

An

Inaugural Dissertation

On

Cholera Infantum

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By

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## Cholera Infantum.

Cholera Infantum, as its name signifies, is a very formidable disease, peculiar to children; attacking them most commonly between four months and two years of age. It is said to be indigenous to our country, and prevails endemically almost every Summer, in most of the large cities, throughout its Middle, Southern and Western Divisions. It generally makes its appearance with the heat of Summer; increases in frequency, violence and fatality, in proportion to the increase of heat; being of most frequent occurrence, as a general thing, in July and August; and disappearing as the weather becomes cooler. It is considered the most fatal, of all the diseases to which infants are liable; destroying annually, in almost every part of the country, a great number of this class of the Human Family. Dr Bell, in his lecture upon Cholera Infantum, Bell & Stokes Practice says, "there occurred in Philadelphia, within the period of nine years, from Cholera Infantum 2323 deaths." But it has been supposed by some, to be a disease, confined almost exclusively, if not entirely to cities; and

scarcely ever to be met with in country practice; but such is not the case; for I venture to say, that in our country, every Physician, who has anything like an extensive practice, has almost every Summer seen more or less of the disease. True it does not occur so frequently, nor in so aggravated a form generally, in the country and in villages, as in cities, yet it has been known to exist, even as an epidemic in both.

Cholera Infantum varies considerably as to its duration; sometimes being protracted, and at others resembling the Epidemic Cholera, in the rapidity with which it destroys its victim.

**Causes.** The most common agent, in the production of Cholera Infantum, is generally acknowledged to be high and excessive atmospherical heat. This is made evident, by the greater prevalence of the disease, in proportion to the degree of the heat of the season, always prevailing to a much greater extent in an excessively warm season, and declining on the appearance of cool weather. It is said to vary with the changes of temperature; a few excessively hot days, in any season,

being sufficient to produce it; while during its greatest prevalence, a few cool days in succession, are frequently sufficient to diminish, and sometimes to stop it entirely. Although the high temperature of the atmosphere, is the most common agent at work in the production of the disease, and always strongly predisposes to it, yet it is not generally sufficient to produce it, unless combined with dampness, impurities, or some other agent. That a heated and impure atmosphere is the most frequent cause, of its production, is proven by the good effects which most usually follow, the removal of patients from under its influence. Another proof is the greater prevalence and fatality of the disease in large and crowded cities; and among the poor and destitute, who are more exposed to its influence, on account of the miserable and filthy condition, in which they commonly live. Irritation from teething which has always been known to aggravate disease occurring in any season, and has a tendency especially to affect the condition of the bowels, when combined with excessive heat, is a frequent promoter

of this disease. But that it has only a secondary influence is manifest, from its inability to induce the disease in any other than a warm season, let the excitement from this cause be as great as it may.

The irritation which usually supervenes on weaning, produced by deprivation of breast milk, and a change to food to which the digestive system has not been accustomed, is another agent in the production of the disease; which is shown by a greater number of cases occurring at this period. Although teething and weaning are both powerful agents, in the production and aggravation of disease generally, and of bowel diseases especially, "yet even when combined" says Dr Underwood "they are generally borne with relative impunity unless the irritation of high and continued heat acts in conjunction with them.

Dr Bell (Lecture on Cholera Infantum Bell and Stokes Practice) says, according to his observation, children of Lymphatico-nervous temperaments, whose constitutions might be considered anaemic, with a tendency, in after life, to Scrophulous affections, are more readily attacked by the disease.

Although there are many alleged causes, for the production of Cholera Infantum, each exerting its influence, and some possessing a powerful influence too; yet not one of itself is sufficient to produce it, neither can a combination of them, separate and apart from heat, so it seems that a heated atmosphere is an essential cause of the disease. But all the writers I have examined on the subject are agreed that it is a disease peculiar to the climate of the United States, and of such rare occurrence, in other portions of the world, that to our own writers alone are we to look for instruction, relative to it; and from whom most of the writers of other countries, who have attempted to write at all on the subject, have borrowed their descriptions, and in a good degree their treatment. But why it is so common in our country and of such rare occurrence in others, as to receive scarcely any attention from authors when the causes which commonly seem to produce it in ours certainly exist in others, I do not now understand. If a confined heated and impure atmosphere, together with irritation

from teething and weaning, a constitutional predisposition, and extreme poverty, with all its evils and inconveniencies, are the chief causes in the production of the disease in our country; why have they not the power to produce it, to the same extent, in other countries in which the same causes exist even in a greater degree?

That the disease is peculiar to our country is established, but the cause of that peculiarity, which must certainly be an active agent in the production of Cholera Infantum, it seems, is something quite unaccountable.

*Pathology.* Post-mortem examinations of bodies dead from Cholera Infantum, have revealed various lesions, both in degree and situation; depending in a great measure upon the length of time the disease has existed. The abdominal viscera seem to be more frequently affected, than any other portion of the body. "When death occurs, in a short time after an attack," says Dr Condie "the only morbid appearances to be seen, are often an unusual paleness, of the mucous membrane of the stomach and bowels; with more or less congestion of the liver."

He states that "the liver is congested in the majority of cases and sometimes very much enlarged". Dr Dewees says "under almost all circumstances, and especially in cases of long continuance, the liver is greatly enlarged."

He considers it rather functional than organic, and that it is caused from congestion, induced by torpor of the portal circulation. The brain is sometimes congested, and in very protracted cases effusion on its surface, or in the ventricles is sometimes to be met with. The alimentary canal in some portion or other of its mucous membrane, almost invariably presents some sort of a diseased condition.

Dr Dewees states that in some cases the whole alimentary canal exhibits signs of inflammation, having existed in it during the life of the patient. Dark, livid spots are scattered over the mucous coat of the Stomach and small intestines, particularly the Duodenum near the Pylorus. "Coagulable Lymph is sometimes spread upon their surface." He also states, and the same is remarked by Condie, that the structure in some cases is so much altered, and the coats so much thickened, as greatly to contract the



calibre of the canal. In his Pathological Anatomy Dr Gross says that chronic inflammation of the mucous membrane is quite common in Infantile Cholera, the membrane presenting a preternaturally pale appearance, as if it had been bleached, and drained of its fluids; and in such cases is usually very flabby and relaxed. The same Author says, in nearly all the dissections he has made of subjects dead from this disease, he has noticed softening of the mucous membrane, particularly the lining of the Stomach and Colon.

The Gall-Bladder is generally filled with a fluid, which, in different subjects, presents various appearances, the most frequent, however, is that of green bile. Dr Dewees says the large bowel is rarely involved in this disease, and never, unless it assume the Dysenteris form. The bowels contain usually a thick mucus with some fecal matter, colored more or less with bile.

Symptoms. Cholera Infantum does not always make its attack in the same way, but Diarrhoea accompanied with some pain and fever, is the most common symptom, with which it is introduced.

The stools vary in color, sometimes green at other times, light colored. The stomach very soon becomes irritable; vomiting takes place, which is sometimes so frequent and harassing, that every thing taken into the stomach, is almost immediately thrown up. Slight fever with anorexia, is sometimes the first symptom observed; succeeded by vomiting, which is soon followed by frequent and distressful purging. In some cases the vomiting and purging take place simultaneously. As a general thing, the irritability of the stomach remains, to some extent, during the attack. There are always languor, prostration and great emaciation.

The emaciation is so very rapid, as to cause in a very short time, an almost incredible alteration in the general appearance of the patient. The skin on the forehead, becomes tight and presents a very smooth and shining appearance; the eyes are hollow, glassy and sunk, often so insensible to external impressions, that flies have been known to light upon them, without the patient appearing conscious of their presence. The countenance is very pale; the cheeks sunk; the nose sharp;

the lip dry and corrugated. The abdomen becomes tumid, and the feet oedematous.

The skin, which in the commencement is hot, is in the advanced stage of unequal temperature; the lower extremities being cold while the belly and head are excessively hot. As the disease progresses the skin becomes cold and damp; the circulation in the capillaries of the skin very feeble.

The tongue which was in the commencement white, and loaded, becomes dark, smooth and shining. Aphthae are often seen in the mouth at this time. Thirst is always great, which is manifested by the continual craving of cold drinks.

In the first stage of the disease, there are rapid alternations of drowsiness and wakefulness, but in the advanced, the patient appears to pay but little attention to any thing around. It is no longer fretful as at first, but appears languid and drowsy. This condition is often followed, by symptoms indicating oppression of the brain, which is rendered more apparent, in proportion to the debilitated state of the system.

The evacuations from the bowels, vary at different periods, both in consistence and appearance. They are at first generally of a greenish color, possessing small lumps of fecal matter, afterwards they are slimy, thin and watery; then again, thicker containing mucus sometimes tinged with blood.

They are said by Dr Jackson to present at times the appearance of water in which putrid meat had been washed. <sup>nd</sup>Frequently the food passes through without having undergone scarcely any change whatever.

There is a crystalline eruption of minute watery vesicles upon the breast, common to most of the protracted cases, which Dr Dewees considers an invariably fatal sign.

Dr Condie says, he has in many instances seen the patient recover, even where the eruption was the most extensive and distinct.

Dr Dewees mentions another symptom, which, he says is much uncommon and not less fatal than the one just named, which is the thrusting of the fingers or hand into the back part of the mouth, as if desirous of removing something from the throat.

Prognosis. The prognosis of Cholera Infantum is very difficult, death often taking place when it is little expected, and recovery occurring when death seems to be inevitable. In some cases, it destroys the patient in a few hours. When the temperature of the skin is restored and equally diffused, with a warm moisture on the surface; when the pulse becomes slower and fuller; when the irritability of the Stomach and bowels has ceased; when the discharges become dark, bilious and fecal, exhibiting a healthier condition; when the child has not been deprived of, but still obtains, its nutriment from the breast; when it can have the benefit of a frequent change of air and situation, we may hope for a successful termination.

The absence of these favorable signs is indicative of a fatal termination. A cold, damp surface; tympanitic condition of the abdomen; small, weak pulse; continual vomiting of every thing taken into the stomach; purging of a pink-colored fluid, or a greasy matter, resembling dish-water, with excessive nervous sensibility or entire loss of it;

continued heat of the belly and head; unquenchable thirst; dry skin without any remission; are unfavorable signs.

The bloodshot condition of the eyes which sometimes occurs in protracted cases; the vesicular eruption upon the chest; the thrusting of the hand into the back part of the mouth, are in the majority of cases considered fatal signs. Frequently just before the fatal termination of the disease, all of the worst symptoms seem to abate, the child presents the appearance of decided improvement, but it is only the appearance, for death soon closes the scene, and releases the little sufferer from its misery.

<sup>or</sup> Treatment. As high heat and impure atmosphere are the supposed principal causes, in the production of Cholera Infantum, the first and most important indication in its treatment, is to remove the patient from their influence; giving it the benefit of cool and healthy air. The sooner after the commencement of the attack this can be done, the better, but it is of great

importance during any and every stage of the disease, and is to be considered an essential to its cure. If in the city it is better that the child be removed to the country, as it will then possess advantages it otherwise could not; but if this is impracticable, it should be carried much in the open air, and great attention should, at all times and under all circumstances, be paid to cleanliness of its person and dress. The child should be confined exclusively, to the breast, if it have not been weaned, and even if it have, if too great a period of time have not elapsed, a nurse ought to be obtained. If it is entirely weaned, its food should consist of milk with a little biscuit or rice. The apartment in which it sleeps, should be well ventilated and kept clean and dry. The gums should be examined frequently, and whenever the necessary conditions arise for it, they should be lanced. A warm or tepid bath, according to the temperature of the skin, should be administered at this time, once or twice a day.

By these means the disease in its incipency, can in the majority of cases, be arrested. As before stated, the disease often commences with diarrhoea. When this is the case, the daily application of the warm bath, succeeded by friction over the whole surface of the skin; mild, cool, mucilaginous drinks; with a powder every three or four hours, composed of one third of a grain of Calomel, three or four of prepared Chalk, and one half a grain of Sugar of Lead, will frequently check it.

When the vomiting comes on, and the stomach is so irritable as not to retain anything taken into it, Dr Dewees says, there is nothing so well adapted to allay the irritability and arrest the vomiting, as an injection of a teaspoonful of common salt dissolved in a gill of warm water: this is the dose for a child a year old and upwards, proportionably less for a younger. A teaspoonful of strong coffee, without sugar or milk, every fifteen or twenty minutes is mentioned by the same author; as being an excellent remedy in tranquilizing the stomach



especially in very young children.

To allay the irritability of the stomach is the most important consideration in the treatment of the disease; and almost every practitioner has his own favorite remedy, for effecting this object.

When the irritation is caused by any indigestible substance that has been taken into the stomach, a mild emetic or an enema should be given for its removal. After having removed every obvious cause of irritation; if the vomiting still continue, minute doses of Calomel, from an eighth to a half gr. mixed with a little loaf sugar and sprinkled dry upon the tongue, will generally have the desired effect of tranquilizing the stomach. These minute doses of Calomel should be given every hour or every two hours, and continued until they produce upon the secreting powers of the liver, action sufficient to relieve this organ of congestion, which is so commonly its condition in this disease. The accomplishment of this object is generally made known, by the evacuation from the bowels of slimy,

bilious, dark-green colored stools.

When there is much fever; great pain in the region of the stomach; skin dry and hot; abdomen swollen and tender to the touch; symptoms which indicate vascular excitement, a few leeches—the number varying according to the circumstances of the case—should be applied to the epigastrium, followed by warm fomentations or emollient-cataplasms over the entire surface of the abdomen.

The warm bath will prove beneficial at this time, especially if the temperature of the skin is unequal. The leeches applied to the stomach, will frequently arrest the vomiting. When the head is hot and there are manifest symptoms of determination to the brain; either leeches should be applied to the temples or blood taken from the arm; at the same time, cloths dipped in cold water and vinegar should envelop the scalp, accompanied by some stimulating application to the lower extremities.

Blisters behind the ears, kept open for some time will have a beneficial effect, in any case in which the brain is affected.

Sinapisms; stimulating liniments; blisters and the warm bath are all excellent remedies, in any stage of the disease, when there is much inequality of temperature. After the vomiting and purging have once been arrested, every precaution should be taken to prevent their return.

The patient should continually have the benefit of cool, pure and healthy air; great care should be exercised that its diet be not changed, that it is not given in too great quantities, or at too frequent intervals. The same caution should be used in the administration of medicines.

The patient should be continually kept in the half recumbent position; a change to the sitting posture, being often of itself sufficient, to reproduce the vomiting.

The bowels should at all times, be kept regular and in a soluble condition.

After the disease has existed for some time, it frequently assumes the character of Chronic Diarrhoea. The remedies used in diarrhoea will generally be applicable, in the treatment of this form of Cholera Infantum.

When the discharges are profuse, we must endeavor to check them. For this purpose a decoction of blackberry or dewberry roots is often used—especially in domestic practice—and frequently with decided benefit. Opium, alone or with other medicines, is among the best agents we have for effecting this object. It is of great importance that the surface be kept of a warm and equable temperature, and the skin lax. For this purpose the warm bath should be administered repeatedly; fomentations and friction applied to the abdomen and lower extremities. Blisters to the belly, and an injection of starch and laudanum will commonly prove beneficial. The acetate of lead, tincture of kino, tannin, infusion of galls, and a host of other astringents, have been recommended as very useful. Sulphate of Quinia is said to exert a very beneficial influence in some cases.

When the disease has existed for some time, the abdomen become tympanitic, attended with flatulency, the evacuations thin and very offensive; a mixture of the Oil of turpentine

mucilage of Gum Arabic - with a few drops of Laudanum, will be of great service. During every stage of the disease or even after its removal, it is of the utmost importance that the patient should possess the influence of a cool, pure and healthy atmosphere. Its diet should be of a mild and unirritating character.

The strictest attention should be paid to the cleanliness of its person, dress and sleeping apartment.

Of such importance is a change of air that Dr Dewees styles it the only sovereign remedy and Dr Rush says he never lost but three patients that had the benefit of a removal to the country.

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