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EAST SUFFOLK AND IPSWICH HOSPITAL.

CASES WITH OBSERVATIONS,

BY

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RHEUMATIC AFFECTION OF HEART—TUBERCULOUS CAVITY IN RIGHT LUNG—DEATH—INSPECTION.

Elizabeth Scrivener, aged eleven, three years ago was the subject of acute pericarditis supervening on rheumatic fever; since which period she has been incapable of exertion, and suffered more or less from dyspnœa, palpitation, and dull pain in the region of the heart.

On application for relief, the prominent symptoms were—great debility and emaciation; no cough; bowels confined; urine diminished in quantity, depositing lithates; heart's impulse strongly increased, heaving and palpably raising the head of the observer; the pulse synchronous, and corresponding with it. The physical signs were—greatly extended dulness over the cardiac space; the sounds of the organ audible to the right of the sternum and beneath the clavicles; a distinct and persistent, though not loud, bruit de soufflet accompanying the second sound, most distinct over the sternum and heard as high as the right sterno-clavicular articulation; the apex of the heart visibly pulsated as low as the seventh rib; the respiratory murmur was healthy over the entire anterior chest, and as the patient was reported to have no cough the posterior aspect was unfortunately not examined.

The diagnosis formed was hypertrophy with dilatation of the entire heart, with disease of the aortic valves, permitting slight regurgitation.

Throughout the treatment, which was principally palliative, the patient, with the exception of increasing emaciation, remained nearly in the same state. A few days, however, before death, the legs and thighs became rapidly œdematous, and indistinct abdominal fluctuation was perceptible. She finally sank with very little suffering.

Inspection, Sixteen Hours after Death.

The entire body much emaciated; legs and thighs œdematous; abdomen much distended, partially tympanitic; the depending parts of the body deeply purple, from sanguineous gravitation. The two folds of the pericardium adhered closely throughout their whole extent; the auricles were slightly dilated; the parietes of both ventricles enormously hypertrophied, and their capacities increased; the columnæ carneæ enlarged and very prominent; the aortic semilunar valves were retracted, and bound down by adhesions, consequently insufficient; the tricuspid and mitral valves simple thickened. The aorta was vascular and somewhat dilated. The pleura costalis and pulmonalis of the left side were limited by cellular bands of

not very recent origin, requiring some force to break them down; the lung of the same side was healthy. A cavity, the size of a filbert, was discovered in the posterior surface of the middle lobe of the right lung, containing softened tuberculous matter, and surrounded to the extent of an inch by grey and yellow matter of a similar character. This was the only spot in either lung in which any trace of tuberculous deposit existed. The apices of the lungs were carefully examined, but found healthy. The peritoneal cavity contained a considerable quantity of serum; the liver was large from venous congestion; the remaining abdominal viscera healthy.

REMARKS.

In the above case the history of the disease is well marked, and from the frequency of its occurrence is one from which a few practical deductions may, I think, be advantageously drawn. The patient enjoyed good health up to the period of the attack; she then, from the combined influence of cold and wet, became the subject of acute rheumatism, on which supervened pericardial inflammation; this appears to have been partially combated, but still the occasional dyspnœa, palpitation, and dull pain over the heart, proved too truly the slow but certain advance of chronic inflammatory disease. On her admission to the books of the hospital, the diagnosis then formed was fully verified by the subsequent examination. The increased and heaving impetus, together with the diffusion of the heart's sounds, and the extended dulness as elicited by percussion, proved the existence of hypertrophy and dilatation, while the persistent bruit with the second sound, chiefly audible at mid-sternum, and extending towards the neck, further demonstrated the site and nature of the valvular implication.

Of the existence of adherent pericardium, no diagnostic sign in this case presented itself; indeed I am not aware, farther than by tracing the disease from its commencement, that any direct general or physical sign can be adduced as confirmatory of this lesion. It has been remarked by some observers, that a certain undulation or dragging in of the intercostal spaces to the left of the ensiform cartilage, accompanies the heart's action in adherent pericardium; but on the presence or non-existence of this sign as a diagnostic auxiliary too much reliance must not, I think, be placed. Want of mobility in the heart itself, when, by change of position, such can be accurately ascertained to exist, becomes, perhaps, together with the history of the case, an indication of no ordinary importance.

Notwithstanding that the little patient as well as her mother had been repeatedly questioned as to the existence of cough, the answer was always in the negative; although it was admitted that, twelve months previously, cough had been present, with very slight frothy expectoration.

This fact, together with the perfectly healthy respiration obtaining over the entire front chest, induced the omission of an examination posteriorly.

The case offers a good example of that rare variety of phthisis, in which either the middle or lower lobes become tuberculous, and run through their course, the apices remaining unaffected, while at the same time it proves the importance of carefully examining in all instances of suspected phthisis, both aspects of the lungs.

With the exception of M. Bouillaud in Paris, the merit of investigating the frequent connexion subsisting between acute rheumatism and an inflammatory condition of the heart and its membranes, is mainly due to British physicians; but even at the present day, I feel persuaded, that from neglect of daily and careful stethoscopic exploration of the heart in *all* cases of acute rheumatism, more especially in young subjects, this disease becomes one of the most fruitful, at the same time unsuspected sources of that painful category of heart affection, which so constantly, both in private and hospital practice, presents itself with all its attendant ills to our notice.

It has been computed that one-half of the cases of rheumatic fever, admitted into the London hospitals, are found to have the heart or its membranes more or less implicated; and so frequent is this complication in Paris, that M. Bouillaud esteems its presence as the rule, the converse as the exception.

Dr. Watson, in his valuable lectures, observes that "the cardiac affection may easily be overlooked, both by the patient and the physician. The recovery may appear to be perfect. But after some time palpitation begins to be occasionally felt, and by degrees other symptoms marking disease of the heart declare themselves, but their origin is unsuspected or forgotten." I have already hinted at the increased vigilance called for in conducting a case of acute rheumatism, occurring in an individual under the age of puberty. Dr. Watson states that he has known only two persons pass through the disease with an untouched heart prior to that age; and even in these (occurring towards the close of scarlet-fever), he expresses a doubt as to whether the articular disease were "genuine rheumatism."

I have not kept a record of the cases of acute rheumatism, occurring below the age of puberty, which have fallen under my own observations, but I cannot call to mind a single instance in which the heart or its pericardial sac, but more frequently the internal lining membrane, were not more or less implicated.

Although pain in the region of the heart is a pretty constant symptom shortly after that organ becomes affected, yet, as an isolated phenomenon, it must be esteemed the most fallacious of any, since cases not unfrequently advance to an irremediable extent, that symptom being entirely absent.

The character of the pain when present varies considerably; in some cases it assumes the nature of a pleuritic stitch, aggravated by inspiration, while in others it is described as a deep-seated burning uneasiness.

In acute cases the pain is in general confined to the region of the heart; but if the attacks have been frequent, so as to have produced disorganisation of

the textures, it not unfrequently is felt equally between the shoulders and down the left arm. If the pericardial inflammation be recent and acute, considerable pain is produced by firm pressure of the points of the fingers, between the intercostal spaces corresponding to the situation of the heart; this is often rendered more evident by simultaneous pressure upwards from the epigastrium. The pulse varies greatly; it is in general quick and jerking, but as the disease advances becomes weak and intermitting; and the heart's action, although sometimes tumultuous, as frequently remains entirely free from palpitation.

When fluid effusion has taken place into the pericardial sac, we have then marked distress depicted in the countenance, more or less cough and dyspnoea, with a rigid determination for the most part passively to remain in the supine position.

The occurrence of the preceding phenomena in the progress of a case of acute rheumatism, together with the usual symptoms of inflammatory fever, cannot fail to apprise us of the serious change that has taken place in our patient. But, on the other hand, these symptoms do not clearly point out the precise nature of the lesion which exists, inasmuch as the most formidable disorganisation may take place without the occurrence of any local symptom whatever. It is, then, on our physical resources that we must mainly rely; and in no disease, if carefully investigated, may we expect to obtain more definite or valuable results. And still further, to direct attention to the importance of repeated stethoscopic examination during the progress of rheumatic fever, I would briefly allude to the fact of the brain in some instances becoming functionally, though apparently primarily affected, and in many instances of which the attention has been altogether drawn away from the heart by the deceptive violence of the cerebral symptoms. In the majority of recorded cases that have terminated fatally, the brain and its membranes have been found intact, while the heart or pericardium have exhibited extensive disease. This circumstance has been ably noticed by Drs. Watson, Macleod, Latham, Andral, and others, and is a fact of the greatest moment in practice never to be lost sight of.

In the words of Dr. Watson, "Whenever in acute rheumatism you find your patient flighty, or wandering, or more distinctly delirious, examine carefully the condition of his *heart*."

For practical purposes, the physical phenomena induced by rheumatic inflammation of the heart or its covering will, I apprehend, be best considered in connection with the morbid changes to which their different structures are liable in this disease; and this arrangement may be farther simplified by limiting the sounds usually met with to two: the one a sound of friction or rubbing; the other that of blowing, of varied intensity. The former depends principally upon attrition between the two surfaces of the pericardium; the latter is chiefly attributable to alteration of structure in the lining membrane of the heart or its valves, and caused by the friction of the blood passing over and through the affected apertures.

The morbid appearances met with after death in rheumatic do not differ from those resulting from ordinary pericarditis, and, therefore, need not in the

present instance occupy attention, farther than by elucidating the auscultatory phenomena.

At the inflammatory or incipient stage of pericarditis, an educated ear may, with care, detect a dry, gentle, rustling sound, superficial, occasionally absent, and again recurring perhaps with increased intensity. The rhythm of the heart may as yet remain unaffected, or more generally from a congested state of that viscus it becomes frequent and abrupt. Percussion does not yield a marked alteration.

This incipient pericarditis, if not checked, rapidly passes to the stage of effusion of lymph, and the formation of false membranes. The gentle rustle then becomes a direct and often harsh friction sound, implying, according to its intensity, that the pseudo-membranes are thick, rough, and uneven. It is usually of greatest intensity in the vicinity of the nipple, and, if the heart's action be not very tumultuous, will generally be found most distinct during the systole, and when the patient is erect or leans forward. The variations of the attrition sound into those resembling that produced by the creaking of new leather, rasping, &c., depend solely on the degree and firmness of the asperities deposited upon and between the opposing surfaces of the pericardium. At this stage, if the action of the heart be very strong, it is often accompanied by a vibratory tremor.

The period during which the sound of friction is audible is very limited, for either will the opposing surfaces of the pericardium become separated by liquid effusion, or they will undergo permanent adhesion. In either case, the friction being prevented, the sound, of course, will be no longer audible. Excepting in the rare instance of the pericardial sac being covered by an extensively emphysematous lung, the diagnosis at this stage will not in general be attended with difficulty. The impulse of the heart will now be neither seen nor felt, and, in proportion to the quantity of fluid contained in the cavity of the pericardium, will the intercostal digitations become levelled, and the precordial region be rendered prominent. The operation of percussion, which, if possible, should be practised both when the patient is in the lying and sitting posture, will now yield a dull sound, in extent varying, of course, with the amount of fluid. The signs of friction, together with the impulse of the heart, have now ceased; and the sounds of that organ are transmitted feebly, perhaps irregularly, and from a distance. On the removal of the fluid, the phenomena of attrition become again audible, and finally cease, either by the absorption of the lymph as a result of treatment, or by the supervention of adhesion, with formation of false membranes between the two surfaces of the pericardium. The effusion consequent on pericarditis has been mistaken for that of pleuritis. By attention to the locality of the signs in the two diseases, this error cannot frequently be committed. In the former disease the want of sonoriety is limited to the antero-inferior region of the left side, the posterior surface remaining unaffected; while the converse of this condition obtaining in the latter affection will, with ordinary tact, unless the diseases be very complicated, render the diagnosis comparatively easy. Important as is unquestionably the early discovery of an extension of the rheumatic inflammation to the pericardium,

of far more consequence is the detection of those changes to which the valvular apparatus and internal lining membrane of the heart so frequently become prone. The remote effects of endocarditis are of the most serious import, for, while the machinery of life may continue with tolerable precision notwithstanding an adherent pericardium, the consequences of this affection, both as regards the heart itself and the functions of the system at large, are of the most alarming and destructive nature.

Inflammation of the lining membrane of the heart is of much more frequent occurrence in connection with acute rheumatism than pericarditis; and as the symptoms are often less developed, it becomes us to use double vigilance, in order to detect by the aid of physical signs, its earliest approach.

The immediate pathological effects of the disease are to impair the action of the valves, by narrowing their orifices, altering their structure either by thickening, adhesions, or fibrinous deposit in the form of granules or vegetations—or, lastly, by rendering the naturally smooth surface of the internal membrane of the heart rugose and uneven, thus presenting an obstacle to the course of the blood, and hence causing hypertrophy, dilatation, and sooner or later fatal dropsy.

The aortic and mitral valves being the most tendinous, are chiefly and equally prone to the attack, and to these, of course, our attention ought primarily to be directed.

The character and intensity of the sound, diagnostic of the lesion now under consideration, whether in degree the soft-blowing murmur, or amounting to a true "bruit de rapt," depend upon the resistance offered to the circulating fluid, and are in fact merely modifications of the same sound.

If this obstruction be considerable, and the deposit on the valves or affected membrane be extensive, and more especially if the nature of the deposit approach to cartilage or bone, then we have in addition to the greatest intensity of blowing a palpable vibratory tremor.

Although the precise changes which have taken place in the valvular apparatus do not materially affect the treatment, nevertheless, as the future well-being of the patient, and the prevention of the most deplorable consequences, hinge *in toto* on the early detection of an extension of the inflammation to the heart and its membranes, a correct knowledge of the nature, situation, and diagnostic signs of valvular disease, ought never to be considered an unnecessary refinement. If, then, we find a persistent blowing murmur accompanying the first sound of the heart, its maximum at the base of that organ (above the nipple), and farther, if it be transmitted to the large arteries, we may diagnose stricture of the aortic valves; if a similar murmur be audible in the same locality, and under like circumstances, but accompanying the second sound of the organ, we then diagnose a patency of this orifice, admitting regurgitation. When, on the other hand, the maximum of the morbid sound is heard at the apex of the heart (below the nipple), consonant with the systolic or first sound of that viscus, and not propagated in the large arteries, an insufficiency of the auriculo-ventricular valve obtains; while the reverse of this, *viz.*, stricture of

this aperture, is indicated by the murmur accompanying the second sound having its greatest intensity below the nipple, and not transmitted upwards to the arterial trunks.

A double blowing sound accompanying both the systole and the diastole is rather indicative of a mixed lesion of a single than of two separate orifices, producing stricture of the aperture with insufficiency of its valves.

Endocarditis in general assumes the subacute or chronic form; but if the inflammation of the internal lining membrane of the heart be acute, and accompanied by much turgescence of its muscular structure, percussion will then indicate an abnormal extent of dulness, while the action of the organ will be abrupt, irregular, and intermittent.

The prognosis in rheumatic inflammation of the heart or pericardium, provided that the requisite treatment be adopted with promptitude and persevered in with energy, may be considered favorable; the instances of death occurring in the acute stage, being chiefly among those whose constitutions are weak or broken down by previous disease.

In the treatment of the above affection, provided we have an opportunity of seeing it at the very onset, our main object should be to endeavour to extinguish the inflammation prior to the exudation of coagulable lymph, and to this end our reliance must chiefly be placed in blood-letting, purging, and mercury. In order, however, to ensure the full benefit derivable from these means, our practice must from the first be vigorous. From the peculiar functions of the organ affected, the quantity of blood required to be extracted will be less readily borne without fainting than when the rheumatism is strictly confined to the joints; a repetition of this measure, therefore, becomes necessary, and in acute cases it will often require to be repeated twice or thrice in the first twenty-four hours. In conjunction with general depletion, the local abstraction of blood by leeches and cupping proves a most important auxiliary, and must be repeated again and again so long as the general symptoms or physical signs indicate a continuance of the inflammation. Next to bleeding, and which, in like manner, ought also to be resorted to at the very commencement of the attack, is vigorous and full purging; this may be repeated, with more or less frequency, until the stethoscopic or general indications prove the supervention of effusion of lymph. At this stage the chief reliance must be placed in mercury, which remedy, in the form of calomel, ought to be administered so as to produce, as speedily as possible, its full physiological effect, and which subsequently, by smaller doses, should be kept up, so long as it appears capable, by exciting further absorption, of removing the effused lymph.

After blood-letting has been carried to the necessary extent, we may then, and not till then, apply blisters to the region of the heart, more especially if effusion have taken place into the pericardium; and, at this period, provided the inflammatory symptoms be reduced, the iodide of potassium may be advantageously prescribed. Should a morbid irritability of the heart remain, it will be best remedied by the occasional application of a blister, and, in the interim, an opium or belladonna plaster.

It is important to remember that, not unfrequently after the removal of the bellows murmur by treatment, it again becomes audible over some portion of the cardiac space. The bruit, although sensibly possessing the same characters, will now frequently depend upon an anæmic condition of the system, and this is more particularly to be suspected if much depletion have been requisite, and if the patient be of the female sex. The state of the countenance, pulse, and tongue are the best indices to the formation of a correct diagnosis, on which our practice must alone be based. Further withdrawal of blood would in this instance be highly prejudicial, while the cautious exhibition of a nutritious but unstimulating diet, with mild tonics, will tend rapidly to effect a cure.

Under the above circumstances, I have found the following formula, together with the exhibition of an occasional aperient, of great service:—

Iodide of potassium, from two to three grains;
Tincture of digitalis, from ten to fifteen drops;
Compound iron mixture, one ounce and a half.
Mix. Let them make a draught, to be taken three times a-day.

It will scarcely be necessary to add that the diet throughout the inflammatory stage of rheumatic heart affection must be strictly antiphlogistic.

Before concluding these somewhat desultory observations, I would briefly allude to the direct variance in opinion existing between some of our highest pathological authorities on the liability to which bleeding in acute rheumatism exposes the heart and its membranes to an extension of the inflammation.

As far as my own observations have been made, and I have had frequent opportunities of comparing the results of the practice inculcated by both parties, I am fully persuaded that not only does venesection not render the heart more prone to the attack, but that, if this practice be vigorously adopted from the outset in a strong, healthy individual, the chances of the circulatory apparatus becoming affected will be materially diminished; and I agree with Dr. Macleod in attributing, in some measure, the frequency and severity of the disease under the age of puberty to the greater neglect at that period of necessary depletion.

My object in transmitting the preceding remarks to paper has been with the view of urging the more frequent examination of the heart at the very commencement of *all* cases of acute fibrous rheumatism, since it is by this means alone that we are enabled to discover the first inroads of a disease which, if not checked *in limine* (and checked it generally may be if detected early), brings its unfortunate victim to a painful and untimely death. I would conclude by adding, in the words of Dr. Macleod, that in rheumatic fever, with extension of the disease to the heart, "the assistance to be derived from auscultation is paramount, and that he who refuses to make use of it, denies himself the only means we possess of arriving at a correct diagnosis, thus placing in jeopardy the life of his patient, to say nothing of the peril to his own reputation."