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CLINICAL LECTURES.

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LECTURE IV.

DISEASE OF THE HEART AND LUNGS.

In directing your attention on a previous evening to the case of Hannah Flinn, I confined my observations entirely to the indications which are afforded of pulmonary disease, and an enquiry into its probable origin, nature, and issue.

You will perhaps recollect that I attributed the origin of her cough and dyspnoea to the congested state of the pulmonary vessels which occurred during her last pregnancy, when the tone and vigour of the constitution were greatly enfeebled by long continued bad health.

I further told you that I do not regard the partial condensation which exists at the upper portion of the right lung as tubercular, but rather as the consequence of the effusion of some of the natural constituents of the blood into the pulmonary tissue.

I likewise told you, that if Mrs. Flinn's complaints were entirely confined to the lungs, I should entertain a strong hope, that by the exercise of great care, and the use of proper remedies, she might ultimately recover. But at the same time I intimated that there is too much extensive structural mischief existing in the heart to admit of her restoration to health.

I now proceed to enquire into the nature of the affection of the heart, its probable origin, and immediate consequences.

1. *The Nature of the Disease of the Heart.*—In attempting to determine this question, it will be necessary to review the different signs and symptoms of heart-disease which the case presents: these are partly general and partly special. Amongst the general symptoms indicative of a disturbed condition of the heart, we must notice palpitation, dyspnoea, and the state of the pulse; whilst the special signs will include all the particulars with which we become acquainted by a physical examination of the præcordial region. These particulars have already been related to you, but it now remains that I should interpret their meaning.

In the first place, however, I will make a few remarks respecting the general symptoms. Now, on this branch of the subject I may observe, that what are called "general symptoms," afford very little information, and that little of a very imperfect character, respecting the existence of heart-disease. Nay, I may proceed even further than this and remark, that *by general symptoms alone* it would not only be impossible to point out the

precise seat of lesion in a given case, but even positively to determine respecting the existence of structural disease. But my remarks at present must be confined to the symptoms presented by the case under consideration. Let us briefly notice these in the order in which they have been enumerated.

1. *Palpitation.*—This term does not, by any means, imply an irregular or tumultuous action of the heart, but simply that the action is somewhat excited and rendered sensible to the individual. Under ordinary circumstances, you know, the heart beats without our being aware of it; and whenever its motions are felt by the patient, he announces the circumstance by the use of the term we are considering. Now, palpitation alone gives us no information respecting the nature of cardiac disease; it does not even assure us that such disease exists. It is true this symptom is often present along with other indications of organic change; but then the lesions which it accompanies differ most widely from each other. At one time they are seated in the valves, at another in the muscular tissue; in one case we may have hypertrophy, and in another simple dilatation. But further, palpitation is often a very troublesome symptom when there is no disease of the heart: thus we meet with it in what are called lesions of innervation in hysteria, dyspepsia, chlorosis, and a variety of other affections which need not now to be enumerated. Once more I may remark, that the character of the palpitation will not enable you to determine its immediate cause. It is often more violent and troublesome in inorganic affections than in cases where there is extensive structural mischief. Observe, then, palpitation is a very fallacious symptom, and is only valuable as an indication of heart-disease, when it co-exists with other evidence of a more decided character. This was the fact in the case of Hannah Flinn.

2. *Dyspnoea.*—I have already intimated, in the last lecture, that whatever disturbs the relative quantity of blood and air existing in the lungs, occasions dyspnoea. In the present case such disturbance doubtless exists, and consists in a hyperæmatic condition of the pulmonary vessels. In what way this is occasioned I shall not now stop to enquire, but merely remark, in general, that it depends upon an impediment to the free entrance of the blood which is brought by the pulmonary veins into the left side of the heart. It is unnecessary for me to dwell on the value of the symptom we are now considering as indicative of disease of the heart; you are doubtless aware that it is often present when the heart is entirely free from lesion, and that it must therefore be viewed in connection with other symptoms.

3. Pulse.—Before physical diagnosis was so well understood and so extensively practised as it is at present, the state of the pulse was regarded as the best criterion of the condition of the heart; but in such affections it is a fallacious guide, and its indications must be received with great caution. It is true that organic changes in the heart almost invariably occasion some variation in the state of the pulse, but we often meet with precisely the same variations in the entire absence of all structural alteration. In the case of Hannah Flinn, it is quick, feeble, and regular. We shall, probably, have occasion to revert to this character of the pulse again presently.

It appears, then, that the three symptoms we have been considering, may easily be accounted for on the hypothesis of disease of the heart being present; but that, nevertheless, they are not of such a character as to warrant us coming to a positive opinion in the absence of other more decided indications. This leads me to review, as briefly as possible, the physical signs which are afforded in the case we are considering:—

Percussion over the region of the heart yields a more extensively dull sound than natural; the impulse is rather weak; the apex beats about an inch and a half below the nipple, and in a line with it. Now I draw three distinct inferences from the statement I have just made. I infer, in the first place, that the heart is enlarged, and consequently occupies a larger space in the chest than it ought to do. You will observe that I am taking it for granted that the increased dullness is not occasioned either by condensation of any portion of the lower lobe of the left lung, or by effusion into the pleura, a conclusion in which I am justified by the physical examination of the lungs, the particulars of which have been already detailed.

Secondly, I infer, that although the heart is larger than natural, the enlargement is not excessive; in other words, it is moderate. I come to this conclusion chiefly from the position of the heart, as this is ascertained by the situation in which the apex is felt. In cases where the enlargement is very great, the position of the heart becomes altered; it cannot find room in a vertical direction, in consequence of which it partially turns upon itself, until in advanced cases, the apex is felt to beat in a line with the anterior fold of the axilla. The position of the apex, taken in connection with the extent of dullness, I consider to be a pretty accurate measure of the size of the heart; but this will doubtless be to some extent influenced by the size and form of the chest. In the case of our patient, the chest is tolerably well formed and capacious; and you will observe that the apex of the heart beats a little below the left nipple, and in a direct line with it. It is this circumstance which leads me to suppose that the enlargement is moderate.

Thirdly, I infer that the walls of the heart are not abnormally thick. This conclusion is warranted by the force of the impulse. In cases of hypertrophy the impulse is increased; it is often sufficient distinctly to raise the head of the auscultator, and may frequently be seen as well as felt. This great increase in the amount of impulse is most commonly met with where hypertrophy co-exists with general enlargement.

I now proceed to explain what I believe to be indicated by the abnormal murmurs which are heard in the region of the heart. I have previously pointed out

to you the existence of a rough murmur, heard loudest at the apex, which accompanies, or almost supersedes, the first sound of the heart. This murmur is also heard very plainly about an inch above the ensiform cartilage, and along the course of the sternum; but it diminishes as we proceed upward: it is likewise slightly heard along the course of the aorta, but not in the carotids, and is distinctly audible along the dorsal vertebræ. The second sound is normal. The natural sounds of the heart, you are aware, are two in number: the first corresponds with the systole or contraction of the ventricles; and the second with the diastole or dilatation of the ventricles. I shall not stop to inquire into the immediate causes of these sounds. We shall, doubtless, have other opportunities of prosecuting such an inquiry; at present I shall confine myself to the particulars of the case before us. I must remark, however, that a murmur accompanying the first sound of the heart may be occasioned by a variety of causes; it may depend upon an abnormal condition of the auriculo-ventricular opening on either the right or left side, on a morbid state of the mitral or tricuspid valve, on præternatural contraction of the commencement of the aorta or pulmonary artery, or on a diseased condition of the valves with which those vessels are supplied. I observe, further, that a systolic murmur may be indicative either of obstruction or regurgitation. In those cases, for example, where an impediment exists, from whatever cause, to the free entrance of the blood into the aorta, there is a systolic murmur; and there is a similar murmur occasioned when the contracting ventricle forces a quantity of blood back again into the auricle through an unclosed auriculo-ventricular opening.

Now, it is very important to distinguish on which of these lesions the morbid sound depends, in a given case, because the knowledge of this will very materially influence the treatment. I am perfectly aware that many writers contend that this knowledge cannot be obtained during the life of the patient; they almost ridicule the idea of localizing valvular disease; but I must warn you against the danger of being unduly influenced by the authority of great names. The science of medicine is a science of observation, and every one who enters the portals of our profession ought patiently and carefully to examine for himself. For my own part I do not hesitate to declare my firm conviction of the possibility of ascertaining the precise seat of lesion in cases of regurgitant or obstructive disease of the heart. Nay, I will even go further than this, and add that, generally speaking, the attainment of this information is not difficult.

But although I speak thus confidently, after several years patient attention to the subject in a field which has afforded me ample means of observation, I must also acknowledge that there are many sources of fallacy, and therefore the diagnosis requires the exercise of great care. Superficial or hasty observers often fall into serious errors, and even those who are more careful and profound are occasionally mistaken in the opinions which they form. I believe it to be impossible, without the aid of the stethoscope, to form an accurate diagnosis in case of disease of the heart; but when we possess all the assistance this instrument can afford, our judgments are far from being infallible. The value of the stethoscope, as a means of diagnosis in all pectoral diseases, is very generally admitted; but even at

the present day we now and then meet with individuals who treat it with ridicule and contempt. Such persons have never patiently investigated its claims—they have not made it their constant companion at the bedside, and in fatal cases tested the truth of the information it afforded by *post-mortem* examination. There are others again who use the instrument from time to time whilst they are only very imperfectly acquainted with the meaning of the indications which it affords, and consequently they commit frequent mistakes. And once more, there are those who place too implicit reliance on stethoscopic indications—who despise or disregard all other means of diagnosis; and they also fall into error. I recommend to you a constant, but at the same time, a careful use of this instrument. It should assist and not supplant the other diagnostic means which you possess. But we must pass on to notice the indications afforded by the stethoscope in the case which is now more particularly under consideration.

You will observe then, that the abnormal murmurs are heard most distinctly at the apex of the heart, a little above the ensiform cartilage and along the dorsal vertebræ. Now, when a murmur accompanying the first sound, is heard most distinctly at the apex of the heart, especially if its character be rough, I believe it indicates regurgitation through the mitral opening. When a similar murmur is heard on the sternum a little above the ensiform cartilage, louder than at the apex, it is almost invariably connected with regurgitation through the right auriculo-ventricular opening; and when it is most distinctly perceived at the upper third of the sternum or at the third costal cartilage, and particularly when it is conducted along the course of the aorta and into the carotids, it is occasioned by some obstruction existing at the commencement of the aorta.

Now, if these observations be correct, we cannot resist the conclusion that in the case of Hannah Flinn, there is double regurgitation—regurgitation through both the mitral and tricuspid openings, whilst there is no disease of the semilunar valves. But let us be a little more particular. I conclude that there is mitral regurgitation in the present case, not simply because a loud rough murmur is heard most distinctly at the apex of the heart, but also because this view is strengthened by other symptoms. And here we must not overlook the murmur which is very audible along the dorsal vertebræ, for this may be occasioned by mitral disease, as well as by disease existing in the coats of the aorta. The state of the pulse further corroborates this view of the case. Some persons, however, who place implicit reliance on the statements of Dr. Hope, whose excellent work on diseases of the heart I would not for one moment disparage, may be ready to question the accuracy of my diagnosis from the state of the pulse. The following are Dr. Hope's observations on this subject:—"When the mitral valve is contracted, and also when it admits of free regurgitation, the pulse is in various degrees small, weak, irregular, intermittent, and unequal. When either the contraction or the regurgitation is great, the whole of these characters are invariably present." Now, in the case before us, the pulse is small, quick, and feeble, but neither irregular, intermittent, nor unequal. At each visit since her admission the pulse has been felt, but its character has not varied. It is obvious, therefore,

either that intermittence and irregularity of the pulse are not necessarily connected with mitral disease, or that the present case does not furnish an example of this lesion.

Now, I maintain, that there is no necessary connection between irregularity and intermission of the pulse, and mitral regurgitation. These peculiarities often exist when there is no disease of the mitral opening, and they are frequently wanting where such disease is present. I believe that they do not depend upon any structural change, but rather on the state of the heart in reference to nutrition and innervation. But although mitral regurgitation is not necessarily accompanied by intermission and irregularity of the pulse, it must of course occasion feebleness, because at every ventricular systole, instead of the aorta being filled with blood, part of it is thrown back again through the patulous opening into the left auricle. Now, this is precisely the character of pulse which we have in the case of Mrs. Flinn—it is small and feeble.

Again, I have stated that there is regurgitation through the tricuspid opening as well as through the mitral. I conclude that this is the case, partly from the loudness of the murmur at the lower third of the sternum, partly from the presence of one particular symptom, and partly from the consequences which we shall presently consider.

When a loud rasping murmur is occasioned by disease on the left side of the heart, it is also heard by conduction in other parts of the præcordial region; but the distinctness with which it is heard diminishes in proportion as the stethoscope is moved from the immediate seat of lesion. Now, in the case of our patient, I consider the murmur to be too loud at the lower part of the sternum to be caused by the abnormal state of the left side. I believe, in short, that there is regurgitation through the right auriculo-ventricular opening, as well as through the left. I am strengthened in this view by the constant presence of jugular pulsation, a symptom which, so far as I have observed, always accompanies regurgitant disease on the right side.

It has previously been intimated that obstructive disease of the aortic valves would occasion a murmur with the first sound of the heart. I am of opinion, however, that in the present case the semilunar valves are not materially affected. I come to this conclusion partly from the diminished intensity of the murmur in the neighbourhood of the aortic valves, from the comparative feebleness of the sound along the course of the aorta, and from its absence in the carotids; and partly from the second sound of the heart being normal. If there were sufficient obstruction afforded by disease in the semilunar valves to occasion the loud systolic murmur, there would also be aortic regurgitation; the valves would not completely close the commencement of the vessel, and a murmur would consequently accompany or supersede the second sound.

In the last number of *Guy's Hospital Reports*, Dr. Barlow has intimated his belief, that a distended condition of the right ventricle may give rise to a systolic murmur, and that such distention may therefore be mistaken for mitral regurgitant disease. On this hypothesis I shall suspend my judgment till the appearance of the publication in which, "by a large induction of facts," Dr. Barlow hopes to establish the truth of his opinion.

2. *The Nature of the Affection of the Heart.*—On this branch of the subject I must be very brief, although it affords ample scope for observation. The two sides of the heart we know are not equally liable to disease; the left side much more frequently suffers than the right. Into the whole of the circumstances which produce this greater or less proclivity to disease in the two sides, it is impossible for me to enter in the present lecture: I can only remark that it is doubtless partly attributable to the different qualities of the blood which circulates through the several cavities. Regurgitation on the left side is generally met with in connection with a diseased condition of the mitral valve, the result, commonly of acute or chronic inflammation; whilst on the right side, so far as my own observation goes, regurgitation is most frequently owing to dilatation of the auriculo-ventricular opening, and is independent of disease of the tricuspid valve. In the case before us, I conceive we shall, in all probability, meet with these distinctions, provided our patient should die in the house.

3. *The Consequences of the Cardiac Affection.*—This is a very interesting subject, but I can only allude to two of the more prominent points which present themselves in the case we are considering.

In the first place we have cough and dyspnoea. We have already noticed these symptoms in connection with the condition of the lungs; but I must here remark, that even if there had been no structural affection of the lungs, the state of the heart is sufficient to occasion the disturbance which exists in the function of respiration. You will bear in mind that there is free regurgitation through the mitral opening, and consequently the left auricle is incapable of receiving the whole of the blood which is brought from the lungs by the pulmonary veins. Hyperæmia of the pulmonary vessels is the inevitable result, and this will necessarily give rise to cough and difficulty of breathing.

Secondly, there is extensive dropsical effusion. This symptom is very commonly met with in diseases of the heart, and may be regarded as an effort of nature to relieve the affected organ. In the present case I believe the effusion to be occasioned by the abnormal condition of the right side of the heart. In consequence of the regurgitation which takes place through the tricuspid opening, the right auricle cannot receive the whole of the blood which is brought to it by the large veins. The regurgitation, in fact, constitutes a virtual obstruction: and consequently general venous distention, operating in a retrograde direction, is occasioned; and this distention is relieved by the smaller vessels, pouring out the thinner portion of their contents.

The principal objects to be kept in view in the treatment of this case are to support the general strength; to allay excessive irritability of the heart, to promote the free action of the kidneys, and to relieve the abnormal condition of the pulmonary circulation. In what way these several indications are to be fulfilled, my present limits do not permit me to explain.

SOME ACCOUNT OF THE EPIDEMIC FEVER WHICH PREVAILED IN LIVERPOOL, IN THE LATTER MONTHS OF THE YEAR 1844.

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Ireland.

(Continued from page 35.)

DETAILS AND SUMMARY OF PRIVATE CASES.

To Mr. Chalmers, of Everton, I am indebted for the following particulars:—

Date of first case, 27th of October, 1844.

Date of last case, 10th of February, 1845.

Mild 30 Severe 32 Total 63

Age—From 3 years to 70 years.

Sex—Males, 21; Females 42.

Simple or essential—(at least presenting but slight abdominal tendency,) 25.

Complications—Cerebral and abdominal, mostly; cerebral, abdominal, and thoracic, 1; almost all the cases had some abdominal complications.

In one instance there was fistulous ulcer of the fauces, and ulceration of the mouth and lips, continuing all through the fever. Nitric acid was used beneficially.

In another, paralysis of the left side, presenting also difficult respiration from oppression of the brain.

A third exhibited inflammation of the elbow-joint, accompanied with relief of the head-symptoms; then suppuration came on with great discharge, lasting four days; it healed up at once.

A fourth presented synovitis of the right knee-joint, which, like the preceding, terminated in resolution. Iodine painting used.

In three cases a dangerous quantity of blood was passed per anum.

In one there was spitting of blood.

In one ulceration and discharge of blood from the back part of the nostrils and throat.

Deaths—Seven; of which the proximate or secondary cause was from—

Effusion into the brain	2
Previous chronic bronchitis	2
Recent bronchitis	1
Head, chest, and abdominal complication	1
Perforation of the intestine	1

The *post-mortem* appearances in this last were “perforation in five places and ulceration in as many more, extending from about six inches from the ileo-cæcal valve upwards for two feet.”

Mr. Lewis reports, that the cases which passed under his observation, “varied much in their type and duration.” I shall quote his own words further:—“I had four cases in one family, two of which proved fatal. Three of these were true typhus; the other cases were more properly continued fever. The symptoms they had in common, were mild delirium, disposition to sleep, much deafness, dryness of the skin, tremor of the tongue. No particular organ seemed to be especially affected—i. e., there was no uniformity in the complications. A serious relapse happened in one case after advanced convalescence, from eating a too hearty meal of cockles and tea. The duration varied from three or four days to four or five weeks; the convalescence was slow and prolonged.