LECTURES
ON THE
DISEASES OF CHILDREN,
DELIVERED IN THE

Chatham Street School of Medicine, Manchester.

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LECTURE XII.

Simple Primary Fever Continued.—Febrile headache, its distinction from meningitis, and management. Gastric disorder as proper to any primary paroxysm; symptoms, indications for a purgative or an emetic, their proper choice; occasionally disagreeable effects of hyperæmesis and overpurging; how to be counteracted. Further course and description of the primary fever, its early and happy termination. Reserve with remedies. Ephimera. Further course, above thirty-six hours. Objective description of the hypersthenic stage, comparatively with that in adults; complications; transitions. The asthenic stage. Pathological changes.

GENTLEMEN,—In every primary fever the head and abdomen attract our first and careful attention.

Headache, a most constant companion of fever, easily appreciated and less alarming in adults, appears more obscure and threatening in children, because they cannot give us *symptoms by words*, so as to facilitate the distinction from congestion or meningitis. It manifests itself in the child in different degrees, when lifted up in the arms of the mother or nurse, by its difficulty or inability of holding its head upright, by leaning it on the shoulders, along with simultaneous appearance of some perpendicular wrinkles on the forehead between the brows, languor of the eyes, falling of the upper eyelid, and plaintive moaning; considerable degree of heat on the front. The little patient keeps the head rather steadily and quietly in the same posture, without restlessly moving it; and all the above symptoms are equable for some time. Recollect what adults say in this state by words, and thus you will have the whole more clearly before you. Sometimes they complain of acute, at other times of dull pain, on pressure, or giddiness. These differences it would be difficult to trace in a child; we must content ourselves with knowing that there is headache present, and judge of its importance according to the degree and weight of the above symptoms, comparatively with the general state, or some important local affection. In a little child we must be very careful, because painful abdominal affections may cause dropping of the head, moaning, and frontal wrinkles, just as if the head itself were suffering pain.

As to the nature of febrile headache, it is but an old superficiality, which always identifies pain and heat in the head with congestion. We know little of the nervous

fluid yet, so plentifully developed in the brain, and of the laws of its circulation. The fact, however, stands firm, that paroxysms of intermittent fever present, as to heat and pain, a severe kind of headache; and still there is little fear of meningitis. Nervous headache in delicate ladies manifests the same severity, with the same exclusion of meningitis. In both cases, generally, leeching does not cause relief. Thus we may be allowed to establish a febrile headache of the nervous kind, perhaps a congestion of the nervous fluid causing pain or spasm. As to congestion of blood in the brain, which, of course, may also be connected with febrile headache, just as it complicates, occasionally, even hysterical headache,—this, in the height of fever, I do not know how to distinguish exactly; I believe, however, that in the case where congestion is the principal affection, there will be the appearance of a higher degree of heaviness of the head, and of the languor of the eyes and eyelids, more oppressive somnolence, or even soporose sleep, high heat on the forehead, but less of the extremities, and less moaning. And in the case of decided inflammatory action in the envelopes,—that is, in the first stage of meningitis, there will be, with a given degree of heaviness and heat, less sleepiness, and, instead of steady posture, even restless rolling and pushing of the head here and there, and a more lively expression of pain, with occasional startings and screamings. The second stage is too clearly characterised to admit mistakes.

As to eclampsy, during the stage of febrile heat, I have been satisfied, by many dissections, that it is less frequently a symptom of the first stage of meningitis, than the effect of different febrile and non-febrile, gastric, or other disturbances acting upon the nervous system, consequently there is a more natural combination between eclampsy and headache of a nervous or spasmodic kind, than between eclampsy and meningitis. Gastric disorder, during fever, I believe frequently may be the simultaneous effect with headache, and is, perhaps, too generally considered as its source; at any rate, whenever fever, and along with the signs of headache, gastric disorder is well ascertained by its local and functional symptoms, we may be almost sure of the non-inflammatory nature of that headache. Tense epigastrium, for example, and furred tongue, are frequently connected with nervous, but never, I believe, with inflammatory, headache. Moreover, consider the following comparative analysis:—A paroxysm of fever, with headache, in order to make us apprehend acute primary congestion, or meningitis, must be rather intense. Now, if this be the case, the temperature of the skin, in fever, will be high, and so all over the body, the highest on the epigastrium; and the pulse of a little child between 150, and 170, or more. And all these conditions, unitedly, will be the more expressed in high gastric fever, in which, also, the highest degrees of sympathetic headache do occur; whilst in the case of active congestion or meningitis, generally, and proportionally to other symptoms, there is less heat and dryness. Hands and feet frequently even cool in comparison with the forehead, and in many cases the pulse less frequent.

Vomiting of bilious liquid may be the effect of simple fever or febrile headache, as well as of meningitis, and in both cases the epigastrium is soft, consequently this symptom has in itself not much diagnostic value.

Acute hydrocephalus, (anatomically different from genuine meningitis,) in the great majority, does not set in so suddenly, and under that sudden appearance of high fever, as we have described it above; a careful observer will, therefore, be less exposed to confound the first stage of hydrocephalus with the simple febrile head-symptoms, than the first stage of meningitis.

In conclusion, I have been satisfied, too, that simple febrile headache is far more frequent than meningitis or hydrocephalus.

All these different diagnostic points, of course, taken *singillatim*, admit of exceptions, and cannot be trusted by themselves; considered, however, in relation with each other, and many special circumstances of the case, they are of some value. I nearly forgot to recommend great care and application, in accustoming your hands to distinguish the proportion between the heat on the forehead and on the epigastrium; this, I find, is important. In congestion or meningitis, the heat of the epigastrium is less. In medical practice there are few points of greater difficulty than that in question. Even in adults we labour sometimes under the ambiguity between the nervous and congestive character of headache. Nor can it be denied, that in many instances congestion may join spasmodic pains; or, that headache, which at first was but an effect of nervous disorder, proper to fever, may become congestive. The question will be,—shall you, in a given case of recently-developed primary fever, under the mentioned appearance of the head, resort to energetic leeching, or wait, or adopt some milder means? By the industrious and clever application of your senses and mental powers, an increasing number of patients will by and by increase your discernment, which I only wish to assist by giving you some facilitating directions.

There are, however, those intermediate and undecided cases, in which we cannot get rid of the ambiguity between simple headache, and congestion or meningitis. This has been the case frequently with me, though I have seen thousands of them; and it will be the same with you. In similar emergencies I can but recommend you the following conduct:—Consider well the constitution of the child; is it strong? then, after you have freely moved the bowels, and energetically used cold fomentations, without effect, leech it; in the contrary case, wait a little longer before you take blood. And, in spite of the apparent vehemence of head-symptoms, abstain from taking blood, if you have before you one of those scrofulous habits, with thin legs, and a large, flat, angular skull, or a rachitic or a very delicate decidedly nervous child. These are all exceedingly liable to febrile disorder and headache, but not to inflammation, and are injured by loss of blood.

Cold fomentations on the head, abundant cold water and sugar to drink, and perhaps a cooling injection, (of thin barley decoction, with sugar and oil,) will best answer the indications of that hot stage, with headache,

within the first twenty-four hours. Sinapisms are improper at that stage for tender infants; they might increase the fever, by irritating their tender skin. If, then, the general febrile symptoms continue longer than twenty-four hours, with unabated heat, pulse, and thirst, and heaviness of the head persists, or increases, together with languor of the eyes, and heavy moaning, restlessness, and painful crying, or occasional outcries, where no remarkable gastric derangement is discoverable by the above-mentioned signs, and after the bowels have been moved, then the indication of leeching acquires more weight and consideration.

Your call in these cases ought to be repeated after a few hours, and again the examination be performed with the same minute care as described in my last lecture. Do not forget to particularly investigate mouth and throat, outside and inside; and offer the child some water and sugar to drink, carefully observing his swallowing movements; and if you see they are not free, as if checked under expression of pain—in one word, if you find the slightest signs of pharyngeal irritation, with a degree of dryness in the mouth, do not hesitate to order an emetic. This is one of the important points of children's practice. In hundreds of similar instances I have ordered the emetic where I should not have felt pressed to order it to grown up people; the reason is, the greater frequency, rapidity, and danger of laryngeal and pharyngeal inflammations of children.

Gastric disorder, to a certain extent, is almost a constant effect of every kind of fever. I understand here that degree characterised in adults as follows:—want of appetite, dryness and bad taste in the mouth, some fur on the tongue, sensation of fullness in the epigastrium, sometimes eructations, and more or less degree of headache. The same degree will appear in infants, with less dryness and fur of the tongue; and of the bad taste we get no accounts at all; consequently the whole is more obscure than in adults. For this reason I may be allowed to rely more upon the palpable *tense state of the epigastrium*, and add the increased *heat of that region*, which will be found the higher in gastric fevers, on the contrary, less than on the forehead, in cases of secondary cephalopathic gastric disorder.

That degree of gastric disorder (according to what we observe in adults) frequently vanishes by itself as soon as the paroxysm ceases, and along with the headache; sometimes, however, it is connected with a more material condition of abnormal mucus and bilious secretions, and affects more strikingly the head.

Gastric disorder, speaking in general, is in primary fevers of children of not so important and urgent weight as the state of the head; but frequently headache is dependent on the former. In other cases, again, gastric disorder arises from the affected brain. It is, therefore, of the highest importance to distinguish *idiopathic gastric disorder* (of the above description) from the sympathetic and the cephalopathic one. Now, in the great majority, the latter will appear with a flat, or at least soft, abdomen, and moderate heat on the epigastrium. Real gastric disorder, on the contrary,

will be connected with a bloated or tense epigastrium and great local heat, more than on the forehead. Gastric symptoms of the kind do not require so much haste as direct head symptoms. But if, after about twenty-four hours, particularly if during a remission of heat and pulse, the child shows no desire for the breast or food, and the bowels are rather confined, then I recommend a mild *liquid* purgative, choosing one of those mentioned in the eighth lecture.

More is requisite to determine the indication of the emetic. One I have mentioned before, *i. e.*, signs of angina, as urgent, even at the earliest stage of fever. With the exception of this there will seldom be so great an urgency. If, however, after the first twenty-four hours, and *under the remission* of fever, the child manifests aversion to food or the breast, with little thirst (for breast or water);—if the mentioned signs of headache are present without costiveness, yet a tense state or *fulness of the epigastrium*, with a higher proportion of heat of *this* region, dryness in the mouth, sometimes vomiting of badly smelling liquids, or a little bile;—if, under the presence of these symptoms, the abdomen, cleverly explored, does not manifest signs of inflammation, then we order the emetic with more than common confidence in its usefulness. Be it, however, a purgative or an emetic that we give, we must carefully watch its effects, particularly on the head symptoms. Be the effects positive or negative, good or bad, they will give us probably some instructive hint.

The emetic, as well as the purgative, in order to secure good effects, must be properly adapted to the age and constitution of the child, according to the principles exposed in the eighth and ninth lectures. In high fever both must be given in liquid form. For a tender child, a simple infusion of ipecacuanha, about a scruple to one ounce (in preference to tartarized antimony); and castor-oil, if purging be required; because an improper effect of the kind might seriously disturb the course of the fever; protract or impede the critical *molimina*, or a cutaneous eruption, if it has to come; cause an asthenic turn of the fever, or even sudden collapse. Both hyperæmesis as well as overpurging may cause these bad effects. This I have seen, particularly from small and frequently-repeated doses of tartarized antimony, which sometimes, instead of causing the intended vomiting effect, after a while of apparent inefficacy, produce profuse purging of whitish serous liquids, under which the temperature of the skin decreases, and the frequency of the pulse increases rapidly towards 170, 200, and more. Turgor vitalis lessens visibly on face and limbs, the eyes sink into their hollows, and the nose and fingers get cool. The child utters now and then feeble moaning sounds. The countenance offers, more or less, the print of the *facies Hippocratica*, or of what the eminent Marshall Hall so truly depicted under the name of hydrocephaloid disease.

Solutions of neutral salts have sometimes the same disagreeable effect upon young infants in fever. Whilst heat is at its height, these remedies frequently act very slowly; thus you give dose after dose without apparent

action, and then, at once, under a period of remission, the excessive effect appears. It was a *Hippocratic rule* not to give evacuates during the height of the paroxysm.

You must bring early help in cases of collapse. If the purging action has nearly ceased, and debility is not on the highest scale, you may content yourself with a teaspoonful or two, every half hour, of a hot infusion of camomile (prepared always fresh, and, if possible, of that quality of flowers recommended in the ninth lecture); and let the abdomen and members be rubbed with hot camphorated brandy. If purging still persists, give once or twice (at about two hours' interval), besides brandy, one to three drops of Sp. Ammon. Arom., and from one-eighth of a drop to one drop of Tinct. Opii.

In the case of hyperæmesis, and when sickness continues, order, instead of the hot infusion, small doses of a simple effervescent mixture, with some stimulant drops of the lightest kind, *f. e.*, liquor Hoffmanni, and use the mentioned frictions. Thus we endeavour to restore the heat again, and set the fever right and apt for a good crisis.

In ratio of the debility and tender age you must be the more careful with the doses of opium. In similar cases I have seen most injurious narcosis ensue after one dose of about half a drop, in children under one year.

Thus far my remarks, as you are aware, concern the management of *simple primary fever within* the first thirty-six hours from its beginning. You might make in that time repeated calls; but be not too eager with physic. The higher the heat of the skin, with a proportionally moderate pulse (130 to 150), and moderate head and gastric symptoms, the less reason for any medicine. Hundreds of these cases have recovered under my care without a single drug; and hundreds of them I have noticed who got worse by medicines, under the innocent predicate of cooling, tempering, solvent, saline, mixtures, or emulsion with nitrate of potass. I can but refer here to what I have said in the eighth lecture on the use of antiphlogistic and cooling remedies in the tender age. The cooling effect of those remedies is obscure, but their deranging of the delicate stomach very probable. Besides the mentioned management of the head and bowels, if necessary, reduction in the quantity of milk, and frequent supply of small quantities of water with sugar, every half hour or hour; this is the best plan for nurslings. Above the first year, if you think you must prescribe, besides that, I recommend half a drachm of citrate of potash, or half a scruple of tartaric acid to two ounces of water, with two drachms of syrup of lemon; also light lemonade to drink.

If then, by prudent management, and under that kind of harmonious proportion between the principal symptoms (alluded to in my last lecture), you come to the second day, perhaps before that day is past, perspiration or sweat will have put an end to all febrile symptoms.

This is *ephemera*, *i. e.*, a sudden attack of primary fever, with or without precedent perceptible rigor, terminating within about twenty-four hours by sweat.

This form I dare say occurs more frequently in childhood than in mature age; but the younger the child the less there is both of cold and profuse sweat; slight perspiration, on the contrary, does easily come. A fever like that may, however, with little or no remission, and no perspiration at all, continue or increase further than the second day. You will then observe the above-mentioned principal objective symptoms in their utmost intensity; avidity for the breast; frequent but short sucking; the mouth and tongue dry, though less so than in elder children; the skin considerably hot, but turgid, and not so dry as in adults; flushed and turgid countenance, more than in adults, but the eyes more languid, occasionally shut or half shut; a restless sleep, with occasional startings and twitchings, sometimes with tremor, on the limbs and muscles of the face; the mentioned objective symptoms of headache more expressive, united with continuous restlessness and moaning; the bowels confined; urine scanty, at long intervals, and its stain more coloured than before; the pulse hard, above 160—170. To a similar group of symptoms in adults and elder children there is frequently added a degree of unmeaning loquacity, or slight delirium, which in the tender age is impossible, though there is to be observed something equivalent in the movements of the mouth, eyes, head, and limbs, and emitted sounds, difficult to describe. These symptoms, in absence of real inflammation of an important organ, express—

The *hypersthenic character or stage of fever*.—If the whole of these symptoms be equivalent to what authors call synocha, in adults, which generally runs a week and longer, before it passes into synochus, then I can pronounce, that synocha runs in tender infancy (under two years) but a short course towards synochus; because, under the second year the mentioned high stage soon exhausts the vital powers of them. As children grow older they are able to keep up longer and resist better that stage of reaction, or in other words, courses and stages of fevers last longer and are less dangerous in proportion to the older age.

I remember some cases of sudden death by convulsions, some others without being noticed how, at the height of the hypersthenic stage. These were all very young infants and children. The hypersthenic stage, as described, if present on the third day of fever, admits in elder children, the possibility of either ending favourably by a good crisis, or of passing into cerebral or exanthematic typhus, into angina maligna; and of the eruptions that of scarlatina may yet appear, even of a dangerous form; but the first case scarcely will happen before the sixth, and the two latter diseases seldom before the third year. In younger children a not unfrequent transition is that into the *asthenic stage*, to be mentioned further.

As to complications arising during the hypersthenic stage there are many of little degree and importance, not always even discoverable in that height of the general symptoms during life, and only few important ones. Of the latter kind, are congestion of the brain, of the lungs, and of the liver, angina, and diarrhoea.

The *congestion of the brain* (which is not to be confounded with meningitis) it must be confessed, is exceedingly difficult to be diagnosticated amidst the symptoms of the hypersthenic stage. You will recollect what I have said about headache; I can only add, that if you have before you a child under the described symptoms of the hypersthenic stage,—the skin hot, but the forehead more hot than the epigastrium; the hands and feet still less hot; under a continuous heavy drowsiness with moaning, but without crying out loud, with his eyes continuously shut, if taken up in the arms, his being unable to open them, his head heavily dropping downwards if not supported, the face rather flushed and turgid, the pulse (in this relation of symptoms) not above 160, and the constitution of the child not opposing congestion, then you may regard the case to be that, and act accordingly against it.

Congestion of the lungs in hypersthenic fever, according to what I have seen in some fatal cases of the kind, has been general over both lungs. There is no significant cough or sign of pain; you can merely rely upon auscultation and percussion, by which you will find in these cases, a diminution of the vesicular bruit, along with a slight degree of dullness over the lateral and lower parts of the chest.

Congestion in the liver you may detect by touch and percussion.

Pharyngeal irritation in the form of "*pharyngite erythémateuse*," with swelling of the tonsils, is the most common and important complication of that stage of fever in children. It is rare under six months, but rather frequent above two years of age. You recognize it if inspection be impracticable, by careful touch externally, and by observing the movements of deglutition at the breast, or of some water offered to the child.

Diarrhœa seldom combines with the hypersthenic stage, and if so, then it will but hasten the passage into the asthenic. Sometimes, at the height, some *bilious discharges take place*, with beneficial effect, and must not be checked.

Angina, if a great degree of swelling be present, will scarcely ever fail to be connected with the above symptoms of congestion of the brain.

The hypersthenic stage, as described, be it with or without complication, will last to the third, fourth, and seldom to the fifth day, from the commencement of the fever, the shorter in proportion to the *vehemence* of symptoms, and the more tender age. In infants the asthenic stage will soon follow, unless a *salutary crisis* had appeared within about forty-eight hours of its duration.

The *asthenic stage* in most cases, will be announced by increase of dryness along with permanent, sometimes, however, with decreasing temperature of the skin, together with simultaneous increase of the pulse to 170, 180 or more, collapsus and anxious expression of the countenance; if it be protracted a day or two the lips become quite dry, with dry fissures here and there; the tongue in young children may maintain a degree of moisture, except in the cases of gastric complication. There is great restlessness with occasional rambling.

Increase of the heat at this stage is not very common with young infants; it persists about the same degree, or even decreases.

Whenever continued fever takes this course, the danger is great, and if again, in the space of twenty-four hours, these symptoms do not change for the better, you may in most cases expect a fatal end, under a more or less rapid exhaustion of vital action, occasionally in a fit of eclampsy. In other cases the asthenic stage takes a slower and longer course, sometimes passing into a chronic and weary remittent form, ending in gradual recovery or death.

In bodies of young children, dead within that stage and time, we are far more frequently than in adults at a loss to find remarkable anatomical changes, unless you would qualify as such the variable congestions, of an active or passive character, in one part or other, or partial injections of the mucous membrane, or effusions in one or the other of the cavities, or many kinds of complicated affections. All this I saw, but variable and inessential. The blood seems not to reach in children, in acute fevers, to that degree of chemical alteration, that it does in adults, and the whole course of the fever is too short to effect such marked anatomical changes. The mentioned slower asthenic forms affect more considerably the tissues; but this is not to our present purpose. Next I will speak of the treatment.

A FATAL CASE OF HYDROPHOBIA

TREATED WITH CHLOROFORM.

By THOMAS SANDWICH, M.D., BEVERLEY.

WHETHER chloroform will prove to be an antidote for hydrophobia remains to be seen, and is an event rather to be desired than expected; but that it will procure an euthanasia is certain. In order to prevent speedy death from the exhausting effects of the spasms of the throat, and allow time for the elimination of the morbid poison in hydrophobia, it has been proposed to open the trachea. It would, however, appear from the following case that all the advantages that could be derived from tracheotomy may be obtained from chloroform, and these in a manner far more agreeable to the patient, as well as the medical attendant.

William Warden, aged 42 years, was attacked by a strange dog, and one of the fingers of the left hand was wounded, about six months prior to the outbreak of the symptoms of hydrophobia. The dog was immediately destroyed, and the wound healed so quickly that in the course of two or three days he was able to resume his occupation as a labourer in a tan-yard. On the 4th of October he applied to one of the medical officers of the dispensary, on account of a pain in the left side, which was supposed to be rheumatic, and was treated accordingly. In the evening of that day symptoms of hydrophobia made their appearance, and the

following morning he was visited by another medical man, who bled him from the arm to a moderate extent. The paroxysms increasing in frequency and violence during the day, in his struggles the bandage became loose, and he lost a very large quantity of blood. By this untoward event, and the exhaustion produced by his struggles to recover his breath, when nearly strangled by the spasmodic contractions of the muscles of the larynx, his strength was greatly reduced. His struggles during a paroxysm were said to be terrific, and it required the strength of four men to keep him down in bed.

Through the kindness of Mr. Brandon, jun., I saw this patient at eight o'clock, P.M., and remained at his bedside some hours. He was raving like a maniac, and was in a state of extreme debility. The face was pale, and the skin covered with a cold clammy perspiration; the pupils of the eyes completely dilated; the corners of the mouth retracted; the breathing hurried; the pulse 120 in a minute, thready and vermicular; and the paroxysms produced by the spasms of the throat terrible to behold. The head was on these occasions drawn backward, and he made the most vehement efforts to get out of bed, foam issuing from his mouth profusely.

Some chloroform had been administered during the afternoon. I recommended it to be repeated, and had the satisfaction of witnessing its effects, which were almost magical. He was no sooner under the influence of this potent spell than his respiration became perfectly tranquil; some colour returned to his cheeks; the pupils contracted; the pulse became calm, and, considering his weak state, well developed, the number of pulsations in a minute not exceeding 84; and he lay in a state of happy delirium. A more pleasing transition from extreme agony to tranquil ease I never witnessed before. The effect of the remedy was maintained during the night by the occasional use of small doses; but he died the following morning, without pain or agony.

It must be admitted that this was not a favourable case to test the power of chloroform as an antidote. The unhappy patient had lost so much blood as almost to induce me to believe that his death must be set to the account of phlebotomy, rather than to hydrophobia. But on the supposition that we are not yet in possession of a specific for this frightful malady, which is too probable, it must be a gratification to every humane mind to know that it is in our power to alleviate the dreadful sufferings peculiar to hydrophobia, and render the last hours of an unhappy patient tranquil, and free from pain.

In the case of hydrophobia related by Mr. Hunter, he says:—"The pulse in the beginning was not quick, nor was the skin hot; and there was none of the muscular debility so remarkable in fever;"* and Dr. Currie, of Liverpool, who saw five cases, says:—"In none was there any sense of animal heat."† It is clear,

* Transactions of the Society for Promoting Medical Knowledge. Vol. I., p. 308.

† Medical Reports. Vol. I., p. 178.