

SPONTANEOUS DISLOCATION OF THE STERNO-CLAVICULAR JOINT

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A description is given of 22 patients, with a spontaneous forward subluxation of the sternal end of the clavicle, seen over a 5-year period. The majority were middle-aged women presenting with a lump at the root of the neck, which was usually associated with little or no discomfort. There was no history of injury and no interference with shoulder function. The diagnosis was obvious on clinical examination and no treatment was required other than explanation, reassurance and simple analgesia.

In no case was the correct diagnosis made by the referring physician and many of the patients were unduly concerned by the nature of the swelling.

The sterno-clavicular joint is a synovial articulation and consequently it may be involved in rheumatic arthropathy. A condition of non-infective subacute arthritis of the sterno-clavicular joint has been described and is similar to that reported here but in contrast to the previous report we believe that the changes which occur in the joint are secondary to its subluxation.

Key words: middle-aged women; root of neck; swelling, spontaneous appearance

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Dislocations of the sterno-clavicular joint are generally considered to be the result of direct or indirect violence. In one reported series (Cave 1958) 70 per cent were due to a fall on the point of the shoulder and the remaining 30 per cent were caused by a direct blow to the clavicle.

It is known, however, that trauma is not essential for the occurrence of an anterior dislocation and a "strain" alone is sometimes sufficient. Stokes (1847) reported "forward and upward displacement of the sternal extremity of each clavicle, the result of powerful inspiratory efforts" in a man dying of cirrhosis. Duckett (1888) described the case of a "strong well-made man of active habits while swimming upon his left side he

endeavoured to turn upon his back during which action he felt something give way in his neck". Anterior dislocation of the sterno-clavicular joint was later found and reduced. Duggan (1931) performed menisectomy on the sterno-clavicular joint of a 37-year-old female who had developed a painful shoulder while making a bed and was later found to have a dislocated "sterno-clavicular cartilage". In a review of sterno-clavicular dislocations (Salvatore 1968) "reaching" and "lifting" were listed among the causes. Subluxation of the sterno-clavicular joint has been reported in weight-lifters (Korkusuz 1974), and Lusneth et al. (1975) has described the case of a 20-year-old student who experienced pain and swelling in the sterno-

Table 1. Summary of the 22 patients with spontaneous dislocation of the sterno-clavicular joint

Patient	Age	Sex	Occupation	Affected side	Dominant side	Presentation	Family history	History of strain or injury	Treatment
1	63	F	Housewife	R	R	Painless swelling "for weeks"	None	None	None
2	63	F	Housewife	R	R	Painless swelling for 2 months. Ache in right shoulder	None	Fall on rt. shoulder 7 years previously	None
3	49	F	Housewife	R	L	Painless swelling for 2 months	None	None	None
4	53	F	Housewife	R	R	Ache in right shoulder	None	None	None
5	77	F	Housewife	R	R	Painless swelling for 5 months	None	None	Local SWD
6	61	F	Home help	R	R	Painless swelling for 1 month	Yes (sister)	None	None
7	54	M	Manager	L	U/K	Painful lump for 1 month	Unknown		Local SWD
8	45	F	Supervisor	R	R	Pain in region of SCJ 7/52	None	None	Physiotherapy
9	52	F	Welfare asst.	R&L	R	Aching in SCJ for 4 years	None	None	None
10	41	F	Housewife	R	R	Pain in SCJ for 6/12	Unknown	None	Hydrocortisone injection
11	49	F	Shop asst.	R	R	Pain in clavicle for 1 year	None	None	None
12	56	F	Teacher	R	L	Painless swelling 5 years	None	None	Excision of medial end of clavicle
13	58	F	Housewife	R	R	Painless swelling 1 year	None	None	None
14	48	F	Housewife	L	R	Painless swelling 1½ years	None	None	None
15	51	F	Housewife	R	R	Painful swelling 2 months	None	None	None
16	56	F	Housewife	L	R	Vague pain in upper thorax	None	None	None
17	55	M	Fitter	R	R	Ache and swelling "for months"	None	Pushing heavy wheelbarrow day before	None
18	56	F	Housewife	R	R	Painless lump for 5/52	None	"Heavy washing" day before	None
19	42	F	Housewife	R	R	Painless lump for 6/52	None	None	None
20	51	F	Housewife	R	R	Painless swelling for 6/12	None	None	None
21	61	F	Housewife	L	R	Noted swelling while turning in bed 4/12 previously	None	None	None
22	69	F	Housewife	R	U/K	Painless swelling for 5/12	None	None	None

SCJ = Sterno-clavicular joint

SWD = Shortwave Diathermy

clavicular joint while doing "hyperabduction exercises" a year prior to the discovery of sterno-clavicular dislocation.

Congenital forward subluxation of the sterno-clavicular joint has been recognized and documented. According to Moseley (1969) it appears to run in families and he presents a case, with photographs, of a young woman with habitual dislocation of both sterno-clavicular joints. Similarly, Machan (1973) describes the appearance of habitual dislocation in the sterno-clavicular joints of a 17-year-old girl with evidence of generalized joint laxity. Nettles & Linscheid (1968), on the other hand, in a review of 60 sterno-clavicular dislocations found two occurring in newborns and three bilateral cases of unknown aetiology occurring in teenagers without evidence of generalized joint laxity. In addition they described a further 11 unilateral cases occurring spontaneously "during routine movement (such as during sleep or while combing hair)".

Slow spontaneous displacement of the sterno-clavicular joint due to repetitive manipulation of a heavy lever was reported by Katzenstein (1903). Waskowitz (1961) describing 18 cases of dislocations and subluxations of the sterno-clavicular joint found two in whom no history of trauma or known aetiology could be found.

Lamb (1976) has studied four patients with sterno-clavicular joint enlargement following block dissection of the neck for cancer. He draws attention to the misleading X-ray appearance of these joints and advocates a conservative management.

In this series we present a further 22 cases of apparently spontaneous anterior subluxation of the sterno-clavicular joint.

PATIENTS

Details of the 22 patients, 2 men and 20 women with an average age of 56, are summarized in Table 1. The majority were housewives or had sedentary occupations. One man worked as a fitter involving moderately heavy manual labour. Nine

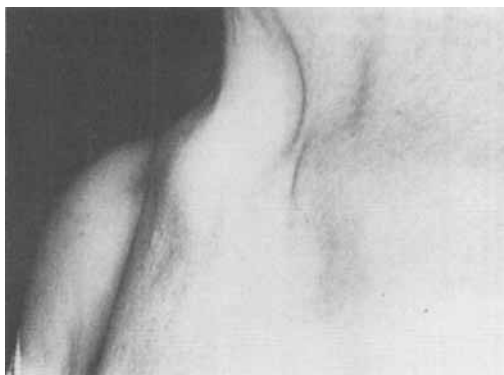


Figure 1. Clinical appearance. The swelling had given the patient considerable anxiety.

patients presented with a painless lump at the root of the neck (Figure 1). In a further seven patients the lump was associated with some degree of discomfort and six complained of pain in the region of the sterno-clavicular joint without at first noticing the lump which was later discovered by the doctor. The discomfort was always mild and never interfered with the function of the affected shoulder girdle which moved freely and fully on clinical examination. The commonest reason for referral to the Orthopaedic Clinic was the concern of the patient or the referring physician over the appearance of an unexplained and undiagnosed lump at the root of the neck. One patient had a sister similarly affected; all others specifically questioned gave a negative family history. The right side was affected in 16 cases, the left in four and it was bilateral in one. The association between the affected and dominant side was statistically significant ($P > 0.01$ and < 0.05). The length of history ranged from 1 month to 5 years with an average of 8 months.

There was no history of injury or precipitating cause in any of the patients. We purposely excluded from this series any patient who gave a history of trauma in the year preceding the onset of symptoms even though the connection sometimes seemed fortuitous. One such patient was our own theatre sister, a reliable historian, who was involved in a road accident and sustained bruising of the front of her chest 6 months prior to the development of a lump at the root of her neck. She had no symptoms in the intervening period and it seemed likely that the two events were unconnected. She was nevertheless excluded from the survey. One patient gave a history of a fall 7 years previously and two others associated the appearance of symptoms with strenuous activity

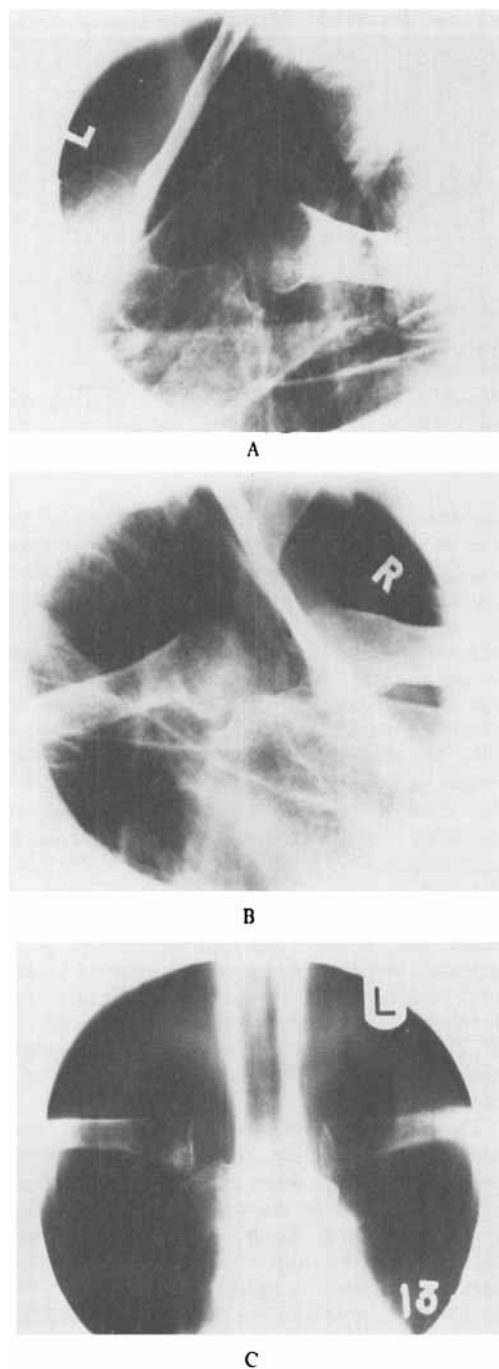


Figure 2. Radiographs of the same patient as Figure 1 with subluxation of the right sterno-clavicular joint. (a) Normal left joint. (b) Right joint, unremarkable appearance. (c) Tomogram of both joints. Cystic changes seen at the medial end of the clavicle on the affected side.

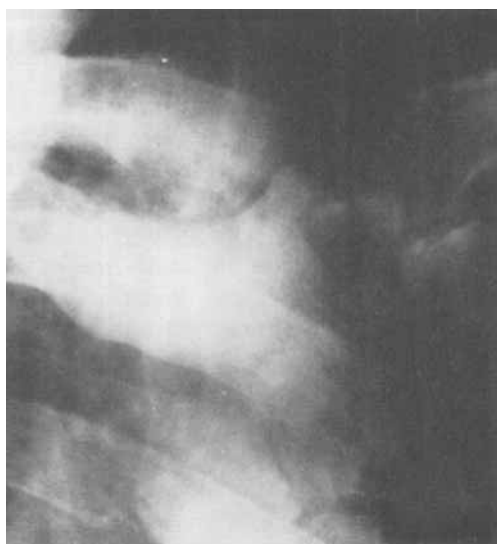


Figure 3. Erosive change and cyst formation of the right sterno-clavicular joint.

the previous day. They were all included in the survey.

The diagnosis was usually obvious on clinical examination, the sternal end of the clavicle being subluxated anteriorly and irreducible. Thirteen patients were X-rayed but radiographs were generally not required for diagnosis. Irregularity of the sternal end of the clavicle, cyst formation and erosive changes were found in three cases (Figures 2a, b, c), but in the rest the X-ray appearance was unremarkable and only confirmed a clinically obvious subluxation. In one patient (case 12) we were alarmed by the radiographic appearance of the affected sterno-clavicular joint (Figure 3) which was reported as showing the features of "caries sicca". The patient was therefore subjected to an open biopsy of the medial end of the clavicle the histology of which showed non-specific chronic inflammation. In retrospect, it seems likely that these X-ray changes were secondary to the subluxation and the consequence of degenerative processes starting in areas of "unopposed" cartilage (Harrison et al. 1951).

The spontaneous subluxation of this joint so as to produce an obvious swelling in a healthy patient is characteristic of the condition. Nevertheless, other conditions may produce a swelling which at first glance is similar in appearance, but for the most part they will be associated with other presenting features which will serve to identify the underlying problem.

Rheumatic arthropathy and in particular ankylosing spondylitis not infrequently affect the sterno-clavicular joint. In this event the swelling is painful and associated with other features of the disease and the subject a male. Disease such as infection or malignancy may, by chance, affect the articulation or the medial end of the clavicle and produce a swelling. However, other features of this particular disease will be manifest either at other anatomical sites or by alteration in the blood picture, or by characteristic radiological change. The sterno-clavicular joint is located well above the area occupied by breast tissue. However, a number of the patients feared that they had a carcinoma of the breast.

The majority of patients required no treatment. Analgesia and shortwave diathermy were given in a few cases but in general simple reassurance was adequate. Pain, if present, was mild and usually self-limiting within 3 to 4 months.

DISCUSSION

The sternal end of the clavicle articulates with a shallow depression in the manubrium-sterni and the cartilage of the first rib. As the articular area of the clavicular extremity is larger than that of the depression, only a small portion of it fits into this groove at any one time. The stability of the joint therefore depends entirely on its ligaments (notably the costo-clavicular or rhomboid ligaments) and the intra-articular fibrocartilagenous disc which in addition provides an articulating surface for the disproportionately large sternal extremity. It therefore seems surprising that sterno-clavicular dislocations do not occur more often and only represent 1 per cent of all dislocations (Salvatore 1968, Lusneth et al. 1975).

Although most of the literature on sterno-clavicular joint dislocations and subluxations is concerned with cases following violent trauma it is well recognized that subluxation or even dislocation can occur without significant injury. In this series we present 22 cases of spontaneous forward subluxation of the sterno-clavicular joint which have been seen in our hospitals over a 5-year period.

The condition seems to occur in middle age and affects women more frequently than men.

There is a significant association between the involved and dominant side although the condition affects the housewife and the sedentary worker rather than the manual labourer. Characteristically there is no history of injury.

The commonest presenting feature is a lump at the root of the neck with or without an aching discomfort. The principal reason for seeking medical opinion and for referral to an Orthopaedic Clinic is to establish the diagnosis. There may be a fear of malignancy, such as breast cancer. The diagnosis is simple to make clinically, and X-rays are generally not required, particularly as these are difficult to interpret, and may be misleading. Similarly, open biopsy of joint contents is unhelpful and should be avoided. In contrast to a previous report (Bremner 1959) we believe that non-specific inflammatory changes which occur in the joint are secondary to its subluxation.

No treatment is needed other than simple analgesia (if at all) and reassurance as symptoms of ache and discomfort (if any) are mild and self-limiting.

Conclusions

1. Spontaneous sterno-clavicular subluxation is a condition of unknown aetiology that occurs insidiously and affects chiefly middle-aged women.
2. The diagnosis is simple to make clinically and active treatment is normally not required. Its recognition, however, is important.
3. If X-rays are taken, they must be interpreted with caution. Radiographic changes such as erosion and irregularity of the articular surfaces are probably secondary to the subluxation.

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