THE COLITIS OF INFANTS.

A Paper prepared for the Cincinnati Academy of Medicine.

BY JAMES M. FRENCH, A.M., M.D.,

LECTURER ON MORBID ANATOMY AND DEMONSTRATOR OF PATHOLOGY AT THE MEDICAL COLLEGE OF OHIO; PHYSICIAN TO ST. MARY'S HOSPITAL, CINCINNATI, O.

Acute colitis, in the sense of an acute catarrh of the large intestine, occurs in infants as a primary disease or as a part of the affection which has received, among other names, the designation entero-colitis. If, in what I have to say of it in the latter connection, I shall appear to make an unnatural separation of usually associated lesions, I hope to be excused on the ground that I believe that colitis is a part of the disease which is too often lost sight of, particularly in the treatment of it.

It is in this connection with catarrh of the small intestine that the disease is most frequently encountered. It then occurs as a sequence of cholera infantum, or of an acute dyspeptic diarrhoea.¹

In its primary form colitis is usually due to errors in diet, especially when it affects infants which have passed the weaning period. Occasionally it complicates other diseases, as the acute exanthemata, or arises from the irritation of foreign bodies or parasites in the bowel. It begins, in some cases, gradually, and runs a mild, nearly or quite afebrile course of a few days' duration; in other cases, it begins with sudden alarming symptoms, rapid rise of temperature to 103° or 105°, great prostration, nervous excitation, even convulsions, with frequent, small, bloody stools, consisting largely of mucus. It may then speedily terminate in death, or may last for weeks or months. It so much resembles, in its general features, the dysentery of adult life, that some authors have used the latter term in its description. True dysentery is, however, rare in infants.

The entero-colitis which follows the acute stage of cholera infantum is like a broken truce, or the siege which follows an unsuccessful engagement. The more alarming symptoms of the disease have passed away. The temperature has returned to the normal; the nervous phenomena have subsided; strength and appetite have in part returned; the stools have become more consistent, and the child's appearance has begun to indicate that convalescence is near. But the child continues restless, begins to have pain and is peevish. Fever again appears, ranging, as a rule, from 101° to 102°. The stools become smaller and more frequent. They consist of undigested food, mucus, and as a rule, a variable amount of blood. The odor is fetid in proportion to the quantity of undigested and decomposed food which they contain. The disease now has a tendency to persist, or to recur at short intervals, and often presents the features of inflammation of the large bowel, rather

than of the small. When it is persistent, the frequent, small, painful, bloody stools continue day and night. The little patient gets no rest, until, if the disease be not checked, after from three to six weeks, he is relieved by death. When the disease is more remittent in character, there is a gradual failure in strength and loss of flesh, until the little sufferer has become extremely emaciated. His facial expression is that of an aged person, and his integument, often dry and scaly, seems too large for his wasted frame. The duration of the disease in this form is indefinite. Beginning early in the summer, or under faulty hygienic conditions, it usually continues until the season or these conditions have changed. Ordinarily recovery is slow, and relapse is exceedingly common.

When entero-colitis begins with the so-called dyspeptic diarrhoea, there often appears to be almost from its inception a catarrhal condition of the entire intestinal tract, commencing in the stomach and passing, like a wave, along the entire mucous membrane. The symptoms are vomiting, followed almost immediately by diarrhoea, which, after from a few days to a week, almost always presents features characteristic of catarrh of the large bowel, the frequent, small, bloody, mucus stools that I have described.

Entero-colitis is therefore a disease which commences in the upper portion of the alimentary canal and progresses downward, rather than one that affects all portions at the same time. After the brief initiatory period, it as a rule affects only the lower third of the ileum and a greater or less portion of the colon. Unfortunately, the lesions which are found post-mortem in both cholera infantum and entero-colitis are not sufficiently constant to be entirely characteristic. Moderate hyperæmia, if it exist, is a condition which largely disappears at death, and extreme hyperæmia, although the rule, is by no means constant. Loss of intestinal epithelium, a much more constant finding in such cases, occurs as a rule in from six to ten hours after death, and is not pathognomonic of intestinal disease. But intense inflammatory processes soon lead to permanent changes. Follicular ulceration, and cellular infiltration of the mucosa, the submucosa and deeper tunics of the bowel are the common results of the prolonged catarrhal process under consideration. The point that I desire most to emphasize is the fact that lesions occur in the large intestine not only in a large proportion of these cases, but that their character indicates a severity of the diseased process which in most cases quite exceeds that found in the ileum.

That the mucous membrane of the colon should be thus often involved in the morbid process is almost axiomatic, since into the colon must pass the products of all pathological processes situated in the upper alimentary tract. Cholera infantum is variously accounted for, but owing to the fre-

¹ Holt's classification is here followed. "Cyclopædia of the Diseases of Children," Vol. iii, p. 134.

quency with which microorganisms are found in the dejections and in the intestines after death, it has been pretty generally accepted that the disease is due to the action of bacteria which have not yet been isolated. By those who accept this theory, the symptoms are supposed to be due, for the most part, to the ptomaines produced by these bacteria. The local inflammatory process in the large bowel is doubtless in part due to the action of the same bacteria and ptomaines, but it is probably in part a result also of the abnormal fermentation of intestinal contents caused by other germs or by no germs. Chemical changes in all probability occur. The evidences of most intense inflammatory action are found in those portions of the colon in which the contents remain longest in contact with the mucous membrane, namely: in the cæcum, the transverse colon and in the sigmoid flexure. In the primary form of the disease, the lesions, the same in character as those described, are found for the most part in the sigmoid flexure and rectum.

The treatment of colitis is to be considered apart from that of affections of the small intestine only in the comparatively infrequent primary form of the disease. But even in cases of this nature, attention must be given to the character of the gastric and intestinal digestion. Incomplete digestion or abnormal fermentation of any kind may act either as an exciting cause of inflammation, or may tend to prolong its duration when once it has begun. Errors in diet must therefore be carefully rectified, and a diet suitable to the age of the patient must be selected. Only liquid food—milk and beef or mutton broths, is to be permitted. If constipation has preceded the attack, or if from the history of improper diet, the presence of flatus, or the character of the stools, the presence of abnormally fermented matter or other irritant substances be suspected, calomel in doses of from $\frac{1}{10}$ to $\frac{1}{2}$ gr. may be given every three hours until purgation is produced. In a majority of cases, little or no other treatment is required. Severe cases, however, require more active measures, in the manner to be described.

The treatment of entero-colitis is often exceedingly difficult, for here we have, in addition to the disease of the colon, an inflammatory state of the lower third of the ileum. Within a few days from the onset of the disease the little patient becomes prostrated and the signs of emaciation begin to appear. As the large intestine becomes involved, the frequent, often constant desire to defecate, the tormina and tenesmus, prevent sleep, and the condition often becomes alarming. How, then, can we relieve the patient from these symptoms, and what can we do to arrest the inflammatory process? The essential feature of the treatment at this stage is to so change the character of the intestinal contents that they shall no longer be irritating in character, and to give rest to the

inflamed mucous membrane. This is to be accomplished by correcting errors of diet, by overcoming defective digestion, and by arresting abnormal fermentation.

For the correction of errors of diet much is to be considered, the recitation of which would here be out of place. It is necessary that the child shall receive the proper quantity of the right kind of food at the right intervals for its age. Not seldom the error will be found to consist in the too early resort to a mixed diet, too frequent nursing, or the use of such inferior substitute for mother's milk as impure cow's milk, condensed milk, or an inferior quality of artificial food, or the use of improperly prepared food. The diet should consist of articles of food which are most certain to undergo easy and complete digestion, leaving as little residue as possible. The passage of healthy fæces from the small intestine into the large in these cases is sufficient to excite peristalsis. For this reason, we must also carefully guard against over-feeding. Cold drinks must be prohibited, except the taking of an occasional teaspoonful or two of water to relieve the excessive thirst which is always present. A copious draught of cold water is almost inevitably followed by an evacuation of the bowel. Digestion may be facilitated by the administration of an active pepsin or pancreatine; and the addition of a small quantity of calomel tends to arrest abnormal fermentation. I have rarely employed any medicines other than those contained in the following prescriptions:

- R. Pepsini (F. & F., or P. D. & Co.), gr xij to xxiv.
Hydrargyri chlor. mitis, gr. ss to j.
Sacch. lactis q. s.
℞. ft. chartas No. xii.
S. One powder every three hours.

Or, in cases in which the intestinal digestion appears to be at fault:

- R. Extracti pancreatis (F. and F.), ʒss to j.
Hydrarg. chlor. mitis, gr. ss to j.
Sacch. lactis q. s.
℞. ft. chart. No. xii.
S. One powder every three hours.

It is better to give explicit directions that the powders be given immediately before or after nursing, and not oftener than once in three hours, as it is in this way possible to more completely rectify the error of too frequent feeding than by any other means, for our instructions as to the giving of medicine are more likely to be obeyed than are those pertaining to the correct manner of feeding the infant, a subject on which every mother has her own ideas. Naphthaline has been highly recommended for arresting decomposition, but although I have had excellent results from it in adults, I have used it in but two or three children. Its odor makes it difficult of administration. The advice of some writers to give small quantities of nourishment at short intervals is not judicious, as it both tends to embarrass diges-

tion and to increase peristaltic action. Ordinarily the diet of nursing infants may be restricted to the mother's milk, and that of infants that have been weaned, to sterilized cow's milk. But in severe cases, it is necessary to discontinue even cow's milk, for a time. By this means alone are we able to free the inflamed bowel from the influences which keep up the inflammation. The removal of food is by no means an easy task in most cases. Something must be given both to provide nourishment and to satisfy thirst. Mellin's food prepared with water instead of milk is well suited to this purpose, as it furnishes ample nutriment and leaves almost no residue in the bowel. In addition to this, an occasional teaspoonful of freshly expressed beef juice and a few drops of brandy may be given.

When the symptoms of catarrh of the large intestine greatly preponderate, thorough irrigation of the bowel is beneficial, even in young infants. It may be practiced with lukewarm water, a weak solution of common salt or alum, mercuric chloride (1:4,000), or nitrate of silver. The latter two remedies should be used, I think, only for their action on such parts as may be reached by the introduction of a recurrent catheter, the sigmoid flexure and rectum, owing to the danger of their retention. In some cases I have injected, after a short interval succeeding the irrigation, from 1 to 2 ozs. of warm starch water containing from 1 to 5 drops of laudanum, in infants of an age to justify the experiment. A much needed night's rest has thus been secured and the tide of the disease effectually turned. This procedure is, of course, not to be thought of until all products of decomposition have disappeared from the stools. The same result, so far as arrest of the symptoms is concerned, would follow the administration of an opiate by the mouth, but, although this practice has received the sanction of high authority, I cannot discern its propriety; since with the beneficial action will occur an arrest of digestion. In extreme cases I have used hypodermatically minute doses of morphia with atropia. The worst cases that are encountered are those in which opium has been injudiciously used in the early course of the disease.

By no means the least difficult period in the management of the case is that of convalescence. As the more severe symptoms subside the little patient develops a ravenous appetite, the gratification of which is one of the most frequent causes of relapse. Weeks or months, rather than days, are to be consumed in the return to the diet of health. The first step in the gradual restoration of diet in those cases which have required the suspension of all food, is the gradual addition of milk to the artificial food, until the normal proportion is reached. This then should constitute the diet for several weeks.

Hygienic treatment must of course be pursued,

the chief item of which is frequent bathing. If circumstances permit, the removal of the child from the city to the country will greatly hasten recovery.

THE CLINIC.

UTERINE MYOMA—RENAL CALCULUS AND SURGICAL OPERATIONS UPON THE KIDNEY.

*A Clinical Lecture Delivered at the Regular Surgical Clinic at
Rush Medical College, Chicago, Thursday, Oct. 2, 1890.*

BY CHARLES T. PARKES, M.D.,
PROFESSOR OF SURGERY.

(Concluded from page 52.)

If no information is gained by this examination, the kidney is fixed as much as possible in the wound by pressure through the anterior walls of the abdomen, and by forceps grasping the perinephritic tissue; then a grooved director is thrust through its substance towards and into the pelvis, which is examined thoroughly in all directions by changing the direction of the probe, until the stone is struck, or none is found. Of course, if, as in this patient, the tissue of the kidney and its pelvis is distended with pus, as soon as the director enters the cavity the pus will flow through its groove, as you see it does in this instance.

The blunt-pointed director is the best instrument to use in this trial; it, or any other cutting instrument, should always be introduced into the kidney some little distance above the lower end of the organ, on account of the frequency of the presence of the artery aberrans entering the organ at this point, and the free hæmorrhage attending the wounding of it. It is also said that fatal hæmorrhage has followed the use of the pointed aspirator used for this purpose, the needle being thrust so far forward as to puncture the main renal artery or vein.

No attempt should be made to fix the kidney by means of forceps attached to its substance, or by threads passed through it, because, owing to the structure of the kidney tissue—its softness and brittleness—they will surely tear out; no fixation will be obtained, merely unnecessary damage done the organ. It can sometimes be fixed very well by passing the finger behind it in the wound.

In case no pus escapes along the groove of the director, as not infrequently happens when the kidney is not much increased in size, and it is thought necessary to make further exploration, a scalpel is carried along the groove of the director through the substance of the kidney, making an incision large enough to admit the finger easily; the finger is passed through it into the pelvis of the kidney and a careful search made in all directions for the foreign body.