CERVICAL RIBS AND THEIR EFFECTS ON THE GREAT VESSELS OF THE NECK.

By WALTER BROADBENT, M.A., M.D., M.R.C.P.,
ASSISTANT PHYSICIAN, SUSSEX COUNTY HOSPITAL, BRIGHTON.

A FEW days ago a lady consulted me about a throbbing in her neck, which she said was very conspicuous when she was in evening dress and was a frequent subject of remark among her friends. When the neck was exposed, very marked pulsation was seen just above the sternum, also a pulsating swelling, extending for 2 in. upwards, above the inner end of the right clavicle, looking at first like an aneurysm of the innominate artery. On examining this swelling, the right carotid and subclavian arteries were found to come off from its upper end, and the

subclavian was seen coursing downwards along the front edge of the trapezius, to disappear under the clavicle at about the junction of its outer and middle thirds. On examining the left side of the neck, the left subclavian artery was found to take a similar course; it was seen to come to the surface at a point 2 in. above the clavicle, and to run down the front of the trapezius, as on the right side. The pulsation above the manubrium was due to exposure of the aorta; it extended upwards for 1 in. on the right side, and was continuous with the innominate pulsation, while towards the left it was less and less marked, and was not visibly connected with the pulsation of the left subclavian. The subclavian veins could not be traced, but they did not accompany their arteries.

Over the innominate artery and right subclavian and carotid a very loud systolic murmur was audible, followed by the second sound. A less loud systolic murmur was heard over the exposed aorta, a loud second sound, and also a murmur, diastolic in time, rather like the venous hum of anaemia, but apparently produced in the aorta. In the left carotid a faint murmur was heard, but in the left subclavian again a loud systolic. The pulses were equal and their tracings were not abnormal.

Smooth hard bodies, which were evidently cervical ribs, could be felt below the subclavian arteries; they made no difference to the usual contour of the neck, and deep palpation was necessary to trace them, so that, if the patient had been elderly and fat-necked, a correct diagnosis would have been difficult, the pulsation of the innominate being so striking, unless the abnormal position of the left subclavian had been noticed. No pain had been caused in the neck or arms, and there was no evidence of any pressure on the brachial plexus. The systolic murmurs seem to be caused by the sharp bend which the subclavian arteries take over the ribs.

Cervical ribs arise from the seventh cervical vertebra, they are prolongations of part of the transverse processes as separate bones, the part in front of the vertebro-arterial foramen; sometimes there is a nearly complete separate rib on one side, and only a small increase in length of the transverse process on the other; sometimes there are the two ribs as in this case. They may be joined by cartilage to the sternum or may end on the first rib at the scalene tubercle.

The only other instance of cervical ribs which has come under my observation was a female subject in the dissecting room eighteen years ago. In sketches made then it is seen that the scalenus anticus and scalenus medius are both inserted partly into the cervical rib, and hold the subclavian artery between them with the seventh cervical nerve just above it and the eighth cervical and first dorsal below. The seventh cervical vertebra and its ribs are considerably above the level of the top of the sternum, and the subclavian arteries are thus raised high in the neck. The ribs slant downwards in their progress forwards and terminate before they reach the sternum in thin cartilage, the subclavian veins being in front of the scalenus anticus are not held up, but only have to cross the thin front end of the ribs close to the sternum, and are thus very little raised above their normal position and remain concealed behind the clavicle, which explains why they are not visible in the present case. In the sketch a portion of the serratus magnus is also inserted into the cervical rib.

Since writing the above my attention has been called to an interesting account of four cases of cervical ribs by Dr. W. Thorburn in the *Proceedings of the Medico-Chirurgical Society* for 1905. In two of these the cervical ribs, by pressure on the first dorsal nerve, had caused pain down the inner side of the arm and atrophy of the thenar and hypothenar muscles; these cases he had successfully relieved by removal of the ribs. In the discussion also a case was mentioned in which a mistaken diagnosis of aneurysm had been made.

A CASE OF ONE CEREBRAL HEMISPHERE SUPPLYING BOTH SIDES OF THE BODY.

By G. H. GRILLS, M.D.,

SENIOR MEDICAL OFFICER, COUNTY ASYLUM, CHESTER.

THE following case is of interest, not only because of its rarity, but also on account of the metaphysical problems suggested by it, and the naked-eye anatomical evidence it affords of some of the relations of cerebrum and cerebellum, etc.

A woman aged 42 years at death, under my care for two years in Chester County Asylum, presented the following clinical picture:

In 1879 she was certified as an imbecile, being then 19 years of age; at that time she was able to answer questions, but in a childish manner. On admission she was described as "epileptic," but the nurse in whose charge she has been for twenty years states that she never knew her to have a fit. During the two years she was under my care I considered her a congenital imbecile with spastic paresis of the right side.

She was able to mix with the other patients and walk about the grounds. She could use both arm and leg of the right side, but they were slightly contracted and stiff; she did not make such skilled movements with them as with the left; they were equally well nourished. Sensibility was normal, so far as one could make out, but she had a great dislike of anything cold. Knee jerks and plantar reflexes showed no appreciable difference on the two sides, and were apparently normal. She was not ataxic in gait. Mentally she was imbecile, slow, and stupid, but understood spoken language, and sometimes spoke even of her old associates before admission, recalling them by their correct names.

Some time before death, she weighed 9 st. 10 lb., being 4 ft. 11 in. in height. About a week before her death she began to walk about in a drunken fashion, rapidly became quite helpless, and died, the cause of her death being certified as "congenital malformation of the brain."

Post-mortem and microscopic examination showed that all the organs were healthy and normal with the exception

of the central nervous system, which presented the following features:

The left hemisphere of the cerebrum was quite symmetrical, and as well shaped as the right hemisphere, save only that the gyri were indicated by linear marks, and not by deep sulci, as on the opposite hemisphere. On giving the merest tap to any part of the left hemisphere on a level with the frontal lobes, the percussion waves could be felt at the furthest point of the same hemisphere, showing that the hemisphere was merely a sac filled with fluid. The covering was an oedematous semimembranous material of specific gravity 1030, as compared with 1040, the specific gravity of the grey and white matter of the opposite hemisphere. On an average the membrane was less than $\frac{1}{4}$ in. thick, and microscopically showed no typical motor cells, which were very abundant and quite typical in the opposite hemisphere. The cells in the membranous covering were almost all of the globose character, and had few and often no processes which could be demonstrated by the freezing method. The cells in the right hemisphere, on the other hand, were very rich in processes, which could be traced for great distances even amongst arborizations, and this especially from the large pyramidal cells, which were very prominent. The contents of the sac was a clear and transparent slightly-alkaline fluid. The temporo-sphenoidal lobe on the left side and the region of the island of Reil were not membranous, and showed very thin layers of grey and white matter. The corpus callosum was represented by an extremely-delicate white membrane which tore on the slightest separation of the hemisphere. The right side of the cerebellum was atrophied and weighed 40 grams, as compared with 63, the weight of the left. The olivary body and anterior pyramid of the left side were about one-third the size of the same bodies of the right side. The basal ganglia were not apparently atrophied, excepting the left caudate nucleus. The left internal capsule was represented by a very thin white band. The right lateral ventricle was about half as large again as it should have been.

The spinal cord on transverse section showed no appreciable difference in size or shape between the right and left halves, and both anterior and posterior cornua were identical in size and shape on the opposite sides, and showed typical ganglionic cells which were about equal in number and size on the opposite sides. There was no degeneration of fibre in the spinal cord, and the only point in which the cord seemed to differ from the normal was that narrow strands of grey matter swept back through the white matter from the anterior cornu of one side across the anterior commissure and into the base of the opposite cornu.

The case presented some problems which would require much space and time to discuss at length, for example:

What is the function and connexions of the optic thalami, seeing that they were not atrophied, although the caudate nucleus and cerebellum, etc., were atrophied?

Can one hemisphere be so pathologically affected and the other intact that a double personality of sanity and insanity is represented by the mental function of the right and left hemispheres?

Did the left cerebellum supply co-ordinating power to both sides of the body?

In addition to these problems there are three or four simple and natural conclusions to be drawn from the above pathological conditions:—(1) The right cerebral hemisphere for the most part supplied both sides of the body with motion and sensation. (2) Broca's convolution was probably on the right side. (3) Her powers of mind, such as they were, had their physical basis in the right cerebral hemisphere. (4) Unequal hemispheres need not necessarily give rise to marked epilepsy, as the patient had not had more than a few fits in her life.

UNDER the will of the late Mrs. Elizabeth Storer, of Borough Green, Kent, the General Hospital, Nottingham, receives £2,000 for the endowment of two beds in memory of "Charles Storer, M.D., and Elizabeth, his wife." Sums of £300 each are allotted to the Free Home for the Dying, Clapham, and the British Home for Incurables, Streatham.

THE estate of the late Dr. Lionel Smith Beale, Emeritus Professor of Medicine at King's College, has been sworn as of the net value of £12,067 15s. 8d. He bequeathed £100 each to King's College and King's College Hospital.

WHAT INFLUENCE HAS THE USE OF X RAYS HAD UPON TREATMENT OF FRACTURES AND DISLOCATIONS?*

[WITH SPECIAL PLATE.]

By J. LYNN THOMAS, C.B., F.R.C.S.,

PRESIDENT OF CARDIFF MEDICAL SOCIETY; SURGEON TO THE CARDIFF INFIRMARY, TO THE ROYAL HAMADRYAD HOSPITAL, ETC.

WHEN the civilized world was startled in January, 1896, by the announcement of Professor Roentgen's discovery of the *x* rays, the medical profession immediately utilized its strange and uncanny power of photographing the outlines of living bones, and welcomed it as an important addition to ordinary methods of diagnosis in cases of injuries and diseases of bones and joints. I published in the *Medical Annual*, 1896, two skiagraphs which were amongst the first taken in this country, and I have regularly used it in my practice since that time, when I consider that its aid is necessary.

I propose to deal with the subject in a definite order, starting from the hand up the arm to the head, and descending along the spine to the lower extremity, and ending at the foot; but before doing so I desire to refer to some of the fundamental surgical principles which have guided surgeons in the past when forming opinions and exercising their judgement in treating these injuries. I also venture to record the following incidents as illustrations of the past and the present influences which govern the attitude of the public and the profession towards each other.

1664, January.—"Warrant to Lord Chamberlain Manchester, to admit Charles Tarland as 'Bone-setter in ordinary to the King.'"

1896, January.—The discovery of *x* rays made many surgeons think that bone-setters were doomed to early extinction, but up to the present time (1906) there is no evidence that it has had any tangible influence in bringing about that desirable result.

1903, January.—I saw in consultation with Mr. George Neale, J.P. of Barry, a young lady who had tuberculous synovitis of the hip-joint, and had been progressing favourably towards recovery by ankylosis until a locally well known bone-setter was called in and diagnosed "the bone out of joint," and undertook "to put it back in its place." He carried out his treatment by forcibly fracturing the neck of the femur; acute inflammation and suppuration supervened, and death resulted therefrom. Shame and fear of publicity were the parents' reasons for not prosecuting the bone-setter.

1906, January.—I saw with my colleague, Mr. William Martin, a patient who had injured his left shoulder; he suffered from subcoracoid dislocation of the humerus with fracture of its surgical neck. The patient refused any treatment, notwithstanding the fact that he saw for himself the nature of the injuries from an *x* rays photograph. His odd conduct towards the acceptance of professional advice was based upon the fact that his right shoulder had previously been frequently dislocated!

The fundamental principles which guide surgeons in forming an opinion as to treatment to be carried out in particular fractures and dislocations are founded primarily upon the existing conditions of the soft tissues. Under the term "soft tissues" I include skin, muscles, blood vessels, nerves, and periosteum. For example, the bone of a limb may, in one case, be comminuted into many fragments, and the direction of the causative force be in such a line that no injury occurred to the main blood and nerve supply; such a case usually recovers well, with restoration of function and perhaps with no visible external deformity, but a skiagraph taken months afterwards would show an ugly bond of union of the bone. In another case—say of simple transverse fracture of the humerus or femur—the direction of the causative force might have directly injured both the blood and the nerve supply to such an extent that the resulting conditions would demand immediate amputation; now an *x*-ray photograph could only show the character of the fracture, perhaps with little or no displacement of bone, and it would not give the faintest information as to the serious and hopeless nature of the injury.

The above examples are sufficient for my purpose to illustrate the essential considerations which for generations past have been the cardinal guiding principles in forming opinions, and to-day they still hold the same

* A paper read at the South Wales Branch of the British Medical Association.