

V. *Description of an extraordinary Human Fœtus. In a Letter from Mr. Benj. Gibson, Surgeon, to H. Leigh Thomas, Esq. F. R. S.*

Read February 8, 1810.

Manchester, June, 1809.

DEAR SIR,

I HAVE lately had an opportunity of inspecting a singular human foetus, at the full period of utero-gestation, and hope that a history of it will not be unacceptable to the learned Society, of which you are a member. Some deviations, which it exhibits, from the usual form and structure of the human body, have not (as far as my information extends) been yet recorded; and the consideration that they were all apparently compatible with life, gives additional interest to the subject; for if the difficulty of parturition had not proved almost immediately fatal, the complex structure of the animal would have formed no impediment to its existence.

Instances of two entire human bodies united together, are by no means rare in the collections of anatomists. Sometimes their conjunction takes place back to back; sometimes the reverse; at other times side by side; or in such a position as to form a kind of cross: the two heads lying in one direction, and the opposite extremities in another, and intersecting it at right angles.

That species of monstrosity, however, in which two bodies are merely united together, does not display in a striking

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point of view, the resources of nature in accommodating her means, or modifying her materials to any new situation. All that is remarkable, is the conjunction of two bodies complete in themselves: the organs which compose them have their ordinary structure and arrangement; the anatomist or physiologist anticipates nothing curious in their internal configuration. It is principally in those instances of unnatural deviation, where some parts of the body are formed double, and others single, that the resources of nature become apparent; in adjusting parts, which, in the natural state of the body, have no adaptation.

Of this kind is the singular foetus, of which I shall now proceed to offer the description.

This curious production was formed with two heads placed side by side, united apparently to one body, with two legs and two arms. The one head expressed the character of a male, the other evidently that of a female. This distinction of sex, conspicuous enough from mere inspection, was still corroborated by the conformation of the organs of generation. From external examination it was plain, that there were two spines corresponding to the two heads; these were found to terminate in a double os sacrum, tipped with two ossa coccygis. The superior part of the spines diverged considerably, so that when the two faces were turned towards each other, the lips came in contact. Above the first lumbar vertebra, they approached each other, still however forming two independent vertebral canals, for the passage of the spinal marrow from each head. In consequence of the divergence of the spines at their superior part, the chest was formed much broader than natural. The common number of ribs were placed on the

outside of each spine ; and between the inner sides of the spines, occupying the space formed by their divergence, was interposed an equal number of somewhat angular ribs, of about an inch in length. These were common to both spines, and possessed a considerable latitude of motion, but were unconnected with any bone similar to the sternum. These short ribs, by occupying the situation of the spine in the natural state of the body, completed the posterior part of the chest.

The only remaining peculiarities in the osseous system, was a third scapula, small in size, and placed at the root of each neck, upon the small ribs ; and a third clavicle, inserted at one extremity into the glenoid cavity of this scapula, and attached by the other to the upper part of the sternum.

Before I proceed to describe the conformation of the vascular system, and the distribution of the nerves of the thoracic and abdominal viscera, it will be necessary, first to notice the arrangement, connection, and number of these viscera.

The chest was divided by the mediastinum into two cavities, containing, amongst other organs, the lungs, and two hearts, placed contiguous to each other. It was ascertained by inflation, that the lungs on the right side were entirely independent of those on the left, each being supplied with air by a distinct trachea, from the corresponding head. They were not divided into lobes in the usual way : on the right side there were only two lobes, on the left only one. The only peculiarity with respect to the diaphragm was, that instead of being attached to the spine and lower ribs, on the right side of the body, it crossed over a considerable portion of the right lobe of the liver ; this muscle, therefore, assisted in forming a cavity, which was situated upon the two spines,

and descending aorta, and underneath the apex of each heart, and the large vessels, which entered the right heart from the liver. In this cavity, which may be considered as a second abdomen, were deposited, a spleen, pancreas, omentum, and stomach, connected with the oesophagus of the right head. It communicated with the usual cavity of the abdomen, by an opening similar to the foramen of WINSLOW; for a probe, introduced underneath the vessels of the liver, passed into it.

Little irregularity was observable in the viscera of the abdomen. A second stomach occupied nearly its usual situation. With this the duodenum was connected in the common way; and at a short distance from the pylorus, was joined by the duodenum from the stomach placed in the cavity of the chest. Close to this junction, the ductus communis choledochus, and ductus pancreaticus, entered the intestine. The only circumstance of irregularity in the other intestine was, that the cœcum and that part of the colon, which is, generally, closely bound down by the peritoneum to the right side, was attached to it by a membrane of considerable length, which allowed them to be turned to the right or left side indifferently. All the intestines, however, were more capacious than natural.

As I anticipated some remarkable deviations from nature in the formation and arrangement of the vascular system, I carefully injected the body by the umbilical vein. On inspecting the chest, I found two hearts, formed of the usual number of auricles and ventricles, and inclosed in separate pericardia. The heart situated towards the left side, and corresponding to the male head, was considerably the largest. From its ventricles the aorta and pulmonary artery arose in

the usual way, and communicated with each other by a ductus arteriosus. The blood conveyed by the pulmonary artery passed to the lungs situated on the left side of the chest. From the arch of the aorta, the two carotid arteries were sent off in one trunk, which soon divided. The vertebral and inferior thyroid arteries, with the left axillary artery, were detached from the aorta, after it had almost completed its arch, and had received the ductus arteriosus. This aorta soon afterwards united with the aorta of the right heart, and descended as one trunk, embedded in the hollow between the two spines, and resting upon the short ribs, which were connected with them.

With regard to the veins which entered this heart, those from the lungs terminated in the left auricle, in the usual way. The vena cava superior terminated in the right auricle, and had this peculiarity, that it not only received the blood from the jugular veins of the left head, and from the left subclavian vein, but from the right subclavian vein also, and from the jugular veins of the right head. There was also a large vessel, which will be noticed afterwards, forming a communication between the vena cava superior of this heart (the left), and the vena cava inferior of the right heart. The principal peculiarity, however, of this heart consisted in a partial defect of the vena cava inferior. A large vein, which entered the lower part of the right auricle, was formed by the venæ cavæ hepaticæ, and two ductus venosi, which were smaller than natural.

The heart situated towards the right side of the chest differed in many respects from that on the left, both in the relative situation of the vessels which arose from it, and in

three vessels which were deficient. The position of its auricles and ventricles was peculiar, and the whole heart was in a great measure reversed. The two auricles lay in contact, and were not separated by the origin of the large vessels. The ventricle situated towards the right side of the body gave off the aorta; whilst the pulmonary artery arose from the left ventricle, which was contiguous to the heart of the left side. These vessels were united by a ductus arteriosus. The pulmonary artery, however, was not situated before the aorta at its origin; it passed behind the superior part of the right ventricle, so as to get behind the origin of the aorta, where it was divided into branches, distributed to the lungs of the right side of the chest. At this point also, the ductus arteriosus was detached from the pulmonary artery, and following the direction of the aorta upwards, appeared like a second arch, placed behind the arch of the aorta. In fact, the arch formed by the ductus arteriosus very nearly resembled that of the aorta, by sending off a large vessel from its convex side.

From the arch of the aorta the carotid arteries were given off, as distinct branches, but no axillary artery for the arm of the right side. This vessel, with the right vertebral, and the inferior thyroid arteries of the right head, were detached from the middle of the ductus arteriosus in one trunk, which soon divided into three branches. This aorta then descended a little, and united to its fellow, from the heart of the left side.

I shall pass over the smaller vessels derived from the descending aorta, and only notice, that in the situation of the cæliac artery, three or four vessels were given off, crowded together: they appeared to be destined for the liver, and for the two stomachs, two spleens, and single pancreas.

The principal deviation from the natural structure in the venous system of this heart, consisted in the want of the vena cava superior. The vena cava inferior might be said to be natural. It received the veins from the lower extremities, from one kidney, &c. and also the branches of the venæ cavæ hepaticæ, which did not terminate in the opposite heart. It received also a ductus venosus from the umbilical vein. The only remaining circumstances with respect to the distribution of the blood vessels, were two very large anastomoses between the branches of the vena portarum; and a remarkable branch of communication, between the lower part of the vena cava inferior of the right heart, and the vena cava superior of the left heart. This communicating vessel was detached from the vena cava inferior, opposite to the right emulgent vein, and, having crossed over the anterior part of the aorta, below the origin of the cæliac artery, received the left emulgent vein. It then proceeded upwards, and terminated in the vena cava superior. Although this vessel was situated on the left side of the aorta, it probably served the office of the vena azygos.

Although I have already noticed several instances of curious conformation, that of the organs of generation was in some respects the most remarkable. From the features of the two heads I was led to expect both male and female parts, as the countenances clearly expressed the two sexes. In these organs the male character was predominant; the penis was of good size: the testes in the act of passing into the scrotum: the vesiculæ seminales were perfect and well formed. Still these parts partook in some measure, of the conformation of the female organs. The glans penis was formed precisely like that of the clitoris; was covered by a similar prepuce, without

a frænum. It was also imperforate, like that of the clitoris; for although the urethra was continuous with the penis, it did not perforate the substance of the glans; but, for a considerable extent, passed on the under surface of the penis, merely covered by the common integuments: nor was it surrounded by the corpus spongiosum, till it arrived nearly as far as the bulb of the urethra. These were all the female characters I observed, till being induced to open the bladder, which felt uncommonly thick and muscular, I discovered a uterus placed in its cavity, in some measure incorporated with the substance, and forming a part of that viscus. It was situated towards the most depending part of the bladder; its fundus projected about half an inch, whilst the rest of its body and cervix, was incorporated with the posterior part of the bladder. From its superior part, the fallopian tubes proceeded, beautifully convoluted; they penetrated through the substance of the bladder, and, as far as I could ascertain, terminated in a cul de sac near the vesiculæ seminales. The uterus was hollow; its cervix extended to the beginning of the urethra, where it terminated by an oval opening on the prostate gland, nearer to the neck of the bladder than the verumontanum. I could not discover whether the ovaria were connected with the uterus, but it is extremely probable, that they were situated exterior to the bladder, near the termination of the fallopian tubes, and might have been removed accidentally, during the dissection of parts, where their existence was little expected.

As I had no reason to believe that there was any variety in the distribution of the nerves of the extremities, my attention was principally directed to those of the thoracic and abdominal viscera.

The eighth pair of nerves had its natural origin from each brain, and gave off the usual branches in passing down the neck. In the chest, the pair derived from the right head supplied the right heart, lungs, stomach, &c. The pair from the left head, was distributed in a similar manner to the organs of the left side. Branches were detached from each pair to the semilunar ganglion.

A pair of intercostal nerves proceeded also from each head. In describing them, it will be convenient to distinguish those which passed on the inside of each spine, by the name of inner intercostals : those on the outside of each spine, by that of outer intercostals. There was this peculiarity in the inner intercostal nerves, that they passed along, without giving off, or receiving communicating branches, or forming the usual ganglia, in consequence of the want of all the cervical, dorsal, and lumbar nerves, on the inner side of each spine, except the first cervicals. In the chest, the two inner intercostals formed a junction, and accompanied the descending aorta downwards. But before this joint nerve arrived at the semilunar ganglion, two considerable branches were detached, which continued to accompany the aorta, and were ultimately lost in the cavity of the pelvis. The greatest part of the nerve, however, terminated in the semilunar ganglion.

The outer intercostals, or those passing on the outside of each spine, had, as far as I could investigate them, their usual distribution.

I have already had occasion to mention the deficiency of all the cervical, dorsal, and lumbar nerves, on the inside of each spine ; except the first cervicals, of course all the nerves, which are commonly derived from them, were wanting. Thus

there was only one pair of the phrenic nerves ; one nerve on the outside of each neck, which was distributed to the diaphragm in the usual way. The other nerves from the spinal marrow were in like manner distributed, as if the body had had but one spine. Thus the nerves of the right arm and leg, were supplied by the right side of the right spinal marrow : those of the left arm and leg, by the left side of the left spinal marrow.

These are all the circumstances connected with this curious foetus, which I think worthy your notice ; and, having already sufficiently trespassed upon your patience, I subscribe myself

Your obliged Servant,

B. GIBSON.

EXPLANATION OF PLATE III.

Anterior View of the Heart and Arteries, removed from the Body.

1. The right ventricle of the heart, connected with the left head.
2. The left ventricle.
3. The right auricle.
4. The left auricle.
5. The pulmonary artery at its origin.
6. The ductus arteriosus.
7. The aorta.
8. The trunk, from which the two external carotid arteries of the left head arose.

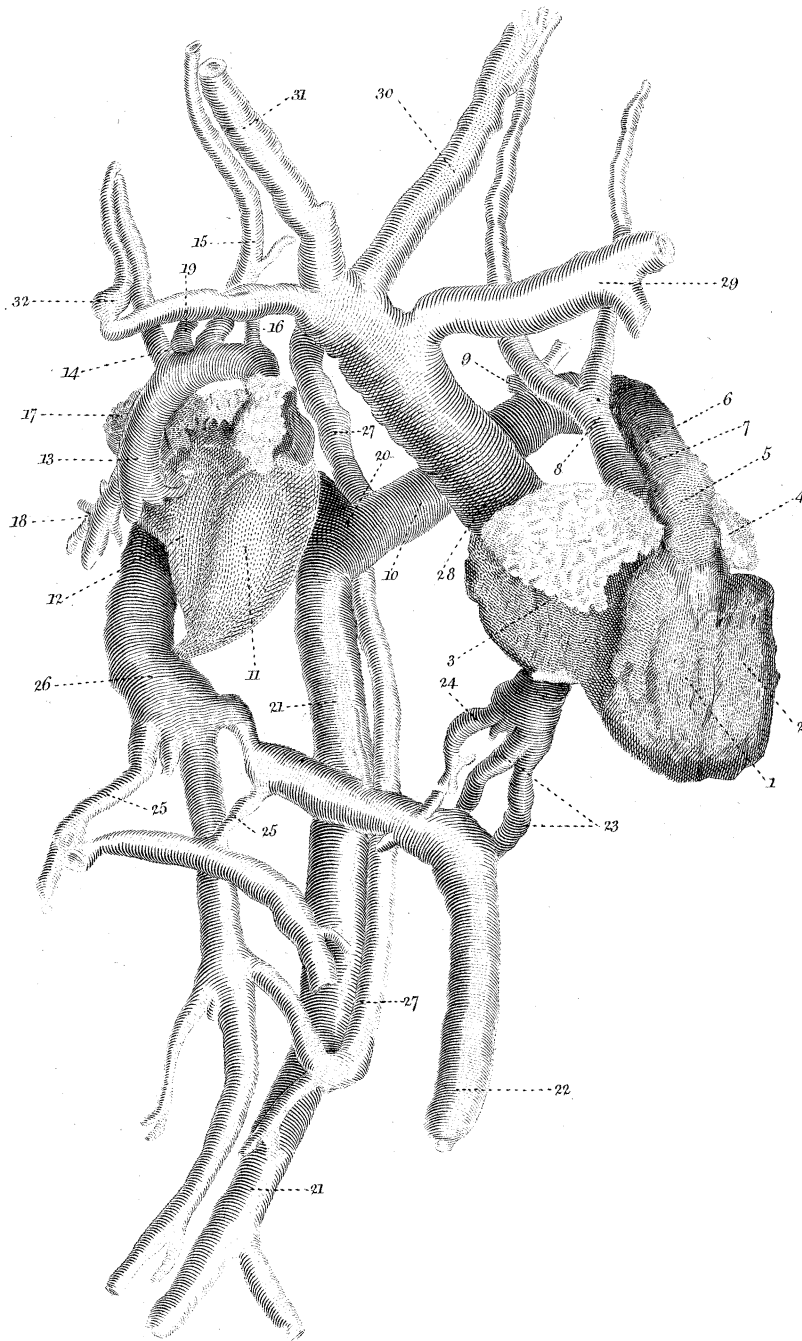
9. The trunk, from which the vertebral, the inferior thyroid arteries, and the left axillary artery, arose.
10. The aorta after it has completed its arch, and is proceeding to unite with the aorta, from the heart of the right head.
11. The left ventricle of the heart, corresponding to the right head.
12. The right ventricle.
13. The aorta, arising from the right ventricle.
14. The right external carotid artery of the right head.
15. The left external carotid artery.
16. The left vertebral artery, arising from the arch of the aorta as a distinct vessel.
17. The pulmonary artery, where it detaches the ductus arteriosus.
18. Branches of the pulmonary artery.
19. A vessel detached from the ductus arteriosus, from which the right axillary, the right vertebral, and the inferior thyroid arteries, are derived.
20. The point of junction between the aorta of the right and left heart.
21. The descending aorta.
22. The umbilical vein.
23. Two ductus venosi detached to the left heart.
24. A trunk formed by the *venæ cavæ hepaticæ*.
25. Large anastomoses formed between the branches of the *vena portarum*.
26. The *vena cava inferior*, terminating in the left auricle of the right heart.
27. A large vessel, which forms a communication between

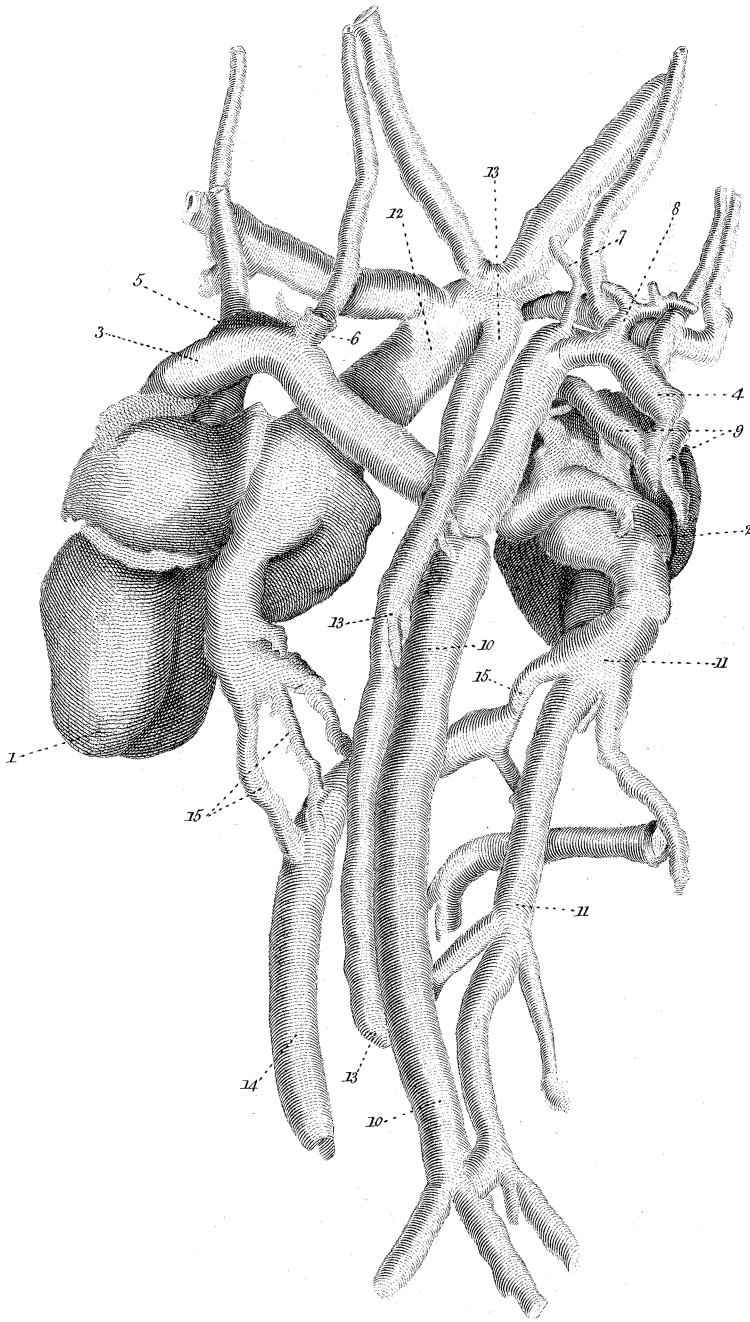
- the vena cava inferior of the right heart, and the vena cava superior of the left heart
28. Vena cava superior, terminating in the right auricle of the left heart.
 29. A trunk formed by the left subclavian vein, and the jugular veins of the left side of the left head.
 30. A trunk formed by the jugular veins of the right side of the left head.
 31. A trunk formed by the jugular veins of the left side of the right head.
 32. A trunk formed by the right subclavian vein, and the jugular veins of the right side of the right head.

EXPLANATION OF PLATE IV.

Posterior View of the Hearts and Arteries.

1. Left heart.
2. Right heart.
3. Ductus arteriosus of the left heart.
4. Ductus arteriosus of the right heart.
5. The arch of the aorta of the right heart, where it receives the ductus arteriosus.
6. A trunk, from which the vertebral and inferior thyroid arteries, with the left axillary artery, arose from the aorta.
7. The left vertebral artery of the right head, arising from the arch of the aorta, just as it receives the ductus arteriosus.
8. A trunk arising from the ductus arteriosus, which supplied the right vertebral, the right axillary, and the inferior thyroid arteries.





9. The pulmonary arteries.
10. The descending aorta.
11. Vena cava inferior, terminating in the right heart.
12. Vena cava superior, terminating in the left heart.
13. A considerable vessel of communication, passing between the vena cava superior of the left heart, and the vena cava inferior of the right heart.
14. The umbilical vein.
15. Ductus venosi.