LECTURES
ON THE
DISEASES OF CHILDREN,

DELIVERED IN THE

Chatham Street School of Medicine, Manchester.

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LECTURE XV.

Rheumatic fever and local affections continued. Course of the different forms—the acutest rare in children; disposition to affections of the heart, which in children attack generally the pericardium; the mildest is the most frequent in childhood and infants; the rheumatic cough; many differences of rheumatic fever in form and course; transitions and issues of rheumatic fever, and of the local affections; pathology—the chemical as well as the anatomical—as yet very imperfect; diagnostical characters of the fever and local affections, objective and attainable in the speechless age; resemblance to some form of tuberculous disease; disposition of children in general, and of the different ages to different forms. Cause: electric influence. Complications.

GENTLEMEN,—I will proceed now to consider the course of different forms of rheumatic fever, in connection with different local affections. The course of the acutest form, in which almost all the principal joints are affected, which I said is exceedingly rare under the third year, is the same as in adults, only the exhaustion by both fever and pain, appears sooner and is severer in the child. It is a sad impression to look at the young patient, even six or eight years old, with his greater sensibility of nerves and less moral power, when under so severe a suffering. This form, if once established, as far as I remember, takes in favourable cases between six and eight weeks or more, before the child can be said to be recovered.

The less severe degree of the same form—viz., where only one or two joints are affected, though the fever commences and runs very high, is more frequent in young children, but less dangerous and shorter in duration. In favourable cases about three or four weeks are enough to perfect the recovery.

In the articular form there is more disposition than in others to rheumatism of the heart, but certainly less than in grown-up people. I may be allowed to state, the acuter the rheumatic fever, and the acuter the swelling of the joints along with it, the more there is disposition to affections of the heart. According to my experience, the difference between grown-up people and children respecting the kind of heart affections of the rheumatic source, is this: in the man it is not rare, that after only three, four, or more days, of an acute attack of rheumatic fever, the heart becomes affected, and slow valvular alterations may take place. In young

children, if during fever inflammation has to come, that of the heart or pericardium, as well as pleurisy or meningitis will, as a general rule, appear the first day or two; as to that of the heart, I always, and only observed pericarditis, with or without pleurisy. On the whole, I have very seldom met with inflammations of the heart in infants; more often with rheumatism of it.

Finally, there is the mild form of rheumatic fever, connected with only a slight degree of swelling, or merely with rheumatism, in most of the cases either of one of the knees, or of the costal pleura, the mediastinum, or fibrous and nervous textures of the trachea, all without inflammatory action, with little or no danger, but not seldom a good deal of annoyance to us.

The mildest form being the most frequent in young children, and almost the only one to which I have seen even nurslings to be subject, I will therefore just give you a few outlines of it. Under a sudden change of temperature, even without having been directly exposed to cold, the infant shows, in most cases in the afternoon or evening, the already described precursory and following symptoms of a primary paroxysm in more or less moderate or vehement degree. Vomiting is not unfrequent. Soon after the onset of fever, seldom later than ten or twelve hours, the child moans interruptedly at first, and by-and-by continuously; it has a restless sleep; when taken up in the arms, his breathing appears to be shorter than usual, or even cut short by pain. The child is irritable and holds languidly his head; it bursts easily into crying, which in some instances of the kind is prevented by pain, when on close examination, we find the presence of pleurodynia; but sometimes we cannot verify it. Either with or without this, now and then the infant coughs—a short, superficial, dry, and evidently painful cough. By-and-by, perhaps, there may appear the signs of pain with little or no swelling of one of the knees, or nothing of the kind. Now, as to the first night, that pleurodynia, if present, may pass into pleurisy, or that dry and painful cough, at first without other physical sign, may be the forerunner of bronchitis. But frequently you will find that the next twelve, or twenty-four hours, will bring on a critical and beneficial perspiration, and ere twenty-four hours are past the child will be restored to health. This comes very near ephemera in every appearance. If this be not the immediate issue, at least the character of remission and exacerbation will throw some light upon the disease,—the signs of pleurodynia will persist, and that dry and painful cough will continue so, without any material indications on auscultation or percussion. Perhaps some slight swelling of one of the joints, or pain under pressure and bending, will likewise persist, with peevishness or disposition to crying. The dry and painful cough, sometimes remarkably intermittent, may return, and persist for a few days or weeks, with slight febrile alterations, partly with dry and hot, and partly with moist skin.

This cough, with little or no bronchial râles, but more pain on coughing, (i. e. under the concussion of

the chest) than in bronchitis, I may be allowed to call "rheumatic cough." It is not bronchitis, or bronchial catarrh. I cannot exactly point out its seat, whether it be in the muscular and fibrous tissue, or the nerves of the windpipe. You will easily find out what I mean, and form for yourself a clearer idea of the whole form of fever in question, if you bring before your mind the same as it occurs in grown-up patients.

It is not said that the whole group must occur just as I have described it. The same mild form may bring on a more or less acute headache or other pain, fixed or erratic, of the different parts of which I have spoken in my last lecture. In general, rheumatic fever presents in the child as well as in adults, infinite varieties of form, course, and issue. I have seen cases, where rheumatic fever had set in with so much vehemence, that already the second day the child presented that alarming aspect, to which I gave the name of "hypersthenic stage," with 180 and more pulsations, twitching, tremor, and the like. Only the third day the nature of the fever and the seat of pain became clear. In other rare instances the fever continued moderate two days or more, the pulse not above 130—140, and with a remittent type, with simultaneous signs of some pain, of which I could not make out the seat, and only on the third or fourth day one of the knees commenced to swell, and in proportion as the swelling increased the fever abated and ceased. Others again, I remember, in which an alternating relation existed between some local pain, and the paroxysms, or the latter and a serous diarrhoea, each discharge from the bowels being preceded by pain.

Profuse sweat, without alleviation, with a low temperature or even coldness of the skin, is always a bad symptom, but rare in young children. I have seen, however, a few instances of a striking appearance. Spasms of the bladder and dysuria belong also to the occasional phenomena; the child cries vehemently, and then the careful mother notices the urine coming for some time drop by drop, and at last freely, when the child at once will cease to cry. This happens when the urine is exceedingly overcharged with lithate of ammonia, and the case is by far more obvious with children than with adults. This seldom happens before the third or fourth day, and frequently later.

In almost all forms of rheumatic fever of children, you will observe from the second day onwards, remissions once or twice every day. The transition from local rheumatism (acute and febrile) to inflammation, if it has to come, in my experience, happens generally sooner than in adults, and in children under two or three years, the first or second day. Suppurative inflammation of a joint is a rare issue of rheumatism. I remember a few cases only where the disease occurred always in one of the knees. The pulse is in proportion to the languor more frequent than in other fevers. Sometimes you will count 160, 180, and more, where the whole aspect of the little patient would not have led you to suspect it. When it protracts its course longer than a week, with a few remittent type, there is commonly a high degree of nervousness perceptible in children. Intoler-

ance of medicine is also more frequent here than in other kinds of fever. The recovery will almost constantly be announced or connected with equable gentle perspiration (instead of profuse) with an adequate general temperature of the skin. Sometimes, however, particularly within the first three days, also profuse sweat proves critical and beneficial, provided it be equable, and connected with an adequate temperature of the skin. If in ratio to the cessation of the fever follows swelling of a joint, which is neither very hot nor painful, this I found to consist merely of thin serosity, and it vanishes easily by absorption.

Transitions or issues, in less favourable cases, which of course are very variable in themselves, are much dependent upon the constitution of the child. The worst transitions happen in the scrofulous. Rheumatic fever, however high, seldom exhausts the vital powers so far as to cause death, merely by the febrile action. I have seen only a few cases, in which the little patient died apparently by collapse, without equivalent anatomical changes, though, as far as I can recollect, in most of these cases, sudden and profuse serous diarrhoea had occurred, or the child was extremely tender and weak.

Rheumatic fever passes occasionally into tuberculous phthisis, or better to say, contributes to the development of scrofula or tuberculosis, by those profuse unwholesome sweats.

I have seen typhus complicated with local rheumatism at the beginning of the fever, but do not remember instances of transition from rheumatic fever into typhus. But I have noticed in some cases the transition into remittent gastric fever, or what you may call the *infantile remittent*. These transitions took place when the rheumatic fever was connected with abdominal rheumatism; a bad kind of diarrhoea rendered the consecutive remittent form dangerous, and sometimes fatal to the child. This happened in such children as were under the third year of age. A similar transition I have seen also from the articular form but rarely. I remember an instance of this kind, in which the swelling of the joints disappeared in proportion as the low remittent form developed. This case ended in death.

Inquiring into the transitions and issues caused more directly by the rheumatic local affections connected with the fever, nothing is more dangerous, and more frequently the cause of death amongst all kinds of local rheumatism in infancy, than profuse serous diarrhoea; and this is not always in proportion with anatomical signs of congestion or inflammation in the intestines. I am sure it can merely be muscular or nervous rheumatism, and the discharge effected by sympathetic action. Dangerous, and eventually even fatal, I saw to be also the rheumatism of the substance of the heart at its very onset. I have seen cases of the kind in young children, (I believe three or four,) and although it was, and it will be, impossible to demonstrate in these cases the cause of death anatomically, I have the fullest conviction it was rheumatism of the muscular tissue of the heart. One case may serve you as example. I could describe it with minuteness, but will only in a

few words mention that it was the child of a friend of mine, twenty months old. After visible rigor, considerable dry heat, with an extremely frequent pulse. Soon after the beginning of the fever, (perhaps five or six hours,) the moaning got a very painful expression, then the respiration from hour to hour heavier, sometimes a short dry cough, increasing palpitation, when at the same time the pulse became intermittent and irregular, from time to time fainting, lips livid, extreme expression of anxiety and pain in the countenance. On auscultation and percussion over the heart, no endocardial murmurs, no frottement. Palpitation and some irregularity in the pulsations. I could ascertain, by careful exploration, the total absence of pleurodynia. After prescribing I went away; next morning I heard of the fatal issue. The parents told me that the little girl, from pain, became blue in the face, respiration at once stopped, and death followed in a slight convulsive movement, about fourteen hours after the beginning. In the night, though the results of auscultation were negative, I thought it might become pleurisy or pneumonia, and therefore ordered leeches; but they were too late, and insufficiently applied. On *post-mortem* inspection I could detect nothing, except a great coagulum in the left ventricle, proving that the heart must have, for some time before death, imperfectly expelled the blood, and the other secondary changes—congestion of venous blood in the lungs and brain.

Now, I think, it would be erroneous, to regard this as commencing endo- or peri-carditis, because in this case fifteen hours would be sufficient to produce changes in the envelopes, visible and unequivocal enough; but I think I am right in supposing rheumatism of the heart as the cause of death. And when I say, acute rheumatism—although inflammation frequently at once joins it—still I do not identify it with inflammation. Rheumatism of any muscular texture may persist very long as pure pain, without causing visible changes; that of the heart, as I know from adults, causes fits of atrocious pain, with occasional contractions. Of other cases I have only retained a superficial recollection. That young children may die under an attack of the kind, whilst adults resist it, is, I believe, not to be wondered at.

The transition of local rheumatism into inflammation, which in the joints so frequently causes more or less irreparable damages, causes great danger to life, in young children almost certain death, if this happens in the pericardium.

Dangerous, and sometimes fatal, is also the transition of rheumatism into meningitis, and I really believe that many a simple *peripheric* meningitis may be traced to rheumatic origin. I can state, however, that acute meningitis in my practice always developed itself within the first two days of an acute fever; nor can I remember one single case connected with acute articular rheumatism, in fact I am so satisfied about that, that frequently I did my best to evade leeching, when in the course of acute articular rheumatism symptoms of the head caused alarm. I considered, and do consider, these cases as rheumatism of the scalp, or the meninges.

Hydrocephalus I have seen in the course of a long remittent rheumatic fever, but not real meningitis.

That rheumatism of the pleura frequently passes into pleurisy, is a well known fact. All transitions and issues mentioned till now, are, however, more or less rare in comparison with that into chronic rheumatism in its different forms. These are more or less troublesome, or dangerous to the integrity of the joint or joints, or to life itself, in a long and indirect way. Here again I must point out a difference between childhood and mature age. In the latter, chronic rheumatism, when fixed in the heart, frequently causes exudations of lymph within the cavities, or more specially structural changes in the valve apparatus. This, whatever some respected authors may state, must be extremely rare in young children, nay, rare even in those of four or five years, because I could never verify it amongst so great a number of children in my practice. And I beg to remark, that I have had to attend many cases of chronic recurrent rheumatism of the heart. I have already had to attend here (in Manchester) a case, 4 years of age. But the affection persisted in these cases as mere rheumatism. I think that in adults there is a degree of gouty dyscrasy just as frequent as the scrofulous is in children; and this I believe accounts for the predominant frequency of endocardial deposits in mature patients, just as well as for the predominant frequency of destructive swellings from articular rheumatism in children. In conclusion, chronic endocardial rheumatism, fixed and inflammatory, I regard as rare in the early period of life.

The *pathology* of the disease in question is as yet very obscure. The theory of the lactic acid is exploded. The brick-coloured deposit has been noticed since the remote antiquity as characteristic, and really it is more striking in quantity and aspect than the same kind when it happens under abdominal disorder; but, at the same time, lithates are present (in less quantity) in the healthy urine, and the respective elements always in the blood: so the sediment of lithate of ammonia, in itself, gives no sufficient foundation for the pathology of rheumatism. We know not the rheumatic change in the blood, and I may be allowed even not to look at the dyscrasy of the blood as the pathological source of rheumatism, but probably as secondary to a trouble of innervation by thermo-electric, or electric influence upon the spinal system. Every local rheumatism commences with pain, and frequently persists as severe pain for years. This, it would appear, points at least to an essentially nervous element or source of it. Nor has anatomical pathology of rheumatism attained to a more satisfactory, still less to a specific character. We know of no essentially rheumatic products. In the exudations and swellings all is referred to acute or chronic inflammation in its different degrees, productive of serosity, lymph, pus, and the like, and to complication with scrofula, just as in adults to that with gout. The white swelling of the knee has frequently a rheumatic origin, but, I think, always a scrofulous ground. Those authors who consider rheumatism and gout as identical, ought to study it in children. How is it that

some forms never occur in infancy and early childhood? How is it that the lithate of soda concretions are not formed in the joints of children? And finally, after all that I have seen, I believe it will by and by become established, that the endocarditis of children—in those rare cases in which it happens—is scarcely ever of a chronic nature, and its effects, which are so frequent in adults, and of a particular character on the valves, are scarcely met with in children.

The diagnostic character of rheumatic fever in children, considered in its general febrile symptoms, consists, as in adults, in a *remittent type with profuse perspiration*. The local affections connected with it vary much in their form, intensity, and relation to the fever; their seat is the fibrous, serous, and muscular tissues and nerves; and their commencement is generally pain in these parts.

As in little children local rheumatism is not always at once discoverable, we must consider the whole of the disease together. It happens that sometimes, in the beginning, the fever, with its alarming influence upon the child, is the predominant or absorbing subject of our observation; and it will appear for some time just like any primary fever; but the careful observer will generally find out, within the first twenty-four hours, the presence of some salient local pain. Be it, then, that we cannot discover at once the seat of it; still, as soon as we see that it presents salient remission, with perspiration or profuse sweat, followed again by dry hot skin, with renewed signs of pain,—be it, I say, that we are at that time unable to find out its seat, we may conclude, by the mentioned appearances, upon the rheumatic nature of the fever. If the sweat is profuse without alleviating, then we are certain about it.

The brick-coloured sediment is also of some diagnostic value; but generally this appears only in the further course, when already other enlightening signs have been disposed of; and with little children there is a great difficulty of collecting the urine. We can in this case only look at it on the clothes, both immediately when emitted, and some hours afterwards, by the stain. Thus it may happen that we find at the second inspection the colour of the stain, which was at first reddish, changed into brick-colour, and the cloth thickly scattered with similar-looking little bodies. On the whole, I find the urine is less distinctive of rheumatism in children than in adults.

No doubt pain and irritation in joints or muscles, arising along with, or soon after the beginning of, fever—either fixed, and passing into inflammatory swelling of some joint, or variable in intensity, and erratic—may be considered as eminently indicating the rheumatic nature of the fever. This we can easily ascertain, even in the case of mere rheumatism, provided that it be *fixed*, in a joint or joints. But it is less easy to find out the seat of rheumatic pain in some other parts, during the depressed state of the child by the general effects of a vehement fever. I beg you, therefore, to reflect upon all and every circumstance and acts of investigation I have pointed out to you in previous lectures, as helping to unravel the intricacy of fever in

a speechless child; and more particularly upon what I said of the diagnosis of each of the rheumatic local affections; observing quietly and from a distance, and then near, and changing postures and perform movements; all that will be most requisite in the case in question.

One might object, however,—How are we able to distinguish rheumatic pain, without swelling, from nervous pain or spasm? On this I will speak under the head of chronic rheumatism; here I will merely observe that local pain, arising suddenly in connection with fever, if it is not, or becomes not soon, inflammatory, with swelling or exudation, is very probably of the rheumatic character; and if it happens in a child, almost certainly so.

Although it is not always possible at once to ascertain the rheumatic nature of a fever, it is desirable that all the mentioned symptoms and circumstances together may lead you to suspect it to be so, that you may follow its course with a prepared mind, and watchful eye for all what usually happens in the course of rheumatic fever, or what already may be present in that case, but concealed under the weight of general febrile symptoms, always heavily affecting a little child.

Measles and small-pox,* and any other fever, in the beginning, and for some time, may appear just like the rheumatic; wherefore, occasionally we are obliged to suspend diagnosis, or rectify our opinion by the further progress of the disease.

I think I must call your attention also to the particular resemblance which some cases of acute *miliary* tuberculosis have to rheumatic fever, when the disease at once attacks an apparently healthy child. I will on another occasion mention a case of the kind, in which during three days, I could only find signs of pleurodynia. These cases are certainly very rare, at least rare to one skilled in auscultating on children.

Other slower and more ambiguous forms of the tuberculous process, as they occur in adults, or after puberty, in which a slight fever and pains through the chest, like the rheumatic, are for some time the only salient symptoms, before the deposits are sufficient to cause corresponding signs to our ear. Such I have seldom met with in young children. In that age the deposits take place more rapidly; and the younger the child the more prominent a part is taken by the glands, contributing to make the case intelligible.

The *disposition* of children to rheumatic fever and local affections is very extensive, but in general not so considerable as to the acutest form, what I designated the acute general articular rheumatism. Nurslings, I find, have a preponderating disposition to intestinal rheumatism, and to rheumatic cough; between six and eighteen months, I have frequently seen the disposition to rheumatic earache. Children of a delicate constitution and tender skin are more subject to different forms of the disease in question than others, in particular if they are of the scrofulo-nervous habit; then, between five and twelve years, the disposition to rheumatism of the eye is not uncommon in them. Those that have been overdrugged with mercury I observed to be par-

ticularly obnoxious to rheumatic affections of joints, though not of the acute form. Pleurodynia and rheumatic cough frequently occur in all ages of childhood. On the contrary, I find they are not disposed to endocardial rheumatism; at least, according to what I have seen, it can be but of rare occurrence in the first years of life. This fact, and the analagous one, concerning the acute general articular form, may perhaps concert in some way to advance the pathological knowledge of the rheumatic dyscrasy. The disposition once acquired may last for years and years. In some children, however, it ceases entirely as they grow older and stronger towards puberty. In some others, of course, there is no trace of it.

As the *cause*, everybody recognises a sudden change from warm to cold, particularly when the skin is perspiring and damp, cold more than dry. The sudden occurrence of east winds is also very productive of rheumatism. According to this property some countries represent a more fertile soil for this malady. In this respect there may be few countries worse than Hungary and Austria. England, particularly the eastern parts, enjoys also the discredit of being much troubled with rheumatism.

But, it cannot be denied, the mentioned changes of temperature are, as well, productive of catarrhal and parenchymatous inflammations. There must, therefore, be another condition or circumstance besides, special in producing rheumatism instead of pneumonia or catarrh. The electric influence, I believe, is too little known and valued in this respect. I remember many children who, without being exposed to cold, before stormy weather, or some other sudden change of the weather, became affected with rheumatism; and some even when confined to bed, and guarded carefully against "taking cold."

As a *prophylactic* measure, nothing is more proper than to accustom children, judiciously and by degrees, to the vicissitudes of temperature; performing cold sponging of their whole body, strengthening the more obnoxious kind of skin by lotions of a mixture of brandy and water. The custom to dress children lightly, with bare neck, short stockings, and trousers, as a general measure, is also very suitable, in constitutions which allow it.

Amongst *complications*, like as in adults, the rheumatic affections frequently combines with the bilious, the catarrhal, and others; the liability of children to rheumatism during the last stage of, or convalescence from, measles, is, however, very striking. But rheumatism combines also occasionally with other eruptive fevers.

The combination of intermittent fever with rheumatism is, I find, interesting. I have had to attend, at Pesth, many children at once affected with both diseases. The latter was only rheumatism, more commonly costal pleurodynia, or rheumatic cough, always remittent or even intermittent, and increasing along with the paroxysm. I do not remember one single case in which pleurodynia, or articular rheumatism, when complicating ague, would have passed into inflammation, swelling, or exudation; nor do I know a

single case of genuine inflammation complicating ague. Now let me add to this that I did not see phlegmonous or parenchymatous inflammations, *f. e.*, pneumonia, suppurative pleurisy, acute meningitis with *plastic or purulent products*, in connection with an unequivocally-established rheumatic fever, not even with the acutest articular form, which we generally look at as inflammatory, and in which, no doubt, certain degrees and kinds of inflammatory action take place. These are, I believe, facts of some pathological interest. The remissions of the rheumatic fever come sometimes near the intermissions of ague. It stands between the inflammatory and ague.

The most frequent combination of local rheumatism is that with inflammation; thence a modification of the inflammatory process and its products arises, which is not sufficiently studied yet. I have seen only one or two cases of acute arthritis in the knee pass into suppuration; and even in these cases I could not state with confidence that it was originally rheumatism.

An intimate amalgamation of the rheumatic inflammation with the scrofulous dyscrasy, is a common and occasionally sad occurrence in childhood.

Those that have penetrated a little deeper into the difficulties of children's practice, and those of you who intend to do so, will perhaps excuse the minuteness and length with which I have dwelt on the subjects of this lecture. There are some obvious things which it is still suitable to call to mind in various practical connections. I will next speak of the treatment.

ON THE TREATMENT OF CHOLERA

BY CALOMEL AND COLOCYNTH.

By JOHN JONES, M.R.C.S., ENG., DERBY.

WHATSOEVER may be the nature of the poison which produces this terrible pestilence, or by whatever laws it traverses various regions, countries, and districts, and propagates its pestiferous influence, its primary action is, doubtless, on the nervous and vascular systems; but whether these are simultaneously affected, or in succession, is uncertain. Nervous depression, speedily followed by vascular congestions, particularly of the large veins of the abdominal viscera, seems to constitute the first stage. From the peculiar nature of the choleraic poison, of which nothing certain is known, the important functions of absorption and secretion become suspended, and in some organs altogether stopped. The mucous membrane of the intestinal tube throughout seems to be deprived of its usual secreting and absorbing functions, the mouth and fauces are no longer supplied with their natural moisture, and unquenchable thirst is the consequence. The mucous secretion of the stomach, and of the large and small intestines, is suspended, and seems superseded by a frightful exudation or effusion of the serum of the blood, constituting the copious watery evacuations, both by vomiting and purging, which for the most part are so characteristic of the