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FROM

THE MEDICAL NEWS,

October 8, 1892.

[Reprinted from THE MEDICAL NEWS, October 8, 1892.]

CATARRHAL FEVER IN CHILDREN.

BY D. T. LAINÉ, M.D.,
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CASE I.—On March 26th I was hurriedly called to attend R. M., a child about two years of age, who had been taken sick suddenly, although, as the mother afterward informed me, during the afternoon and evening of the previous day it had not been quite well.

As I found the temperature in the rectum above 105°, some drowsiness, and twitching of the muscles, I cautioned the parents as to the possibility of the child's having a convulsion. I prescribed two grains of antifebrin, six grains of potassium bromide, and a tepid bath. Hardly had I left the house before the child had general spasms, which, from all accounts, must have lasted from eight to ten minutes. On my return in a couple of hours the temperature was 106°, partly, no doubt, as a result of the convulsion, and, after putting the child for fifteen minutes in a bath of 96°, rapidly cooled to 95°, the temperature came down to 104°. In less than an hour it had gone up again to 105.4°. During the first two weeks of its illness it received altogether about forty of these tepid baths.

Large doses of quinine and the prolonged baths only reduced the fever for short periods. The child continued in a semi-comatose state for nearly four days, only improving in this respect after its bowels

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had been thoroughly moved by repeated small doses of calomel. When the cerebral symptoms had disappeared, great irritability came on, manifesting itself by violent attacks of crying and screaming, which persisted for hours at a time. Hyperesthesia, both general and local, was present to such a degree that it was often impossible to feel the child's pulse or take its temperature in the rectum. When the child was to all appearances asleep, the slightest noise or touch would startle and be likely throw it in one of these spells.

Cough, dry and hacking, was present from the first day. There were a few râles, but no dyspnea or changes in the character of the respiration. On the 15th of April, the twentieth day of the fever, some harshness of breathing could be detected over the posterior edges of the left lung. Small moist râles now made their appearance, with a looser cough and a more intermittent range in the temperature. These symptoms, however, came on gradually. After a few days the right lung became correspondingly involved, whilst the left one commenced to clear up. This condition of the lungs was much like that observed in the pneumonias of the aged during the recent epidemic of influenza, only the posterior and lower edges becoming involved, and not whole lobes or circumscribed areas of the organ. The reflexes appeared greatly exaggerated during the latter part of the attack, and a peculiar tremor of the arms and hands was apparent on the slightest exertion. Pronounced ankle-clonus was also present. The child would lie on its back for hours at a time, perfectly quiet, with a peculiar fixed gaze on some object in the room, or else picking at its nose and lips.

It became profoundly emaciated and anemic. Loud systolic murmurs could be distinctly heard over the whole chest. The pulse was weak, and at

times irregular in volume, and ranged from 140 to 160. There were no abdominal symptoms or enlarged spleen. There was complete anorexia. The vomiting, which occurred several times, came on only after a few large doses of quinine.

Case II is that of a child about twenty-three months old. On March 24th, appearing rather indisposed and feverish, its temperature was taken and found to be 103 8°. In the evening it had risen to 104.6°. The parents informed me that during the preceding few days the child had refused its bottle several times, had vomited once or twice, had some cough, and a little discharge of mucus from its nose. These symptoms were ascribed to a slight cold. On the 25th the child appeared much brighter, the temperature not rising above 100° during the whole day. On the 28th, at about 3 A M., the temperature rose again to 104.8°, declining by evening to 100.2°. On the 26th there was another sudden rise, but after this the fever became distinctly remittent in character.

Cough, the only other symptom present, appeared to increase or decrease in severity with the rise and fall of the temperature. I was in this case unable to make a diagnosis of catarrhal fever before the lapse of several days, bearing in mind at first the possibility of the child's having typhoid fever, the father of the child having just recovered from a prolonged attack of this disease. On April 13th the child was taken to Atlantic City, and on the 16th, after vomiting for several hours, it developed a typical attack of scarlet fever, with the characteristic rash, sore throat, and strawberry tongue. The symptoms previously had been: fever of several weeks' duration, cough, loss of appetite, constipation, irritability.

Case III.—On March 26th I was called to see I. M., a child twenty-two months old. Its parents

had but recently returned from Camden. Mrs. M., the mother, was in the seventh month of pregnancy, and had suffered from diarrhea from the first weeks of gestation, despite assiduous treatment. On March 10th the husband, a man of about thirty, healthy and strong, and by occupation a weaver, was taken sick with a slight attack of influenza, from which he made good recovery in a few days. On the 13th Mrs. M. took to bed, suffering, she supposed, from a bad cold. She complained of frequent and distressing cough, and became quite feverish. She could retain nothing in her stomach, vomiting all food, both liquids and solids. The diarrhea became worse. On March 16th labor set in, and in a short time she gave birth to a rather small and puny child, which lived but a few hours. She appeared to improve for a couple of days, but soon the vomiting returned, the looseness of the bowels persisted, and she died after a time from exhaustion.

Post-mortem examination confirmed the diagnosis of chronic intestinal ulceration. Both the ileum and the colon were found studded with the deep, punched-out, sloughing ulcers, common in cases of dysentery.

When called to attend this child the symptoms were so much like those present in Cases I and II that I suspected we had to deal with another case of catarrhal continued fever. The fever persisted for over six weeks. Delirium was much more prominent than in the other cases, especially at night. It became necessary to pad the sides of the crib with pillows, in order to prevent the child from injuring itself. Notwithstanding these precautions it received several blows and bruises on the head and face.

The child eventually made a good recovery, although it had some little fever for several weeks.

During the whole course of the fever a distressing cough was present, with evidences of slight bronchitis, but the lungs remained clear, so far as could be detected by careful physical examination.

On April 9th, about a month after his first attack of influenza, the father of the child again took to bed with fever and cough. The temperature ranged between 103° and 103.2° for nearly two weeks, slowly returning to normal on or about the sixteenth day. There were no abdominal symptoms, but rather decided constipation. This man remained in bed for about ten days. A diagnosis of catarrhal remittent fever was made.

I also attended a young man, about twenty-four years of age, living a few doors beyond, with much the same symptoms, the fever, however, lasting only fourteen days.

The grandmother of the child whose history I have just given, a woman over sixty-five years of age, had chronic nephritis, with valvular heart-trouble. On March 28th she was obliged to go to bed, feeling, as she said, out of sorts, with slight fever and cough. On the following morning she died rather suddenly, complaining a few minutes before her death of a sense of oppression over the chest and great dyspnea. In this family we had four cases of catarrhal fever, with two deaths.

In order to properly recognize catarrhal continued fever as a distinct disease, we must first take up the fevers that are so very common in children. In attempting their classification we encounter many difficulties, and although they seldom terminate fatally, their careful study and early recognition is a matter of great practical importance. Especially are we impressed with this fact when compelled,

during the prevalence of some contagious epidemic disease, such as typhoid or scarlet fever, to make an early and correct differential diagnosis.

The text-books state that the majority of infectious diseases run a mild and irregular course in children, and this is more marked in respect to the fevers, which closely resemble each other during the first few days of their commencement.

All practitioners have seen cases in which it has been practically impossible to make a positive diagnosis before the lapse of several days.

Take, as an example, the difficulties in differentiating between a simple or abortive type of typhoid and one of the numerous symptomatic fevers so common in children, or between a mild case of scarlet fever and an acute attack of tonsillitis, accompanied by high temperature, exudation on the tonsils, vomiting and a general erythematous rash, not an unusual clinical picture in children during the last winter.

It is taught that under the circumstances a delay of two or three days will clear up the diagnosis ; but, in the meanwhile, how can we conscientiously insist on the necessary isolation, involving as it does among the poorer classes much inconvenience and expense ; or evade the numerous questions so persistently put by the anxious parent or more inquisitive neighbors.

The necessary delay involved in determining the question of contagiousness in a given case is frequently unavoidable, but this remains one of the embarrassing and trying questions in practice.

How often are we obliged to wait for days, anxious and perplexed, before we can make the final

differential diagnosis between rubeola and scarlatina. Such has been my experience at least with those cases of German measles that are marked by initial high temperature, vomiting, sore-throat, followed by desquamation and peeling on the extremities.

As evidence that this matter is by no means exaggerated, or that this question is not always easily and satisfactorily dealt with, we point to the surprising number of cases of scarlet fever and diphtheria cured and running about in less than a week, notwithstanding the gravity and large mortality accompanying these diseases in children. Such cases indicate either exceptional ability to cure necessarily grave diseases, or a disinclination to change a previously made incorrect diagnosis.

The majority of the febrile attacks of children may be included under the terms ephemeral fever and febricula—the former when the febrile paroxysm lasts less than thirty-six hours, and the latter when it persists for five, six, or more days. That we have an abundance of terms, as well as theories, in relation to this subject still in use in our modern text-books, cannot be denied; but it may be explained by the fact that the proper classification of the fevers of childhood is a question by no means settled in the minds of the profession, many of the terms used in connection with these fevers conveying little or no information—as, for instance, catarrhal and infantile remittent fever; the latter, in fact, having been applied to a variety of different conditions, such as gastritis, enteritis, hepatitis, and even one or two of the essential fevers.

Ephemeral fever, febricula, simple continued fever, irritative, gastric, catarrhal, septic, and infantile remittent fever, also herpetic fever and febris rheumatica of the Germans, synochus or mixed fevers, synocha or inflammatory fever, and functional fever, are some of the terms used by the older writers. Insolation, thermic or heat fever, continued thermic, and the ardent continued fevers of the tropics, are used more in connection with the febrile condition produced by excessive heat.

Classification.		Causes.	Duration.
Symptomatic fevers.	(A) Ephemeral or irritative fever.	Cold, or any source of irritation of an important organ of the body, such as teething, worms in the alimentary tract, serious injuries or fractures; sudden excitement or exhaustion of nerve-centers, as in attacks of hysteria, or extreme mental and bodily fatigue; the passage of bougies through the urethra; the inhalation of poisonous gases.	From 24 to 36 hours.
	(B) Febricula or simple continued fever.	Gastro-intestinal inflammations, indigestion and secondary absorption of leukomaïnes from the alimentary canal; as, for example, the fever produced by the absorption of tyrotoxicon or the ptomaïne found in ice-cream; attacks of biliousness, simple adenitis or lymphadenitis; inflammations of the mesenteric glands or tonsils; muscular rheumatism, and not improbably acute exacerbations in cases of chronic endocarditis.	From 3 to 12 days.
	(C) Thermic fever.	Exposure to intense heat or the direct rays of the sun, and over-exertion in hot weather.	From 3 to 6 days.

Classification.		Causes.	Duration.
Essential fevers.	(A) Malarial remittent fever.	Malarial poison	From 6 to 12 days.
	(B) Catarrhal continued fever.	Influenza poison	Indefinite; at least several weeks.
	(C) Specific fevers.	Abortive types of infectious diseases as observed during epidemics of typhus, typhoid, relapsing fever, measles, variola, and erysipelas; but only likely to occur during or immediately following epidemics.	From 6 to 14 days.

This variety naturally leads to much confusion, and to simplify matters they should first be divided into the two great classes, the symptomatic and essential fevers, rather than to include them all, as is commonly done, under the one head of febricula, the definition of which, according to a recent text-book, is "a fever of short duration depending on a variety of causes." (Osler.)

When called to prescribe for such conditions in children, our first object should be to attempt their classification under one of two heads—that is to say, to satisfy ourselves as to whether we have to deal with a symptomatic fever, caused by some local inflammatory condition, or an essential one, in which the local lesions are secondary to the fever.

I am well aware that it is frequently a most difficult point to determine, if the fever be idiopathic or symptomatic, and the local conditions a cause or effect. Our common excuse for failure in this respect is due to the fact that we are usually called rather late to the case, or only after the secondary local lesions have made their appearance. This

difficulty is always greater in children because in them the secondary lesions caused by fever are likely to make their appearance sooner and become more prominent than in adults, no doubt as a result of the greater impressionability, as well as the undeveloped state of the nervous system.

We may still arrive at a correct diagnosis if, notwithstanding the presence of these secondary lesions, we find that the inflammatory conditions are insufficient to account for the degree of pyrexia or the general symptoms in the case.

On the other hand, we should never overlook the possibility of an essential fever in the course of time becoming a symptomatic one, with continued elevation of temperature as a result of the secondary inflammatory lesions that have been set up.

As the symptoms would likely merge imperceptibly into each other, we could not positively recognize the occurrence of this change in the character of the fever, except by constant and systematic examination of the various organs of the body during the course of the disease.

This is what usually takes place in cases of catarrhal continued fever, and it is this that has probably led many physicians to doubt its existence and fail to recognize it as a distinct fever.

Bronchitis being the constant complication, or rather symptom, in most of these cases, we can readily understand how the catarrhal condition of the mucous membrane will in time extend downward, and by continuity invade the pulmonary structure, producing a catarrhal pneumonia, or more correctly speaking, a broncho-pneumonia, the

child's vitality being depressed by the prolonged effects of high temperature, and, therefore, placed under the most favorable conditions for the appearance of this complication.

The division of these fevers that I have made may appear somewhat minute and unnecessary, but I believe that if we studied them according to this plan it would greatly aid us in the matter of their differential diagnosis from the infectious diseases, the only point of any practical importance to us.

The few cases here reported are what I have led myself to believe to be typical examples of essential catarrhal continued fever, met with both in children and in adults, and caused or in some way connected with our recent epidemics of influenza, but a fever quite distinct from its acute or epidemic varieties.

The term catarrhal fever, applied to these cases, is rather inappropriate, for I could never satisfy myself that the catarrhal conditions that were always present accounted for the degree of pyrexia, especially during the first few days of the disease.

Nervous fever, or a fever depending upon some toxine circulating in the blood and affecting the heat-centers, would be more applicable to these cases and would be more likely to explain the prominent symptoms.

Fever, cough, delirium, or hebetude, oftener the latter; decided hyperesthesia, both local and general; loss of appetite and constipation were the most pronounced symptoms observed in children. The fever always ran a course of several weeks' duration, either ending by lysis and ultimate recovery, or becoming

indefinitely prolonged by the presence of complications, or when it attacked persons whose vitality was already reduced by some chronic ailment, frequently ending in death.

The diagnosis from the symptomatic fevers was made:

1. From the simple continued fever, or febricula, by the higher range of temperature, its epidemic character and longer duration.

2. From thermic fever, by the presence of laryngeal cough, and the fact that it occurred both in epidemic form and at all seasons of the year, irrespective of temperature or weather.

3. From typhus, or typhoid, fever it might be frequently impossible to differentiate, especially during the presence of these diseases in epidemic form. In the typhoid fever of children, both diarrhea and spots are often wanting. The abdominal symptoms are slight, the fever likely to assume a distinctly remittent type, and, on the whole, running a shorter course than in adults. The spleen is, however, always enlarged; the nervous symptoms are prominent; bronchitis is usually present; epistaxis rarely occurs; and the mortality is low. According to Dr. George B. Wood, there is an extraordinary susceptibility to the action of cathartics in the disease under consideration. The presence of herpetic eruptions on the lips and face is also said to exclude its existence in children.

4. Relapsing fever, by the absence of enlarged spleen or liver, of jaundice and articular pains.

5. From tuberculous meningitis it might be quite a difficult matter, since cases are mentioned in which,

notwithstanding the presence of extensive cerebral disorganization, there were no convulsions or evidences of paralysis. On the other hand, its abrupt commencement, and the absence of strabismus, irregularity in the pupils, arrhythmical pulse and respiration, constant and peculiar vomiting, and violent screams, should exclude the existence of meningitis. Only in its more rapid onset and higher range of temperature do the symptoms of acute meningitis differ from those of tuberculous inflammation of the membranes of the brain.

6. From acute general miliary tuberculosis I doubt whether it could be distinguished, except by the usual fatal termination of the latter

7. From malarial remittent fever, by the absence of chills and sweats, but above all by the careful examination of the blood with a view of determining the presence or absence of Laveran's plasmodium.

8. From yellow fever it would be a difficult matter, especially in countries in which this disease is prevalent all the year around. In fact, Guitéras is authority for the statement that yellow fever in the tropics can only be diagnosticated from the simple continued fevers of children by the fact of the increased mortality from meningitis, dentition, malarial remittent fever, etc., occurring during certain seasons of the year.

9. From central or abortive pneumonias there should be no doubt in the diagnosis after the first few hours.

10. From catarrhal pneumonia, or broncho-pneumonia, by the change in both the character and frequency of respiration, the absence of all abnormal

physical signs in the chest denoting catarrhal fever, and a dry cough out of all proportion to the local symptoms. The advent of catarrhal pneumonia is slow and insidious in children, but we should always be able, no matter at what stage of a prolonged fever, to detect its presence by the physical signs, the increased temperature, or its greater remissions during the day and changes in the character of the cough, which would become looser and more frequent.

Of the treatment of catarrhal continued fever there is little to be said. Antipyretics had little or no effect on the course of the fever, and although quinine was given in large doses, both by the mouth and in suppositories, its effects were, on the whole, disappointing. In fact, more reliance was placed on treating hyperpyrexia in these little patients by tepid baths than on the use of internal antipyretics. The baths not only reduced the temperature, but to a certain extent also relieved the great irritability from which the patients all seemed to suffer. Case I was given $\frac{1}{600}$ of a grain of strychnine four times a day with a pepsin mixture for over three weeks. It was also given a teaspoonful of whiskey every two hours, night and day, for over four weeks.

The treatment, I should say, was purely symptomatic.

The Medical News.

Established in 1843.

A WEEKLY MEDICAL NEWSPAPER.

Subscription, $4.00 per Annum.

The American Journal

OF THE

Medical Sciences.

Established in 1820

A MONTHLY MEDICAL MAGAZINE.

Subscription, $4.00 per Annum.

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