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CORRESPONDENCE

Correspondents are urged to write briefly so that readers may be offered as wide a selection of letters as possible. So many are being received that the omission of some is inevitable. Letters should be signed personally by all their authors.

Thoracic outlet compression syndrome

SIR,—Your leading article on this subject (1 May, p 1033) is hardly likely to encourage neurologists to advise resection of the first rib for pain in the arm. Indeed, no neurological papers are cited and no neurological evidence is offered for your views. From the neurological point of view the position with regard to cervical ribs and thoracic outlet syndromes may be stated briefly as follows.

(1) There is a clearly defined neurological syndrome (which may be called the "classical" syndrome) in which patients (usually female) with a rudimentary cervical rib develop weakness and wasting of the small muscles in the hand and, to a lesser extent, of the forearm muscles. Sensory loss, if present, is on the inner side of the forearm, with or without spread to the ulnar side of the hand and fingers. Wasting is often particularly marked in the thenar muscles, as originally described by Howell[1]; this distribution, which was later characterised as "partial thenar atrophy" by Wilson,[2] was perhaps over-emphasised in his subsequent writing[3] and led to confusion with the carpal tunnel syndrome. However, the distinction between the two conditions is easily made by sensory nerve conduction studies.[4 5] The use of intradermal histamine on the inner side of the forearm is also important in confirming that the sensory loss is due to a postganglionic lesion.[4 6 7] The radiological abnormality associated with this syndrome is usually a minimal one, taking the form of a small rudimentary rib or an enlarged down-curving C7 transverse process. Operation has consistently revealed a sharp fibrous band passing forward from the bony abnormality to the first rib, over which the C8 and T1 roots, or the lower trunk of the brachial plexus, are angulated. This band, designated the "scalenus medius band" by Bonney,[8] was consistently present in our own published series of nine patients[4]; since then its presence has been confirmed at operation by Professor V Logue in a further 10 patients with this syndrome.

(2) It should be emphasised that the clinical picture described above is a rare one. The 20 cases studied by Professor Logue and myself have been collected over a 15-year period, the rate of referral increasing in recent years as a result of our known interest in the problem. Although most patients complained of pain in the arm for several years before developing weakness of the hand, the pain was not usually severe and it has been even less common for patients to be referred for pain alone due to this cause. In contrast to the 20 patients with the classical syndrome, I have only referred for surgery two patients with cervical ribs and pain and paraesthesiae alone during the same 15-year period.

(3) How common is the classical syndrome in the absence of a cervical rib or abnormal C7 transverse process? Bonney described three patients with wasted hands in whom a scalenus medius band was present without a bony abnormality,[8] but the only patient whom I have seen personally in the last 15 years who appeared to fulfil all the clinical criteria of the classical syndrome, but with normal radiology, turned out to have a neurofibroma of the lower trunk of the brachial plexus.

(4) It is in relation to patients without either a wasted hand or a radiological abnormality in the neck that most of the confusion has arisen. At one time the scalenus anticus syndrome[9 10] had its strong protagonists, but few scalenotomies are carried out today. What is now being suggested is that there is a relatively large group of patients with pain in the arm who are likely to be helped by removal of the first rib. Partial or complete resection of the first rib was originally recommended by Falconer for costoclavicular compression[11 12] but in recent American papers[13–15] the indications for operation appear to be far wider than those originally proposed. However, the clinical details given in these papers do not establish a characteristic picture, and objective confirmatory tests are also lacking. Manoeuvres designed to obliterate the pulse in certain positions are notoriously difficult to interpret, and ulnar nerve conduction studies, upon which much stress has been laid by one group,[14] have proved unhelpful in the hands of others.[15 16]

A disconcerting feature of the recent papers on first rib resection is the large number of operated patients—for example, 138 in the series reported by Urschel *et al*,[14] of whom 70% were without radiological evidence of a cervical rib or band. Only a small proportion of these had major vascular symptoms and even fewer had wasting of the hand. Do we really believe that pain and paraesthesiae requiring removal of the first rib occur so commonly when the classical neurological syndrome associated with a rudimentary cervical rib or an abnormal C7 transverse process is relatively rare?

In the absence of objective criteria surgical fashions come and go; in my view the indications for resection of the first rib need to be much more carefully defined before we can decide whether the procedure is likely to have a permanent place in the management of pain in the arm.

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[1] Howell, C M H, *Lancet*, 1907, **1**, 1702.
[2] Wilson, S A K, *Proceedings of the Royal Society of Medicine*, 1913, **6**, 133.