ON THE

DIFFERENTIAL DIAGNOSIS OF FUNCTIONAL
AND ORGANIC DISEASES OF THE HEART
IN ANÆMIC SUBJECTS.

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MY attention having been lately almost exclusively directed to the study of diseases incident to the heart and lungs, I have become the more and more convinced of the difficulty of recognising in the former, organic from mere functional disturbance, and am therefore induced to bring before your notice the two following cases, not so much on account of their rarity but rather from their extreme frequency, and because they serve to illustrate the chief points of difference, as well as the more immediate resemblances. With the hope that the more extended observation of those present, will be able to add to those few details in the diagnosis, which my limited experience has afforded me; and as the one is easily remediable, while the other terminates in death, or at any rate necessitates a life of danger, oppression, and discomfort, the prognosis and diagnosis must ever be of great interest to the patient and her friends, and of vast importance to the reputation of the medical man concerned.

CASE I.

R. B., aged 20, ægrot. six months. Admitted March, 1850. She was a tall strumous-looking girl, with dark long eyelashes, sallow countenance and pallid lips. At the age of 15 she began to menstruate, and since that time the menstrual periods had occurred at their proper intervals till within six months of her admittance, since which time they have been very irregular, the flux sometimes being profuse, but more frequently it has been slight in quantity, of short duration, and frequently not making its appearance until after the lapse of two months or more. No history of rheumatism, nor, as far as could be ascertained, any hereditary predisposition to cardiac disease.

On admission, she complained of giddiness; pain in the head; languor and indisposition to bodily and mental fatigue; dyspnoea, aggravated by exertion; and a source of oppression referable to the region of the heart. There was also considerable dyspepsia and slight anasarca situated about the ankles, disappearing on the prolonged assumption of the horizontal posture. Tongue pale, flabby, sodden, and indented; pulse small, quick and thrilling; urine natural in quantity and quality; bowels constipated; menstrual functions irregular; copious leucorrhœa.

On applying the stethoscope to the cardiac region, a distinct bruit was easily recognisable, accompanying the systole of the heart, not traceable either in the course of the great vessels, or into the axilla, but confined to the space occupied by the semilunar valves. Over the large veins of the neck a bruit de diable was very audible.

She was induced to keep perfectly quiet, and after having the bowels well relieved by a warm purge, to continue with the use of iron, ammonia, and decoction of aloes, in form of mixture, with a view to re-establish the regularity of the menstrual function, and to reinstate the normal condition of the blood. An injection of zinc and alum to be used night and morning to remove the leucorrhœa. Under this treatment she rapidly improved, the uterine functions became restored, the chlorosis and anæmia vanished, and, commensurably, also, the cardiac murmur and bruit de diable disappeared.

The diagnosis was, that the symptoms referable to the heart, with the murmur which accompanied them, were due to functional disturbance and not to organic lesion. This opinion being expressed in consequence of the existence of anæmia, disordered menstruation, the state of the pulse, and the small extent of surface over which the cardiac murmur was audible. The result proves the correctness of the opinion.

CASE II.

M. D., aged 17, ægrot. one year, admitted March, 1850. A girl somewhat below the middle stature, with hazel eyes, and nut-brown hair, countenance dull and sallow, lips livid. She began to menstruate at the age of 14, but the uterine functions have always been irregular, both with regard to the quantity of the discharge, its duration, and the intervals at which it made its appearance. About six years ago she suffered from acute rheumatism, from which, however, she soon recovered. No hereditary predisposition to heart disease. The general symptoms were precisely those of the former case, with the exception of rather more general anasarca. Tongue pale, flabby, indented; pulse small, irregular, unequal; heart's action heaving, voluminous, and heavy, bearing an evident disproportion to that of the pulse. A distinct murmur could be heard just below the nipple accompanying the systole, traceable into the axilla; bruit de diable very marked.

She was treated just as the former patient, and under the influence of remedies the anæmia disappeared, the bruit de diable vanished, and the general symptoms were much relieved, but never entirely removed; the slightest exertion causing dyspnoea and oppression, while the cardiac murmur remained persistent though diminished in intensity.

In consequence of the previous existence of rheumatism, the character of the pulse, and the extent of surface over which the cardiac murmur could be traced, it was feared that real organic disease was present; but as the condition of the system was such, as was of itself amply sufficient to give rise to an abnormal cardiac sound, the question of diagnosis was one of considerable difficulty, and was only solved by the remedies employed failing to remove the bruit, while they speedily restored the system.

The hints necessary to be attended to in forming the diagnosis are, as I imagine, the following:—

1. Sex of the patient.
2. Age.

3. Hereditary predisposition.
4. Previous history.
5. Present coexisting maladies.
6. Condition at time of examination.
7. Situation of murmur, and course of its sonorous vibrations.
8. Presence or absence of other physical stethoscopic signs.
9. Influence of remedies.

Sex, though put first, is perhaps the least important of all, except inasmuch as it is necessary to remember, that men do occasionally present themselves to our notice with that aspect, and all those symptoms which have been thought peculiar to the hysterical and chlorotic girl. But though men are subject to anæmia, and depraved conditions of the blood, women are much more so, from their natural proneness to hysterical excitement, exhalation or depression from slight and trivial causes; and in consequence of the frequency with which their menstrual functions are disturbed, menorrhagia in the one case giving rise to a deficiency in the quantity of circulating fluid, and chlorosis in the other, to a deterioration of its quality; hence cardiac murmurs are always more suspicious when occurring in the male, though the question of sex alone must always be a very secondary and inefficient auxiliary in leading to a correct diagnosis.

The age of the patient, though perhaps of but little moment when taken by itself, rises, however, into importance when considered with reference to other existing maladies; for those morbid conditions of the blood and nervous system which are especially fertile in giving rise to symptoms referrible to the heart, most frequently occur in young girls who have just emerged from the state of puberty, and whose menstrual functions and sexual organs are in a state of unwonted excitement, or in those who, having enjoyed single blessedness for a considerable period beyond that which they may consider appropriate, and whose passions have at different times been subjected to considerable elevation, and equally considerable depression, begin to think that it is not "good for woman to be alone." Whereas, on the other hand, organic disease of the heart and great vessels, is far more common in persons of an advanced age, and who have necessarily been subject to a more lengthened trial of the power of their circulating apparatus. Numberless cases might here be cited, showing the frequent occurrence of that disease in different individuals of the same family; and the experience of every one present will, I have no doubt, furnish him with numerous instances where cardiac disease has appeared to descend as a species of family heirloom. Hence even the knowledge of this fact, slight as it is, must not be heedlessly thrown away, as every tittle of information should be made available in discriminating between two diseases, concerning which I have not unfrequently seen the most talented and experienced baffled and at fault.

The previous history of the patient must always be carefully enquired into, especially with reference to the

previous existence of rheumatic fever, for experience has amply and lamentably testified that the sequel of this disease is frequently implication of the heart, the internal or external fibro-serous membrane of this organ suffering in precisely the same way as similar membranes about the joints; inflammatory deposits and adhesions either impeding the flow of blood through the natural orifices, giving rise to friction sounds, or allowing of its regurgitation, and occasioning thereby a murmur. If there be no previous history of acute rheumatism, and the patient be young, anæmic, and the menstrual functions irregular, we have just reason to hope that the bruit is merely functional; whereas, if acute rheumatism have previously existed there is much reason to fear that our worst apprehensions may be realised.

With regard to *coexisting maladies*, if there be a state of chlorosis or anæmia, arising from whatever causes, whether from recent loss of blood or profuse discharges, or any other condition which may give rise to a deficiency in the quantity or deterioration of the quality of the circulating fluid, we may be induced to consider, and probably justly (provided there be nothing in the character of the sound itself which is directly contradictory,) that the murmur is merely a symptom of disturbed circulation; whereas, if no such cause exist, we are compelled to look to the condition of the valves themselves as its explanation. If, in addition to this, the patient at the time of examination be perfectly tranquil, the pulse calm, and no venous excitement present, our fears become reduced to an absolute certainty; for it is asserted by one of the best auscultators of the present day, Dr. Hughes, that he never heard a purely functional or anæmic bruit when the auscultation has been in the condition I have mentioned; indeed it frequently happens that a patient presents himself with the pallid countenance and ashy lips of anæmia, with other symptoms referrible to the same abnormal sound, but yet his state can be detected on applying the ear over the region of the heart. On examining the pulse it is found to be perfectly tranquil and quiet. If we now desire the patient to run or walk quickly for a short distance, so as to accelerate the circulation of the blood, it will be found on the re-application of the stethoscope that a murmur has become distinctly audible, proving that the velocity of the current is a most important element in the production of this sound. It not unfrequently happens on the other hand, that a person shall suffer from organic cardiac disease, as manifested by the irregular, unequal, splashing pulse, and the absence of any anæmic condition, yet no abnormal sound can be appreciated; yet, if in this case the circulation be accelerated from any cause, a friction sound will become distinctly audible, which the previous tardiness of the current had been unable to develop in its passage over the roughened valve. Three such cases were but very lately in the hospital at the same time. Hence, though serious organic mischief may be present, and no bruit be audible, the pulse at the same time indicating tranquillity, yet when with such a condition of the circulation we hear a dis-

distinct murmur over the cardiac region, we are at once led to the conclusion that the bruit is due to organic disease in the heart itself.

The pulse is, perhaps after all, the best criterion, for with that condition of system which develops a functional bruit, it is quick, feeble, thrilling,—what is commonly called a hæmorrhagic pulse,—while in mitral disease it is irregular, unequal, remarkably small, and very disproportionate to the voluminous, heaving, heavy impulse of the heart itself, and in regurgitative disease of the aortic valves, it is splashing, giving exactly that sensation to the finger which is experienced by gently tapping an abdomen distended with fluid; it is hence called the water-hammer pulse.

The situation of the murmur is also of great importance: thus, in mitral disease, it is most audible just below the nipple, and can frequently be traced up into the axilla, and heard in the back; whereas functional murmurs are invariably situated over the region of the semilunar valves, being, however, recognised from those caused by deposits on the aortic valves, by the fact which has been lately pointed out by Dr. Hughes, and the accuracy of which I have had ample opportunities of testing, that, whereas, the latter can always be traced up in the course of the aorta; the former, in functional bruit, is generally very local, and can never be traced up in the course of the great vessels. This has led to the supposition that the cause of the sound is situated in the pulmonary artery, rather than in the aorta, but the subject is too wide, and the opinions too numerous and discrepant, for me to bring them forward in this place.

After we have made ourselves perfectly certain that an abnormal sound does exist, it behoves us next to examine whether other stethoscopic signs give any evidence for or against its being functional. If, then, on applying the instrument over the situation of the large veins in the neck, a loud continuous murmuring sound be audible, we may be perfectly certain that such a condition of the system or vessels exists, which is of itself amply sufficient to account for the abnormal bruit. But a state of anæmia may exist capable of producing a cardiac murmur, but incapable of giving rise to the bruit de diable, as it is called; still, when the latter is present, the probable inference is, that we have functional disturbance to deal with.

The influence of remedies can scarcely be left out of the question, for cases not unfrequently occur in which a state of anæmia, with its pathognomonic signs, coexists with serious organic disease, and it is then by patiently waiting the issue of the remedies employed, in clearing away the anæmic condition, and restoring the regularity of the uterine functions, that we are alone enabled to judge of the amount of real mischief which is left behind. To say so much is due to functional, and so much to organic disturbance, may be easy in theory, but it is most difficult, and often impossible, in practice.

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WE have received so many inquiries from members of the Association on the subject of the proper mode of proceeding in the County Courts, against illegal practitioners in medicine, that we have thought it desirable to print the following observations which have been put forth by the Society of Apothecaries, as a guide to the solicitor engaged to conduct any action which may be considered necessary:—

The action is brought to recover a penalty of £20, alleged to have been incurred by the defendant by practising as an apothecary without legal qualification.

The precise offence imputed in these cases is that the defendant, not having been in practice as an apothecary prior to the 1st August, 1815, has practised as an apothecary without having obtained a certificate of qualification from the Court of Examiners of the Society of Apothecaries, which is made an offence by the 14th section of the Act 55 George III., c. xciv., commonly called the Apothecaries' Act,) and by the 20th section of the Act a penalty of £20 is imposed upon the person so offending.

The 26th section provides that this penalty shall be recovered by action or suit at law, in the name of the Society of Apothecaries, in any of Her Majesty's Courts of Record in England or Wales; and the Society have been advised that an action for the penalty may be maintained in the County Courts, constituted under the Statute of the 9th and 10th Vict., c. 95, (the County Courts' Act,) and such an action has, in fact, been brought in one of the Metropolitan County Courts, and a judgment for the penalty obtained.

The action must be brought in the name of "the Master, Wardens, and Society of the Art and Mystery of Apothecaries of the city of London," and may be described in the summons as "an action of debt by Statute." The particulars of demand may be in the form given at the foot of these observations.

Before commencing proceedings it should be clearly ascertained that the defendant was not in practice as an apothecary prior to the 1st August, 1815, and, in the next place that he did not hold a commission or warrant as Surgeon or Assistant-Surgeon in the Navy or Army, or in the service of the East India Company, which bore date prior to the 1st August, 1826. 6 Geo. IV., c. cxxxiii., s. 4. *Stevenson v. Oliver*, 8 Meeson and Welsby, 234. *Milbanke v. Grant*, 3 Ad. & Ell. N.S. 690.

If the defendant is not exempt from the operation of the Apothecaries' Act on either of the grounds above referred to, and has practised as an apothecary without having obtained the certificate of qualification required by the Act, he is liable to the penalty of £20 imposed by the 20th section.

The practice of the apothecary consists in attending