

Clinical Lecture

ON

MALFORMATIONS OF THE HEART.

*Delivered at the Hospital for Sick Children,
Great Ormond-street,*

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GENTLEMEN,—Cases of congenital heart disease in infants and children are generally of great interest—perhaps because they are not very common, or because exact diagnosis is difficult. At one time this difficulty of diagnosis aroused an interest in my own mind; but time, observation, and reflection have altered my views, and presently I will explain to you as briefly as possible the reasons why. We will begin, as usual, with a case, a typical one, of congenital malformation of the heart, and of rather common occurrence. The boy is now in fairly good health. According to the mother's account he has never been so well. He is between five and six years of age, is well grown and well nourished, and there is no complaint made of disturbed health except a slight cough. We have had him under observation for several months, and his mother says that he was brought to this hospital between three and four years ago, when he was about eighteen months old. We are told that he had three convulsive attacks at that time, but there does not seem to have been any reason for suspecting disease of the heart—at least, no intimation of this was given to the mother. When he came the second time, some months ago, there was then nothing very definite in the symptoms. He suffered chiefly from a disinclination for exercise or movement, from occasional swelling of the joints of the knees, feet, and hands; and he had spots of rather bluish ecchyma on different parts of the body. It was the fact of these symptoms being indefinite, and perhaps more particularly a peculiar expression of anxiety in the face, that made us at once suspect some cardiac trouble.

If you examine the boy's heart, you will find very much the same signs to-day as when he was examined a few months ago. You can hear a loud prolonged murmur over the præcordial region, but loudest a little below and to the left of the nipple; and you can follow the murmur round the axilla to the angle of the left scapula, where it is much fainter than in front, but still very distinct; it is systolic, but more prolonged than the ordinary mitral murmur of rheumatic origin. The liver was enlarged, for its margin could be felt midway between the umbilicus and the right costal boundary line. The treatment was active and satisfactory. We relieved the circulation by leeches applied over the heart, encouraging the hæmorrhage by fomentations. We ordered full doses of digitalis combined with the mixture of iron and magnesia; and, lastly, we enjoined perfect repose. As you see, the impulse of the heart is considerable, but the contractions are regular, and not very rapid, not more than 80 in the minute, and less probably if the boy were not a little excited. The clubbed condition of the fingers which was noted some months ago has disappeared, the skin is quite healthy, and there is no swelling of the joints; in fact, there is nothing particular to observe in the case except the cardiac murmur and some coarse crepitation in the lungs, due probably to a recent mild attack of bronchitis, or to slight congestion from the condition of the heart.

The case is not complete without an inquiry into the possible origin of the malformation. The first symptom of serious disturbance of the child's health was when he was ten months old, and then his breathing was at times oppressed, and there were other symptoms, although not at the time understood, yet clearly sufficient to decide the question of the congenital character of the cardiac defect. Two possible causes are given by the mother. One is that three weeks previous to the birth of the child she had a serious fright from a fire breaking out immediately behind the house in which she was living. Her anxiety was increased from the fact that her husband kept an oil-shop, and there was imminent danger of a conflagration on their own premises. The child was born rather prematurely, in consequence it was thought of this accident. The other cause is somewhat

different. The father was the subject of severe rheumatism, and though we cannot ascertain distinctly the cause of his death, yet we are told that it happened rather suddenly eight months after the birth of this child. The relation between the father and the boy's condition is simply this—that if the former were the subject of disease of the heart of rheumatic nature at the time of conception, we know by experience that this may be the cause of cardiac malformation in the offspring. Which of these two causes was the potent one in this case I am not prepared to say. It is true that the most common cause of this kind of malformation is maternal trouble; but in giving you the complete history and all the facts, I have indicated a possibility worthy of attention and recollection. There is one point to be noticed before we discuss the nature of the cardiac defect, and that is the convulsive attacks which occurred at the age of eighteen months. They were not ordinary convulsions such as we are familiar with in infancy. They were rather long attacks of passive coma, without muscular spasm, and were alone sufficient to suggest some cardiac trouble. I have already pointed out, when considering the subject of convulsions in infancy, that this form of so-called convulsions presents a striking contrast with the form we are most familiar with. I think that the importance of carefully examining the heart in infants when the convulsive attacks are of comatose character was then mentioned to you.

Now we will consider what is the probable condition of the heart. Though we may not be able to diagnose for certain the exact nature of the malformation, we can arrive at conclusions exact enough for all practical purposes. In this case I think we may conclude that the defect is situated in the ventricular chambers, and that in all probability it consists of a communication between them somewhere in the interventricular septum. This is not an uncommon form of malformation. As you might imagine, the most common form is a communication between the auricles from non-closure of the foramen ovale. The auricles thus become practically one chamber, and we judge of the extent to which they are partially divided by the general condition of cyanosis. But if you expect to find a murmur present in most cardiac malformations you will perceive on reflection that this is unreasonable. In the majority of cases the chief physical sign is rapid and increased action of the heart, and not what we have observed in the case before us. It is for this reason that we must attend more to the general evidences of disturbance of the circulation than to the stethoscopic examination, and even when there is a distinct cardiac murmur we must look rather to the former than the latter in giving a prognosis. If we take a general view of this question, we shall see that it resolves itself into an hydrostatic problem, where the point we have to determine in any particular case is not so much the locality where the two blood currents, the arterial and pulmonary, are confluent, but rather the extent to which confluence is permitted by defects in the chambers or vessels which contain the fluids.

Imagine that we have two tubes of equal size placed parallel to one another, and that water or any other fluid is flowing through them in a similar direction, and at the same pressure. If we open a communication between these tubes by a cross tube interposed at right angles, no effect is practically produced upon either current; but if the cross tube is inclined at an angle between them, there is a tendency for a current to be established along the interposing tube. You can easily perceive that the size and the direction of a communication between two currents determine to some extent how far one mingles with the other. In a closed circuit the conditions are somewhat different, and we have to consider the difference of pressure on either side of a communication between the two systems.

In the case before us, for example, there is probably a current from the left ventricle into the right during each contraction, with little if any current in the opposite direction, at least if there is it must be during the diastole. I think that if the right side of the heart were much congested, and the fluid pressure were increased, there would be more trouble, and cyanotic symptoms would exist as at the time when the leeches were applied. We will not consider this subject any further now, as you can pursue it at your leisure without my assistance. It only remains for me to say a few words on a line of research which I have no doubt has occurred to you as likely to aid in diagnosis—namely, the examination of the numerous specimens exhibited in most museums, or the descriptions to be obtained from various sources of different kinds of malformation. It is

rather curious to find that a good many of the specimens in museums were accidentally discovered, and prove chiefly that persons may live without suspicion of anything being wrong with the heart for many years. In other respects these specimens from having no history attached to them are not of much value.

A classification may be made from such a collection of specimens, and certain general conclusions may be drawn, but when this is done you are not much assisted in the diagnosis of any particular case. There is one thing certain, after all, and that is that general symptoms must be relied upon rather than physical signs in deciding the probabilities of life being supported under the circumstances. A large number of cases soon terminate fatally, and by soon I mean within a few weeks or months from birth. It often happens that, provided the greatest care is taken of an infant, it exists until an accidental exposure to cold induces some complication such as bronchitis or pneumonia, or it becomes the subject of convulsive attacks, which soon prove fatal. In many cases the distress of the infant is very painful to see, and we need not hesitate when expressing faint hopes of life to point out how little its prolongation is to be desired where the suffering is so great. Among those who have made the subject of malformations one of special study, and to whom we are much indebted for carefully described examples, as well as important generalisations, I must not omit to mention the name of the late Dr. Peacock. It is associated in my mind with such estimable qualities of intellectual and moral character that I mention it with deep respect and affection, and when I recommend to your attention the writings of this distinguished physician and pathologist, I do so in the conviction that you will derive great satisfaction and profit from the perusal of his works. In the Transactions of the Pathological Society some of his most important contributions will be found. In vol. xxxii., p. 35, there is a brief but valuable summary of what he described as "the most common kind of deviation from the natural conformation of the heart," the cases where the aorta communicates with both ventricles through deficiency of their system.

Seeing that we must be guided so much more by the general symptoms, in our diagnosis and prognosis than by the physical signs in this class of cases, you will appreciate my reasons I hope for attaching more importance to the former than the latter; and though it is not my wish to discourage you from carefully determining physical signs, it is proper that you should not attach too much importance to them, or hope for as much assistance in diagnosis as we are accustomed to derive when dealing with other forms of cardiac disease.

ON VISCERAL SYPHILIS.

By J. S. BRISTOWE, M.D., F.R.S.

(Concluded from p. 333.)

THE next case is one in which, together with a number of lesions that were regarded at any rate for a time as due to disseminated cancer or sarcoma, there was a condition of knee-joint exactly such as was found in the case forming the text for my paper. In this case also recovery under specific treatment seems to have been complete and permanent.

CASE 3. *Tertiary Syphilis affecting Testicle, Glands of Neck, Clavicle, Knee, Sacro-iliac Synchrondrosis, &c., and simulating Malignant Disease of these Parts; Cure.*—In the early part of the year 1872 I saw in consultation a gentleman about twenty-eight years of age. He had been a very healthy and athletic man, and, in fact, took a leading position among the promoters of athletic sports in the metropolis. He had been married for some months, and at the time of marriage was, he said, perfectly well. About six months ago, shortly after his marriage, one of his testicles began to enlarge, and then at irregular intervals other swellings became developed in connexion with one of the collar-bones, the glands beneath the angles of the jaw, one of the sacro-iliac synchrondroses and the left knee. The last of these appeared a few weeks before I saw him. At the time of my visit he had lost much flesh, was exceedingly anæmic, very weak, and wholly confined to bed. He had been suffering from much pain and want of sleep, and was

very low-spirited. On examination I found the glands under the angles of the jaw enlarged and hard, and those on one side forming a lobulated mass about the size of a duck's egg. The central part of one of the clavicles was swollen, painful, and tender, the swelling being about as large as a small Tangerine orange. One of the testicles was large and tender, apparently about the size of a cricket-ball; but there was effusion of fluid into the corresponding tunica vaginalis, which prevented an exact determination of the size of the testicle; but collectively the tumour was as big as a large cocoa-nut. One knee was very much swollen, painful, and tender. Its cavity contained a good deal of fluid; but also the solid tissues were thickened, and especially this was the case over the lower end of the femur, suggesting that the affection might have begun from this part. There were also swelling, pain, and tenderness over one of the sacro-iliac synchrondroses. Further examination showed that there were a few large indurated glands in the groins, but that there was no evidence of glandular tumours elsewhere, or of visceral disease of any kind. What was the patient suffering from? I confess that my primary thought was (and this was, I believe, the view of his medical attendant), that he was the subject of some kind of malignant disease, either lymphadenoma or a variety of sarcoma. This view, I thought, best explained the gradual and unaccountable onset of his disease and the general diffusion of morbid growths, and seemed to be confirmed by the fact that he had never to his knowledge had primary syphilis or experienced any secondary symptoms. Still I was not quite satisfied with this opinion, and, moreover, was anxious to be able to take a hopeful view. And on pushing my inquiries I found, in the first place, that though, as far as he knew, he had never had syphilis, and certainly had no scar of old chancre, he had before marriage lived loosely, and might well have contracted the disease; in the second place, that the glands in the groin had become enlarged about three years previously, their enlargement being referred at the time to over-exertion in connexion with athletics; and lastly, that about fifteen months ago a swelling had appeared in his calf, which had ulcerated and formed a deep unhealthy sore, that the sore had spread until it had become nearly as large as the palm of the hand, and that at the end of six months it had healed, leaving a large irregular depressed cicatrix, which still remained. I concluded that this was really a tertiary syphilitic ulcer, and that there were good grounds after all for at any rate hoping that his complex disorders were also syphilitic. A few days later Mr. Timothy Holmes saw the case with us, and came to the same opinion that we had done. The patient was consequently put under a course of mercury and iodide of potassium. I heard no more of my patient until two or three years later, when I was asked to see him again in consultation. He was suffering from an attack of rheumatic fever. I then learnt, that he had rapidly improved under antisyphilitic treatment; that in the course of a few weeks he had been able to be removed to the seaside; and that at the end of a few months he had been restored to health. On the occasion of this visit, I found practically no traces of the various inflammations and tumours which he had formerly presented. I know that he was alive and carrying on his business, and presumably therefore well, a year ago.

I may be allowed to explain that I have not ventured to say on which side of the body the specific lesions were; because while I have a vivid recollection of all the more important features of the case, I am mainly indebted for the above description to the notes of an old clinical lecture of mine which states the facts briefly, but omits to specify these particulars, doubtless because when I gave the lecture there was no need to remind me of them.

The next case is one mainly of abdominal syphilis—that is, of syphilitic affection with gummata of the liver and spleen, and consequent ascites. It illustrates the abdominal phenomena (excepting obstruction of the vena cava) presented by my first case. In both the tumours were at first so large and irregular as to suggest the presence of malignant disease; but in the last, though they have not disappeared, they have become quiescent, apparently under the influence of iodide of potassium and mercury; and even in the case now under treatment there is distinct evidence that the growth has become arrested, even if it be not shrinking. In the case I am about to quote it will be observed that latterly the patient has been also suffering from intracranial syphilitic disease.