

**Cervical Ribs with Atrophy of Hand Muscles.**

By F. PARKES WEBER, M.D.

THE patient, E. B., aged 17, is a well-nourished girl, who first came under Dr. Weber's attention when she was aged 13, for symptoms suggesting the presence of seventh cervical ribs. The symptoms were almost entirely confined to the right upper extremity. There was decided wasting of the thenar, hypothenar, and inter-metacarpal regions



FIG. 1.

Skiagram to show seventh cervical ribs in the case of E. B., in April, 1909, before operation.

of the right hand. The right hand was weaker and usually felt colder than the left hand. Exposure to cold made it still weaker, and it more readily became numbed than the right hand. The dynamometer grasp in the right hand was 5, and in the left hand 15 (the normal grasp by the dynamometer in question would be about 15 to 20). Electrical examination by galvanism showed reaction of degeneration in the muscles of the thenar and hypothenar regions of the right hand. There was decided hypo-aesthesia on the ulnar side of the right upper extremity, notably in the hand. A skiagram (fig. 1) by Dr. N. S. Finzi, showed the presence of a small seventh cervical rib on each side, but the one

on the right side was the bigger of the two. Neither of them could be detected by ordinary palpation. The wasting in the hand muscles had been observed during the previous two or three months only, but pain of a sharp, shooting character in the right upper extremity had been occasionally complained of for the last two years. The knee-jerks and Achilles-jerks were normal. In this case the symptoms due to cervical ribs first attracted attention, as usual, about the period of puberty, for menstruation commenced when she was aged 13.

The right seventh cervical rib was removed by Dr. E. Michels on May 14, 1909, and since then the patient has never had the peculiar pain she complained of in the right upper extremity. After the operation, however, she at first lost power in her right hand. This gradually



FIG. 2.

Skiagram of the neck in the case of E. B., taken in 1910, to show appearance after the removal of the right seventh cervical rib.

returned, and at present the dynamometer grasp (the same dynamometer used as previously) with her right hand is 11, against 26 with her left hand. There is still much wasting in the intrinsic muscles of the right hand, and her weakness causes difficulty in writing, &c., for she has not become left-handed. In the wasted hand there is very slight flexion of the fourth and fifth fingers, but no definite contracture. The electrical examination with galvanism shows that ACC is greater than KCC in the muscles of the thenar and hypothenar regions of the wasted hand. During exposure to cold the right hand still becomes more readily numbed than the left hand, and there is still decided hypo-æsthesia over the ulnar portion of the right wrist and hand,

including the fourth and fifth fingers. Before the operation the patient was shown at the meeting of the Medical Society of London, on April 26, 1909.<sup>1</sup> The skiagram of the neck, taken by Dr. Finzi in 1910, shows the appearance after the operation (fig. 2). A brother and a sister of the patient have been found by Röntgen-ray examination (Dr. Finzi) to have bilateral cervical ribs, but they are both younger and have not, as yet, complained of any symptoms.

#### DISCUSSION.

The PRESIDENT suggested that the surgeons should bring before them the results of removal of cervical ribs. The cases were very serious and difficult to treat. One was at a loss what to advise a patient with an atrophied and painful hand, due to a cervical rib. The operation was a serious one, and in a certain number of cases it was said not to have been successful. The day before he had seen a girl sent in for the M.B. examination, who, four or five months after operation, was certainly worse, except in one point—the pain was better, but she had a useless hand.

Dr. HINDS HOWELL said operations had been performed in four of his cases. With regard to the after-effects, one of these four patients had complete loss of power in the whole arm, which persisted for a month, and then gradually improved. Eventually the power in the other muscles, not affected before the operation, became normal again, and there was improvement, but not complete cure, of the atrophied muscles. Another case was that of a woman, whom he saw again three years after the operation for removal of the rib, and her muscles were practically normal; she had been operated upon soon after the muscular atrophy began to appear. In the third case subjective sensory disturbance was very marked, and the muscular atrophy comparatively slight. After operation for removal of the rib there was a very severe pain in the neck, at the site of the scar; this pain persisted for three years after the operation, and had been even worse than the pain originally complained of. It was slowly improving, and the power of the hand was much improved. The fourth case was that of a man in whom there was very extensive hand atrophy. Following removal of the rib there was paralysis of the serratus magnus, an accident which had happened on more than one occasion, because the posterior thoracic nerve ran considerable danger of being injured at operation if the rib was disarticulated. Neither the serratus magnus paralysis nor the hand atrophy was recovered from when the man was lost sight of, but the vasomotor condition of the hand was improved. In well-defined cases he recommended early operation.

Dr. PARKES WEBER remarked that when the collection of cases was arranged, it should include late cases which had not yet been operated upon, so as, if possible, for purposes of comparison, to illustrate the progress of the hand changes when the cervical ribs were not removed.

<sup>1</sup> F. P. Weber, *Trans. Med. Soc. Lond.*, 1909, xxxii, p. 394.