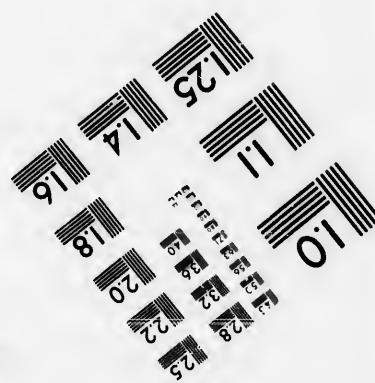
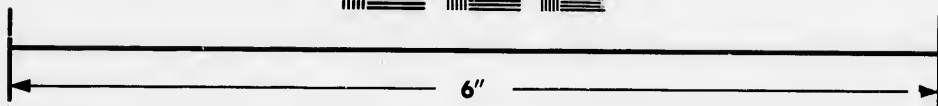
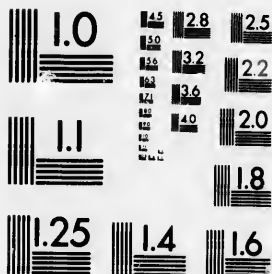


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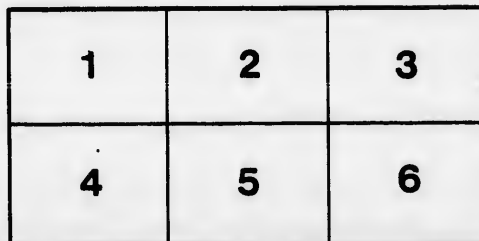
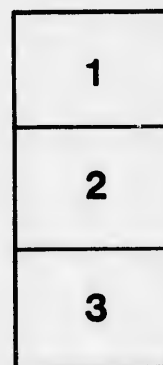
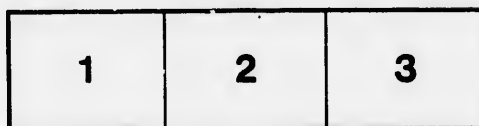
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SOME VASCULAR ANOMALIES OBSERVED DURING  
THE SESSION 1888-89. By FRANCIS J. SHEPHERD,  
M.D., *Professor of Anatomy in McGill University,*  
*Montreal.*

THE following anomalies, which are of some rarity, I have thought of sufficient interest to be placed on record:—

I. *Right Subclavian Artery arising from the Descending Aortic Arch—Right Vertebral Artery given off from the Common Carotid—Right Pulmonary Vein emptying into the Vena Azygos Major—Absence of the Levator Ani Muscle.*

The subject in which these anomalies occurred died of phthisis in the General Hospital, aged 30. She never had any difficulty in swallowing, nor was she left-handed. There was well-marked rickety deformity of the bony thorax and other parts of the skeleton.

The right subclavian artery arose from the posterior part of the aortic arch, opposite the 3rd dorsal vertebra, passed obliquely upwards over the dorsal vertebræ to the root of the neck on the right side. In its course it went behind the trachea and œsophagus. There was, of course, no innominate artery, the right common carotid arising directly from the transverse arch. The right vertebral arose from the right common carotid at the point where the subclavian is usually given off from the innominate; it passed up the neck to enter the transverse process of the 4th cervical vertebra. The left vertebral arose from the transverse arch between the left common carotid and left subclavian, and entered the transverse process of the 3rd cervical vertebra. The right inferior laryngeal nerve turned around the right vertebral artery instead of the subclavian. The right sympathetic was divided into two cords, which embraced the abnormal subclavian; the superficial cord hooked round the lower part of the artery to join its fellow. This was mistaken at first by the student dissecting the part for the recurrent laryngeal nerve.

The explanation of this anomaly is well recognised, and has been described by Rathke, Wood, Turner, and others. It is an example of persistence of the right aortic root. The fourth arch, from which the subclavian of the right side is usually derived, having atrophied and partially disappeared—that is, the portion external to the origin of the vertebral. The vertebral, then, would represent the shortened fourth arch, and the part of the carotid, as far as the vertebral, the innominate. This

would explain why the right inferior laryngeal nerve recurred around the vertebral artery instead of the subclavian.

In the same subject, on the right side, there was but one *pulmonary vein*. This was of large size, and, in place of emptying into the left auricle, it joined the vena azygos major just before it arched over the root of the right lung. The combined veins emptied into the superior cava. Unfortunately, I only saw this specimen when the heart was in a mutilated condition, and hence could not satisfactorily examine that organ. A part of the blood going to the right lung would have a very small circuit, viz., from the superior cava to right auricle, thence into the right ventricle through the pulmonary artery to the lungs, then back again to the superior cava by the right pulmonary vein, and so on. Thus aerated blood would be continually passing into the venous circulation.

In the same subject the kidneys were supplied by several arteries. The obturator arteries were given off from the epigastrics, and, on the right side, the lingual and facial arose by a single trunk, while on the left side the lingual and superior thyroid arose together. The teeth were very irregular and badly formed, and the superior maxillæ proper distinctly overlapped the inter-maxillary bones.

I might add that in this remarkable subject no trace could be found of the levator ani muscle; its place was taken by pelvic fascia.

## II. *Absence of the Right Inferior Thyroid Artery, its place being taken by a large branch from the Innominate—Origin of Left Inferior Thyroid from the Left Common Carotid.*

This arrangement of the thyroid arteries in the same subject is so rare that, as far as I am aware, no similar case has ever been reported. Two branches only were given off from the transverse arch of the aorta, the innominate and left subclavian. The left carotid was a branch of the innominate. Near the bifurcation of the innominate a large branch was given off, which crossed the trachea and coursed up its left border to supply the lower part of the left lobe of the thyroid gland. As it crossed the trachea it gave off a small branch which ascended the trachea to the gland. This abnormal artery would have been much in the way in performing the operation of tracheotomy.

The right inferior thyroid was a branch of the common carotid three quarters of an inch from its origin; it was of large size, and passed directly up to the right lobe of the thyroid gland. There was no thyroid artery given off from either subclavian artery; the other branches of the axis were given off separately. All four thyroid arteries were of large size.

The absence of the left thyroid may be explained by the fact that the anastomotic branches between the middle thyroid and the left inferior thyroid enlarged abnormally, and in consequence there was a diminution and afterwards a disappearance of the normal inferior thyroid.

In the same subject, from the first part of the right subclavian artery, a large branchial artery was given off, which passed down behind the aortic arch to reach the bifurcation of the trachea. I have several times seen this artery; on one occasion it reached the descending aorta with which it communicated, and I looked upon it as a persistence of the right aortic root.

### III. *Double Inferior Cava.*

In this case the external and internal iliac veins of each side united to form a common iliac vein. The left vein passed up on the left side of the aorta and joined the left renal vein, the right iliac vein took the usual position of the inferior cava. These cases are not very uncommon, and I have seen quite a number of examples of this anomaly. Frequently there is a large transverse branch between the two iliacs. These cases of double inferior cava are examples of the persistence of the lower part of the cardinal veins.

### IV. *Misplaced Left Kidney with Abnormal Blood Supply.*

In this case the misplaced kidney was situated between the two common iliac arteries. The hilus was placed anteriorly in the centre of the kidney, which was small and of an irregular discoid shape. It received its blood supply from a large artery which came off from the aorta at its bifurcation. The left renal vein emptied into the left common iliac and received the left spermatic. The left supra-renal capsule retained its normal position, and was of large size; it received its blood supply from the left spermatic artery. A similar case was reported in the January (1889) number of this *Journal* by Dr R. B. Mahon.

### V. *Multiple Renal Arteries and Veins.*

In this subject both kidneys were placed at a lower level than normal, and reached to the intervertebral substance between the 4th and 5th lumbar vertebrae. The hilus of each kidney was situated in front. The right kidney had three veins going from the hilus to join the vena cava. The left renal vein was of large size and divided into two branches, one of which passed beneath the aorta. A vein of some size united it to the left common iliac<sup>1</sup> vein, whilst another still larger passed for the branch which went over the aorta to the splenic vein. Each kidney, in addition to its normal artery entering the hilus from the aorta, received a branch at its extreme lower end from the common iliac artery of that side.

NOTE.—*All the anomalies above described are in the Anatomical Museum of McGill University.*

<sup>1</sup> This was probably the remains of the lower part of the left cardinal vein.

