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ACCOUNT
OF A CASE OF
IRREGULAR FORMATION OF THE HEART,
ACCOMPANIED WITH
A SUPERNUMERARY VALVE IN THE PULMONARY
ARTERY.

By THEOPHILUS THOMPSON, M.D.,
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DISEASES OF THE CHEST.

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By THEOPHILUS THOMPSON, M.D.,
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READ JUNE 28TH, 1842.

IN December 1841, I was requested to visit, as a patient of the Northern Dispensary, A. H., an unmarried woman, aged thirty-eight. I found her sitting up, but with her head nodding, in consequence of drowsiness, with which she was oppressed, and into which, after being aroused, she almost immediately relapsed. Her complexion was livid, her lips were purple and swollen: the external jugular veins in a state of great distension, which was not removed by compressing their upper portion. The pulse was rapid and feeble; the impulse of the heart rather weak; the first sound shorter and more flapping, the second less distinct than natural. Both sounds were, however, unattended

with roughness, and there was no evidence of any obstacle to the circulation, excepting from dilatation in the heart. On account of anasarca, the patient was treated with decoction of chimaphila, and other diuretics, and subsequently with quinine, to counteract debility. Her weakness, nevertheless, progressively increased; her legs became more and more œdematous, and at length erysipelatous and gangrenous. She gradually sank, and died in the second week of January in the present year.

I ascertained from the friends of the patient that although never robust she had enjoyed an average share of health, until attacked with Asiatic cholera during the prevalence of that disease in this country: after which her strength was permanently impaired, and she occasionally complained of palpitation of the heart on going up stairs. Two years before death her constitution suffered additional injury from an attack of fever, which her medical attendant denominated "black fever." From this time she exhibited a livid complexion, and a peculiar drowsy, apathetic appearance, which induced visitors to suppose her idiotic.

The principal morbid appearances observed on inspecting the body after death, were some effusion into the peritoneum, pleura, and pericardium, and serous infiltration with redness of the bronchial tubes; but the circumstance of especial interest was the remarkable formation of the heart. This organ was larger than natural, and exhibited a circumscribed dilatation at the part of the right ventricle

more immediately connected with the pulmonary artery. On making an incision from that artery along the anterior part of the ventricle, four pulmonary valves were observed, but the tricuspid valve was not visible. A second incision parallel to the first was then made at the back part of the ventricle, by which means the tricuspid valve was discovered, separating the right auricle from a cavity corresponding in size and appearance to the right ventricle in its natural condition, excepting that the valves of the pulmonary artery were not seen. It was now obvious that the two cavities just described constituted the right ventricle, which was divided into two portions by an imperfect septum. This septum was composed, not of a uniform fleshy wall, but of decussating and hypertrophied columnæ carneæ; some of which separating from each other near the base of the ventricle, left an aperture of communication about an inch long, and half an inch broad. Nearer the apex there were other small interstices amongst the columns, through which, although by a tortuous and difficult course, a small quantity of blood might probably have passed from one cavity to the other. The arterial chamber of the right ventricle was rather less spacious than that adjoining the auricle; the connecting orifice was partially covered by one of the divisions of the tricuspid valve.

The walls of the left auricle, and of both the ventricles, were of natural thickness; but the right auricle was twice as thick as the left, and with very large and prominent muscoli pectinati. The co-

lumnæ carneæ of the left ventricle appeared singularly small when compared with those of the right. The four valves of the pulmonary artery were found on admeasurement equal in size. Each of the valves was well developed, furnished with a corpus sesamoideum, and about nine-tenths of an inch in diameter. As each of the valves was of natural size, an additional valve was rendered necessary by the preternatural magnitude of the pulmonary artery, the circumference of which exceeded that of the aorta by nearly an inch.

The divided valve, and that adjoining, rest on a fleshy column, nearly an inch in thickness.

It may be well to add, in reference to the chamber of the right ventricle contiguous to the auricle, that the portion of the tricuspid valve, near the coronary vein, is attached by tendinous cords, an inch long, to hypertrophied columns, forming the inner side of the aperture connecting the ventricular chambers. The other portion of this segment, and the adjoining segment through which the incision was made, possess tendinous cords only half as long, and attached to columns of average size. The intermediate portion of the tricuspid valve has cords of intermediate length, all of which are attached to one projecting thickened column, excepting that from the edge of the valve, covering the connecting isthmus, a few cords pass to the inner side of the ring, within half an inch of one of the semilunar valves.

Observations.—Irregularities in the number of the semilunar valves of the pulmonary artery, even

more than other deviations on this side of the heart, are confessedly rare. Amongst his very numerous dissections, Meckel met with only one example* of increased number of these valves, and, in the few cases which I find recorded, the irregularity of number was associated with great inequality of size. In the case which occurred to Morgagni,† one of the valves was much larger than the rest. In other instances, as in that related by Petsche,‡ one has been found singularly small, or, as in the example described by Bizot,§ even rudimentary. In reference to this coincidence in the recorded cases, Meckel observes,|| “ Omnes in eo conveniunt valvulas numero imminutas mole augeti, numero auctas mole minui.”

The specimen now presented to the Society furnishes an exception to this rule, since its peculiarity, as respects the valvular arrangement, may be considered to consist in the addition of one perfect valve; whilst the partial division of the right ventricle into two cavities, affords another interesting deviation from the natural development of the organ.

The supernumerary valve was obviously congenital, and the peculiarities of the right ventricle, although possibly increased by circumstances ren-

* Tabulæ Anatom.

† De Sed. et Causis Morb. Epist. 34, s. 15.

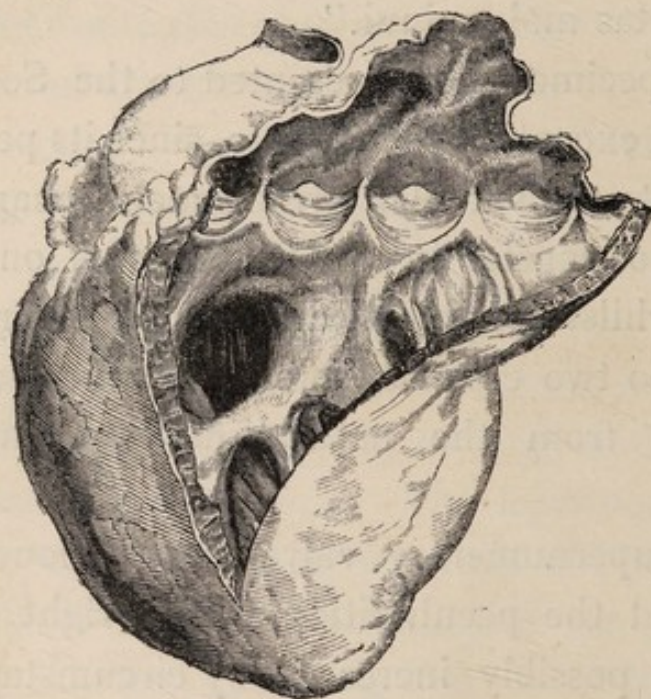
‡ Haller, Collect. Anatom. Dis. vol. vi. p. 774.

§ Mém. de la Société d'Observation, vol. i.

|| De Cordis Condit. Abnorm. p. 31.

dering inordinate efforts of the heart essential to the maintenance of the circulation, had likewise, in all probability, existed from birth.

Under favourable conditions, these deviations from the usual structure might have been consistent with health, but when the muscular energy was impaired by disease, the heart suffered embarrassment, in consequence of the indirect course of the blood through its right cavities; and when the supervention of bronchial affection interrupted the circulation of blood through the lungs, a livid complexion, œdema, and gradual exhaustion of strength, were the natural results.



The preparation from which the drawing was made is in the Museum of the Royal College of Surgeons.