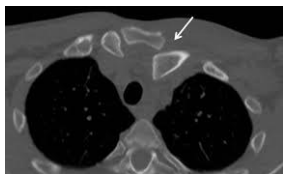
the lung and lung pleura. Symptoms which may arise include breathing difficulties, dysphagia, tightness in the throat, or a choking sensation. Circulation to the ipsilateral arm may be decreased. More serious complications are stroke or pneumothorax.

Examination

The patient may present supporting the arm, and with the shoulder excessively protracted. They may find it hard to localize the exact source of pain. They will have difficulty lifting the arm, and lying supine will be painful. Acutely, there will be swelling and tenderness over the joint, however patients often present late due to misdiagnosis, so signs may be variable. There may be a step-off at the sternum or medial clavicle.

Imaging

Plain X-rays are difficult to interpret due to other overlapping bones. Special views which allow for better clarity include ‘serendipity’, ‘Henig’, ‘Hobbs’



and ‘panoramic’ views. CT scan is the imaging of choice, as it gives information regarding the AP position of the medial clavicle, as well as its proximity to vital structures.

Management

Depending on the type and stage of injury, treatment is sometimes controversial. Most authors recommend attempted reduction of the dislocation. A pad is placed between the scapulae of the supine patient. Anterior or posterior pressure may be applied to the medial clavicle, with or without traction and some extension of the ipsilateral arm. An alternative method is to use adduction and traction of the arm. Anterior dislocations are said to reduce easily, but are often unstable and prone to re-dislocation. The opposite is true for posterior dislocations which are usually stable once reduced. However prior to reduction, these injuries should be imaged to assess for any injury to mediastinal structures. The procedure should be performed in an operating theatre with emergency management on stand-by, as there is a high risk of vascular complications. If not reducible by closed means, open reduction may be necessary.

Physeal injuries are often left alone, as effective bone remodeling generally ensures a good long-term outcome. However posterior displacements usually require open or closed reduction.

Post-reduction, a figure-of-eight bandage or strap, and a sling are recommended for between 3-6 weeks. Gradual range of

motion may be commenced from 4 weeks, and return to sport may be delayed for 12 weeks.

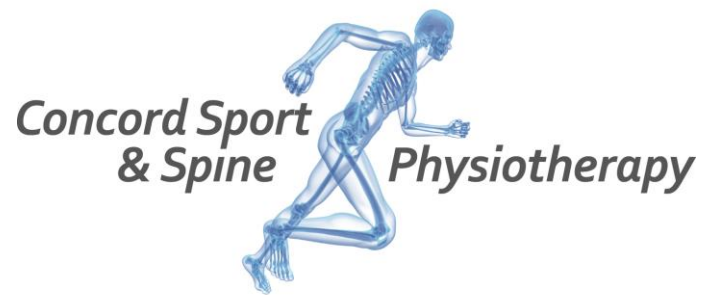
‘Matt’ is in the early stages of his recovery. I will update you regarding his longer term outcome.

For a detailed overview of sternoclavicular injuries see my literature review: <http://www.cssphysio.com.au/pdfs/1-Literature-Review-.pdf>

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