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SURGICAL TREATMENT OF DISLOCATIONS OF THE STERNOCLAVICULAR JOINT

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Six patients with dislocation of the sternoclavicular joint are presented. Their main complaints were chronic recurrent spontaneous dislocation and local tenderness and discomfort during normal use of the shoulder. Two patients were treated according to Brown's modified procedure while four patients were operated with Burrow's technique. Ten weeks immobilization postoperatively is recommended to obtain a satisfactory result.

Key words: dislocations; sternoclavicular joint; surgical treatment

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Dislocation of the sternoclavicular joint is uncommon, occurring in approximately 3 per cent of shoulder-girdle injuries (Lourie 1980). The joint may dislocate either anterosuperiorly or posteriorly (Pauleau 1980). However, it is known that trauma is not essential for an anterior dislocation; strain alone is sometimes sufficient. Some patients have generalized joint laxity, and there is a connection between rheumatic disease and habitual sternoclavicular dislocation (Sadr & Swann 1979). Congenital forward subluxation has been documented. Furthermore, spontaneous luxation during routine movements such as while sleeping or combing the hair has been reported (Gay et al. 1978).

Dislocations of the sternoclavicular joint are notoriously difficult to diagnose roentgenologically. The advent of computed tomography provides a valuable method to visualize anatomic relationships in the anteroposterior plane (Levinsohn et al. 1979).

Routine use of surgery for acute dislocations gives variable results and is unnecessary since the results of conservative treatment are good. The treatment of choice is closed reduction and application of a figure-of-eight bandage and triangular sling for 3 weeks (Booth & Roper 1979). However, two groups of patients require surgical treatment: those in whom an acute dislocation cannot be reduced by manipulation, and those in whom frequent recurrent dislocations occur spontaneously or as a result of only minor stress. The operative repair should rely on a dynamic method of fixation using a nourished transplant.

PATIENTS AND METHODS

During the period 1974–1981, six patients with dislocation of the sternoclavicular joint were treated at Martina Hansens Hospital. Four females had spontaneous recurrent dislocation, whereas one female and one male had experienced a direct blow against the clavicle. Two of the cases with traumatic dislocation were ignored in the acute stage and thus not properly immobilized. Two other patients had been unsuccessfully treated elsewhere. In one case a free transplant from the fascia lata was put around the medial end of the clavicle and the first rib. A rigid fixation using a metal cerclage had been performed in the other case.

All six patients presented with a lump at the base of the neck overlying the sternoclavicular joint. One of them was suspected to have a metastasis from an earlier treated breast cancer. Roentgenological examination revealed an anterosuperior dislocation in all six cases.

Two patients were treated according to Brown's modified procedure (Booth & Roper 1979) (Figure 1). The damaged articular disc was removed and the joint capsule repaired. The medial ends of the clavicle and

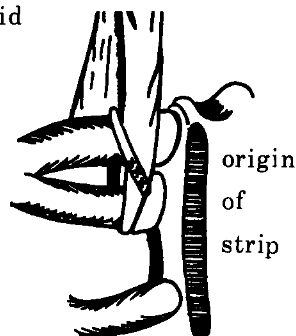

Figure 1. Brown's modified procedure (see text).

the first rib were subperiosteally exposed. The tendinous insertion of the sternocleidomastoideus muscle into the sternum was looped around the first rib and through a drill hole in the clavicle.

Four patients were operated with Burrows' technique (Booth & Roper 1979) (Figure 2). The damaged articular disc was removed, the joint capsule repaired and the medial end of the clavicle subperiosteally exposed. The subclavius tendon was dissected free from its muscle fibres, pulled as a sling through a drill hole in the clavicle and sutured back onto itself.

Postoperatively, a Velpeau bandage was applied for 6 weeks and abduction movements were restricted for another 4 weeks. After 10 weeks, there were no problems in regaining a full range of movements.

RESULTS

Two patients revealed a tendency to subluxation without any pain or discomfort after a mean observation time of 3 years. Both were operated according to Brown's modified technique. The four patients treated by Burrows' method were completely restituted.

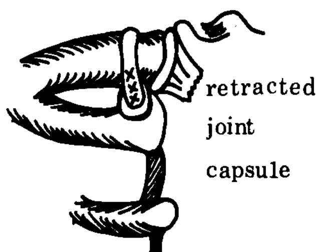

Figure 2. Burrows' procedure (see text).

DISCUSSION

Surgical treatment of acute traumatic sternoclavicular dislocations is indicated when closed reduction is impossible. Also, surgery is the treatment of choice in persons suffering from chronic recurrent dislocations accompanied by pain, discomfort or apprehension. The aim of the treatment is to give relief from the above-mentioned complaints. In our experience, surgery is not indicated for purely cosmetic reasons, since there is a tendency to hypertrophic scar formation in the sternoclavicular region.

Rigid fixation by means of a cerclage or a rush pin seems to be unphysiological and is judged to be unsuccessful. Open reduction followed by removal of the joint disc and repair of the joint capsule is not sufficiently stable.

Fixation should therefore be performed by means of a tendon transplant. It is our experience that it is preferable to use a nourished transplant rather than a free transplant. On the basis of the results of our present series, we prefer Burrows' technique using the subclavius tendon in surgical treatment of sternoclavicular dislocations. The recommended 10 weeks of immobilization postoperatively also seems important to achieve a satisfactory result.

REFERENCES

Booth, C. M. & Roper, B. A. (1979) Chronic dislocations of the sternoclavicular joint; an operative repair. *Clin. Orthop.* **140**, 17–20.

Gay, B., Steinläufer, M. & Friedrich, B. (1978) Therapy of recurrent symmetric luxation of the sternoclavicular articulation. *Unfallheilkunde* **81**, 31–35.

Levinsohn, E. M. (1979) Computed tomography in the diagnosis of dislocations of the sternoclavicular joint. *Clin. Orthop.* **140**, 12–16.

Lourie, J. A. (1980) Tomography in the diagnosis of posterior dislocation of the sternoclavicular joint. *Acta Orthop. Scand.* **5**, 579–580.

Pauleau, J. L. (1980) Sternoclavicular dislocations; a case report of posterior dislocation and review of the published literature. *J. Chir. (Paris)* **117**, 453–456.

Sadr, B. & Swann, M. (1979) Spontaneous dislocation of the sternoclavicular joint. *Acta Orthop. Scand.* **50**, 269–274.

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