Observations

ON THE

DIAGNOSIS AND TREATMENT OF CATARRHAL
AND ULCERATIVE COLITIS.

BY

H. LETHEBY TIDY, M.D.Oxon., F.R.C.P.Lond.,
ASSISTANT PHYSICIAN TO ST. THOMAS'S HOSPITAL.

THE medical treatment of catarrhal colitis needs the most careful attention to detail. A bald statement of general principles is insufficient guide. Indeed, as usually enunciated, these consist mainly of starvation and opium and medicated enemata—measures which would induce colitis in many healthy individuals. For success, it is necessary to attend to many details which might appear to be minutiae. The chronic form will be dealt with first and special points in the treatment of the acute type will be given subsequently.

Chronic catarrhal colitis is a condition in which clinically there is persistent diarrhoea over a long period. Characteristically gastric symptoms are absent—that is to say, there is no nausea, vomiting, heartburn, waterbrash, or flatulent eructations. If present, they are slight and do not form a prominent feature. The appetite is not sharp, but is usually sufficient for the patient to take a considerable amount of nourishment. Gastric symptoms are, however, easily produced by an unsuitable diet. It is obvious that a severe or extensive catarrhal gastro-entero-colitis is hardly consistent with a chronic course.

Excluding effects of treatment, the diarrhoea does not tend to vary greatly from day to day. Nor does the character of the stools alter markedly from one motion to another. Days of constipation or the passage of solid faeces are not interspersed in the course. Blood and mucus may be present in varying quantities and mixed in varying degrees of intimacy, but blood is not always present.

Chronic colitis may commence suddenly with an acute or subacute colitis; this partly subsides, but persists as chronic colitis. On the other hand, chronic colitis may drift in gradually. The patient notices that the daily motion has become consistently soft and half-formed. Then in course of time two stools a day are passed. Gradually the frequency increases in spite of ordinary measures for dealing with casual diarrhoea.

No distinction is made here between catarrhal and ulcerative colitis. The conditions are essentially the same and the treatment is identical. Before describing the treatment, the diagnosis must be referred to—first, because certain diseases have some resemblance to catarrhal colitis, but call for different treatment, and secondly, because certain methods of diagnosis affect the treatment.

DIAGNOSIS.

The patient must be under observation in bed and the stools examined, at least with the naked eye, before a diagnosis of catarrhal colitis is made. Apparent colitis may sometimes prove to be due to aperients taken from ungrounded fears of cancer or of constipation, and the stools may become solid in a few days without treatment; in other instances the history has evidently been inaccurate, especially when there is a factor of neurosis. In severe cases very little observation is sufficient, and no time need be lost before treatment is commenced. Difficulties in diagnosis more commonly arise in cases of less severity, and a few days may be necessary for diagnosis; this time can safely be afforded for observation in such instances. Bacteriological and microscopical examination of the stools should be carried out in every case, but it is not necessary for commencement of treatment to wait until these are complete.

The special conditions from which the diagnosis of catarrhal colitis must be made are:

1. Muco-membranous colitis.
2. Dysentery.
3. Neoplasms of the colon.
4. Tuberculosis.

Muco-membranous Colitis.

In this condition there are three special features: neurosis, constipation, and the passage of mucus. During exacerbations the mucus is passed characteristically in the form of casts or "skins," but this is not so at all periods or in every case. Except under the immediate influence of aperients, faecal matter is passed in a solid scybalous form. The diagnosis is usually simple on observation. Initial difficulty not uncommonly arises from the patient giving an exaggerated or misleading account of the symptoms, conveying the impression of true diarrhoea or colitis. The condition is essentially one of constipation and neurosis and is not truly a colitis. The treatment is not referred to in this article.

Dysentery.

The bacteriological examination need be taken into account for purposes of treatment only when definite strains of Shiga or Flexner bacilli are identified; atypical strains may be neglected. Bacillary dysentery very rarely produces chronic carriers, but a chronic colitis may persist after an attack of bacillary dysentery or a tendency to recurrences of colitis of varying severity. The treatment is identical with that of other cases of chronic catarrhal colitis.

It may be accepted for practical purposes that amoebic dysentery only occurs in those who have been exposed to infection in dysenteric countries. Amoebic dysentery becomes chronic in a high percentage of cases. When there is a history of an attack of amoebic dysentery or any tropical diarrhoea the stools should be repeatedly examined for amoebic cysts. Indeed, with such history every case of chronic colitis may well be given a course of specific treatment.

Neoplasms of the Colon.

Two general considerations must be borne in mind:

1. The growth produces two groups of results, (a) due to constriction and obstruction of the intestine, and (b) due to ulceration of the tumour.
2. The symptomatology varies to some extent with the site of growth.

Constriction and Obstruction.—Constriction leads to colicky pains, to sensation of fullness and of flatulence, and to audible rumblings. These tend to occur especially after food, and hence are often considered by the patient to be "indigestion," and are attributed to the stomach itself. Air swallowing, in the effort to obtain relief, may complicate the picture. Intermittent constipation and diarrhoea tend to occur, though the effects vary with the site of the growth. As constriction and obstruction increase, peristalsis of the intestine becomes palpable. In the later stages peristalsis is visible, but by this time the obstruction will cause nausea and occasional vomiting.

Site of Growth.—The symptomatology will now be considered according to the site of the growth.

1. *Pelvic Colon.*—This includes the portion of colon situated in the left lower quadrant of the abdomen. A tumour is frequently not palpable, either on abdominal or rectal examination, at the stage when the diagnosis is still in doubt, but ballooning of the rectus is present in the great majority, and is never present in catarrhal colitis. Special points connected with growths in this site are the following:

- i. Obstruction is frequent and early, with symptoms as described above. The area of discomfort includes the left half of the abdomen.
- ii. The bowels show periods of constipation and other periods or "recurrences" of so-called diarrhoea.
- iii. There is no true persistent diarrhoea, but rather discomfort and tenesmus, with frequent desire to pass a stool.
- iv. Such stools may consist of mucus or watery faecal matter or solid faeces. The character of the stools varies at different times; blood may or may not be present in any stool.
- v. There is a special tendency for a small motion to be passed immediately on rising. Another may be passed after breakfast, and no more for the remainder of the day.

The general characteristic of a growth in this site is irregularity in the nature of the stools, in their times of passage during the twenty-four hours, and in their frequency

considered over longer periods. It does not produce the constancy of the type of stools which occurs in catarrhal colitis, and the comparative regularity of their frequency. The description given by the patient may not clearly reveal these characteristics.

Considering these various points together, the diagnosis between neoplasm of the pelvic colon and catarrhal colitis should not be, and in my experience very rarely is, in doubt after a few days' observation in bed.

2. *Splenic Flexure*.—This includes the portion of the colon situated in the left upper quadrant of the abdomen. Special points connected with growths in this site are:

i. Partial obstruction is so early and frequent that symptoms are very rarely absent. These include discomfort in the upper abdomen and symptoms of dyspepsia, suggesting to the patient that the stomach itself is involved. The left lower quadrant is comparatively free.

ii. The stools at times may be distinctly diarrhoeal, but with a definite tendency to vary in character and with periods of cessation of frequency; during these periods the dyspeptic symptoms continue.

A tumour is practically never palpable.

3. *Hepatic Flexure*.—This includes the portion of the colon situated in the right upper quadrant. Special points connected with growths in this site are:

i. A tumour is frequently palpable.

ii. Symptoms of pain and discomfort occur which are maximum in the area involved, and direct special attention to this site.

iii. The stools may be soft, chocolate-brown faeces, similar to those which may occur in catarrhal colitis. When such stools occur in colitis, consecutive motions resemble each other, while with neoplasm there is a greater tendency to variation. Further, with such stools in colitis there is nearly always an intimate but obvious mixture with blood.

The diagnosis of neoplasm in this site depends mainly on the localization of symptoms.

4. *Caecum*.—Special points connected with growths in this site are:

i. A tumour is nearly always palpable.

ii. Symptoms of discomfort are present which are referred to the right iliac fossa.

Neoplasms in this site cause difficulty in diagnosis from tuberculous and other conditions, but not from catarrhal colitis.

Tuberculosis of the Intestine.

Tuberculosis of the intestine, distinguished from tuberculous peritonitis, is common as a secondary condition in pulmonary tuberculosis. This form need not be discussed. The primary type is not very rare in children, but is usually associated with tuberculous glands; it is recognized by diarrhoea, pain, and wasting. In adults the primary type is very rare; but it undoubtedly occurs, and the question of its presence arises in most cases of chronic colitis with a gradual onset. Consequently it is unfortunate that its symptomatology has been little studied.

The condition tends to develop slowly. The stools may be soft and unformed, and at other times thin and watery, while formed motions are also passed. The stools may contain no pus, mucus, or blood. There may be periods in which the stools are mostly formed with an occasional loose action, and other periods in which they are mostly loose. It will be seen that the motions differ little from what may occur from the effects of aperients. It is on this variability of the stools and the long duration that the exclusion of ordinary chronic colitis mainly depends.

Abdominal discomfort is present; while not severe, it is rarely absent for any length of time.

Loss of flesh depends on the severity of the diarrhoea, and the weight may vary but little for a long period.

In the later stages the stools may resemble those of chronic colitis; blood may be present in small amounts or severe haemorrhage may occur. The temperature may now rise, having been normal previously. At this period the condition may closely resemble chronic catarrhal colitis, but it is noticeable that the frequency of the motions is usually not great.

The discovery of tubercle bacilli will decide the diagnosis in this or any previous stage, but a negative test is inconclusive.

METHODS OF DIAGNOSIS.

The diagnosis between catarrhal colitis and other conditions frequently cannot be made from the patient's story or on a single examination. But if the patient and the stools are under observation for a few days the diagnosis should rarely be in doubt. There are, however, certain special methods of investigation which must be considered. These include sigmoidoscopy, radiography after barium meal or enema, and exploratory laparotomy. The performance of these is often recommended without hesitation. It seems almost to be tacitly assumed that no step should be omitted to avoid mistaking neoplasm of the colon for catarrhal colitis. To justify this it would need to be upheld that no comparable harm is done to catarrhal colitis by such steps. Colitis improperly treated has a terrible mortality; if correctly treated, much can be done for it. Clearly colitis has its rights, even in comparison with neoplasm.

The methods mentioned will now be referred to.

1. *Sigmoidoscopy.*

This may reveal the presence of a neoplasm of the pelvic colon, situated in the sigmoid and out of reach both of the finger in the rectum and of a hand on the abdomen. As described above, the diagnosis between such a neoplasm and catarrhal colitis should be capable of decision on other grounds.

The question arises whether there is any indication or contraindication for the use of the sigmoidoscope in catarrhal colitis. It is, indeed, not uncommonly stated that every case of colitis should be examined with the sigmoidoscope, the purpose of this being to ascertain if ulceration is present, thus justifying the diagnosis of "ulcerative colitis." Formerly I was accustomed to examine cases of colitis with the sigmoidoscope as a routine. Neither in my own observations nor in those recorded by others can I find any information which would alter the lines of treatment based on other methods of examination. The observation of the presence or absence of ulceration does not influence the treatment. On the other hand, sigmoidoscopy should not be undertaken lightly in catarrhal colitis. Every effort has to be made to prevent further irritation of the anal canal and rectum. Indeed, the avoidance of irritation is one of the greatest difficulties with which one has to contend. As we shall see, the gentlest methods are necessary in the injection of enemata. Serious results can undoubtedly be produced in catarrhal colitis by the mere passage of the sigmoidoscope into the lumen.

When the long course of treatment is completed, sigmoidoscopy may help in prognosis, though by that time other observations and the result of experience should be sufficient for reasonable accuracy. At the outset, in my opinion, sigmoidoscopy gives no useful information, may do definite harm, and should never be employed.

2. *Barium Enema and Meal.*

Radiographs with a barium enema can be relied upon almost—though not quite—with certainty to establish the presence or absence of a neoplasm of the colon. It does not usually produce harmful effects in colitis; indeed, it may be beneficial; but, on the other hand, it is occasionally definitely injurious. It is less harmful and much more valuable than sigmoidoscopy, and in cases of special difficulty in the diagnosis between neoplasm and colitis it may be resorted to, but its use should rarely be necessary.

It should be noted that a barium meal is not nearly so reliable in diagnosis and is more harmful in colitis.

3. *Exploratory Laparotomy.*

Laparotomy may, of course, be necessary before distinction can be made between various causes of obstruction. But it should not be employed to diagnose between colitis and neoplasm. It is sometimes recklessly recommended. Exploratory laparotomy in a severe case of colitis is a very serious matter. It is better for those who are hesitating as to the diagnosis to treat the case as colitis and rely on the help of further observation.

TREATMENT.

Direct applications to the lower bowel are the basis of treatment, but there are certain general points which are of great importance.

Warmth.—It is essential that the patient should be kept warm in order to diminish loss of heat from the body. The extremities are often cold. Owing to the long duration it is usually impossible to keep the arms under the bedclothes. A light woollen jacket extending to the wrists should be worn, with stockings or long socks with pyjamas. Hot-water bottles and plenty of blankets should be provided. Patients frequently assert that they do not feel cold, but they usually soon appreciate the benefit of additional warmth.

Fluid.—Fluid must be given in considerable amounts to repair the loss from the body. One to two ounces may be given every twenty to thirty minutes between meals. Any bland fluid is suitable, such as lemonade, weak tea, or soda water. Alcohol must not be given in any form.

Diet.—It is of the greatest importance that the patient should get sufficient nourishment. There is no doubt that in this condition more patients are underfed than overfed, and many are definitely starved. The stomach and small intestine are little affected and can digest considerable amounts, provided that the diet is plain and the method of preparation is suitable. Food should be given at intervals not longer than two and a half hours. Bread or toast, biscuits, butter, eggs, fish, meat jellies, and meat extracts may be used freely. Custard, Allenburys and simple foods, and simple milk puddings are suitable, but milk must not be used as a beverage or taken too largely. Grapes and orange juice should be given. Fats must be used in moderation apart from fresh butter. Meat is unnecessary and must not be given. With regard to vegetables, their harm depends greatly on the method of preparation; small quantities of carefully prepared purées of spinach or potato can often be given in the later stages without ill effects. They should be used principally to relieve the tedium of a diet, when this is beginning to cause loss of appetite. Attempts to force the amount of food unduly or the administration of heavy dishes will disturb the stomach and result in anorexia and nausea, a most serious complication.

Treatment by Enemata and Colonic Washes.

Direct treatment of the colon is the essential method of attacking catarrhal colitis. The greatest care, patience, and attention to detail are necessary in the procedure. It is easy to do more harm than good, and the tendency to do too much and in too great a hurry must be resisted.

There are three main types of enemata, and these roughly correspond to progressive stages. They are: (1) the starch and opium enema; (2) simple colonic wash; (3) medicated enema. The method of preparation and administration will be first described.

1. **Starch and Opium Enema.**—The mucilage of starch which forms the basis is prepared as follows: Half an ounce of starch is rubbed to a smooth paste with 4 ounces of water; 16 ounces of water are raised to the boil, the starch paste added, the mixture raised to the boil again and allowed to cool. The amount of mucilage used for a patient of ordinary size and weight is 3 ounces; for a small woman 2 ounces is sufficient; and for a large man 4 ounces may be used, but this is the limit. The amount of tincture of opium added is in general 20 to 40 minims, but the dosage will be referred to again later. The injection is given through a soft No. 10 rubber catheter attached to a glass funnel. The catheter is passed not more than three inches and the enema allowed to flow in. The patient is encouraged to retain it as long as possible.

2. **Simple Colonic Wash.**—This may be prepared with sodium chloride, 1 drachm to a pint of water, or sodium bicarbonate, 2 drachms to a pint. Two pints are used for a patient of average size; the temperature should be 98° to 99°, which will be somewhat less than that of the colon. The injection should be given through a rubber catheter as for the starch and opium enema. The fluid must flow in solely by the force of gravity, the container being held

not more than a foot above the anus. The rate of flow should be a pint in fifteen to twenty minutes. These points are of great importance in order to avoid irritating or stimulating the intestine. The patient may lie on the back; in this position two pints of fluid will easily reach the caecum. There is no need to move the patient from side to side. The patient should be encouraged to return the wash after an interval of fifteen minutes if this has not already occurred, and may be sat up in bed. No other steps should be taken. As these patients are usually short of fluid no harm is done by its absorption, though its benefit as a wash is lost. In no case should any attempt be made to recover the fluid by the passage of a "long rectal tube." Formerly it was believed that this could be passed an unlimited distance along the colon and the fluid reached and recovered. It has long been established that the tube merely coils up in the rectum. Anyone who has used a sigmoidoscope must recognize that it is impossible for a tube passed blindly through the anus ever to enter the sigmoid. The "long rectal tube" must act by distending and stimulating the rectum, a harmful procedure in colitis.

3. **Medicated Enema.**—This is well prepared with albargin. The modern preparation seems to be more powerful or more irritating than formerly. It is best to commence with 20 grains of albargin in 30 ounces of normal saline; subsequently the strength may be increased to 30 grains. Of this 25 ounces is used for the patient of average size. It must be injected very slowly through a rubber catheter and glass funnel. A simple colonic wash must be given first; unless at least half its volume is returned the administration of the medicated enema must be abandoned for the day. If the wash is returned satisfactorily the medicated enema is given two hours after the wash was commenced. Convenient hours are at 9 a.m. and 11 a.m. respectively.

These various enemata correspond approximately to stages in the treatment.

STAGE I.—Starch and Opium Enema.

When the patient first comes under observation, treatment should commence with starch and opium enemata. The effect of an enema lasts not more than twelve hours. It should first be given at night in order to obtain rest and sleep. It must not be given on more than three days consecutively, or more than five times a week. If the treatment is hastened the rectum and anus become irritated and the injections cannot be endured, and at a critical time this may necessitate the treatment being abandoned for a week or more. Throughout the entire period of treatment, both in this and subsequent stages, no attempt must be made to hurry the progress by increasing the frequency of the injections. It is essential for the medical adviser to adhere firmly to this, in spite of entreaties and his own desire for more rapid improvement. A few evening injections will reduce the number of stools at night. After an interval of a day two or three injections are then given in the mornings in order to reduce the number by day. During this period the stools usually tend to increase again at night, and it will then be necessary to return to a course of evening injections. Subsequently treatment often involves giving alternate morning and evening series of two or three injections. Usually the motions at night are the more easily controlled, and the injections will mostly be given in the morning in order to control the day motions.

Quite early in the treatment an enema may result in no stool being passed for twelve hours; too optimistic an outlook must not be based on such apparent early success. It is possible that the action of these injections is mainly in allaying the irritability of the rectum; this reduces the number of motions somewhat artificially, but it enables the patient to obtain some rest, and also enables the rectum and anus to endure the colonic washes in the next stage.

In severe cases toxic results may be produced by 25 or 30 minims of tincture of opium. A patient may become partly collapsed about two hours after the injection. This may be preceded by a period of excitement. If this occurs the dosage should be reduced to 10 or even 5 minims, and

then gradually increased. It is advisable in every case to commence with not more than 20 minims. I have never attempted to increase beyond 40 minims.

As a guide to the duration of this period, its aim may be stated as the reduction of the number of stools by half, or to about five daily. The usual time is about three weeks, but it may be considerably more.

STAGE II.—Colonic Washes.

When the stools are reduced as stated, colonic washes are begun. Many patients cannot stand more than three washes a week. Consequently at the onset they should be given on alternate days. As a general rule they should not be given on more than two days consecutively. If the stools become more frequent again a return should be made to the starch and opium enemata from time to time.

This stage is a matter of months, and it will gradually be discovered how frequently the individual patient can bear injections. It is often a successful practice to give colonic washes and starch and opium enemata alternately, and a patient may be able to endure these daily for several weeks. At the slightest hint that the anus is becoming irritable, or that the washes are being returned too soon, their frequency must be reduced or an interval of several days allowed.

This stage aims at a reduction of the number of stools until they are consistently less than five a day. In a severe case this period will be six to eight months.

STAGE III.—Medicated Enema.

The patient is now ready for medicated enemata, which may be regarded more definitely as the curative form of treatment. These enemata must never be given more frequently than on alternate days, and not more than six in a fortnight, followed by at least a week's interval.

Considerable judgement has to be used in deciding how long a patient should be encouraged to retain such an enema. An albargin enema is always uncomfortable, and in a short time often becomes distinctly painful. For the first enema a period of five minutes is as long as is advisable. This period should be increased gradually to fifteen minutes, though any time over ten minutes is satisfactory. Retention should never be allowed beyond twenty minutes. There is never any difficulty in the enema being returned.

If medicated enemata are commenced before the intestine is in a fit state the pain will be too great to permit retention; the enemata, if persisted in, will irritate the intestine and result in an increase in the number of stools. In such circumstances they must be abandoned immediately, and a return made to the treatment of Stage II for four to eight weeks. It is nearly always advisable, after the first series of six medicated enemata, to return to Stage II for two or three weeks. Stage III will usually occupy two or three months.

Once again it may be repeated that patience is essential, and the desire to hurry progress must be resisted.

Other Forms of Medicated Enemata.

Many other forms of medicated enemata have been employed. Of these the tannic acid enema is most in use. In strength this may be regarded as intermediate between a simple colonic wash and an albargin enema. It can be commenced earlier than albargin, but is definitely less efficacious. In my opinion it is best to wait until the colon can tolerate albargin. Tannic acid enemata, or other forms of medicated enemata, are often employed from the onset of treatment, directly the patient comes under observation. This practice must never be followed. It is associated with the disastrous mortalities so often recorded in series of cases which have been "medically treated."

Incontinence of Faeces.

Incontinence is a very grave symptom. Obviously it robs us of all opportunity of the use of enemata. Occasionally, though rarely, it can be controlled by a starch and opium enema. In general, incontinence must be regarded as the indication for surgical treatment.

Incontinence can be produced by injudicious methods in the use of enemata, as by giving them too frequently, by commencing medicated enemata too early, or by giving the injection too rapidly or without due gentleness. It can undoubtedly be produced by the use of the sigmoidoscope.

Drugs, and Other Methods of Treatment.

Morphine.—The question of the administration of morphine needs great care and often considerable moral firmness. It is easy to paralyse the intestine by an injection of morphine or even by a large dose by the mouth. The reduction of stools is regarded by a patient and by the relatives as the essential point in treatment, especially when associated with the comfort of the narcotic action. Consequently strong pressure is often brought to achieve this result by any means. It is the duty of the medical attendant to resist this pressure. Mere paralysis of the intestine does not allay the inflammation or prevent toxic absorption from the intestine. The result, far from being satisfactory, is usually absolutely disastrous; the patient rejoices in the comfort, feels greatly improved, and resents any attempt at active treatment; meanwhile cardiac weakness and collapse progress rapidly. It may be stated as a definite rule that in no circumstances should an injection of morphine be given. By the mouth a dose of 5 minims of tincture of opium four times a day may safely be given if desired, but larger doses must not be given. Indeed, the use of morphine should be restricted to the opium in the starch and opium enema.

Drugs by the mouth, apart from morphine, appear to have very little effect in the more severe stages. In the later periods of improvement certain preparations are of assistance, and should be employed. *Mistura cretae* (B.P.), bismuth, especially as bismuth salicylate, and aromatic sulphuric acid are the most valuable. The maximum official dose should be given three to five times a day, and at night.

Comparative trials on a considerable scale in bacillary dysentery during the war did not suggest that these had any obvious effect during the acuter stages.

Of other drugs and preparations, personally I give charcoal or kaolin if the stools are offensive; it is difficult to assess its value, but it cannot be harmful. True antiseptics can scarcely be expected to have any useful effect in the colon in doses in which they can be given safely by the mouth. Soured milk should only be employed if its proper preparation can be guaranteed; in such circumstances it may be given; it does not appear to possess any value during the severer stages. Emetine is definitely contraindicated in every form of colitis, except amoebic dysentery.

Vaccines.—Neither in severe nor mild forms, nor in any stage, have I seen any good results from the use of vaccines.

Serum Therapy.—Some observers have recorded good results from the injection of antidyenteric serum. Unfortunately others besides myself have failed to obtain these results. It may be noted that it is generally agreed that antidyenteric serum is of no use in bacillary dysentery itself after the first few days of illness, though it is effective at the onset.

Surgical Treatment.

Incontinence is a definite indication for surgical treatment unless it can be rapidly checked. As stated above, this may result from injudicious treatment. Apart from incontinence I can find no reason for surgical intervention, and the results recorded are certainly not better than those of rational medical treatment.

Of operations, the only one which should be performed is appendicostomy.

Acute Colitis.

Acute colitis usually commences suddenly. The symptoms may progress as rapidly as, and in a manner similar to, acute bacillary dysentery. This is unusual, and more commonly there is a period of two or three days during which the condition is rapidly becoming more severe. In cases with a sudden onset the possibility of irritant

poisoning may arise, but vomiting and gastric symptoms are prominent features with poisoning, and precede the onset of diarrhoea. In bacterial food poisoning diarrhoea may commence suddenly, but several persons are usually involved and improvement is very rapid.

In treatment it is particularly important to attend to the warmth of the patient. The loss of heat and fluid from the body is very great, and the extremities are often pinched and cold. Owing to restlessness it is usually impossible to keep the arms under the bedclothes. The limbs should be wrapped loosely in cotton-wool down to the wrists and ankles, and hot-water bottles and plenty of blankets provided. Fluid must be given freely.

Diet must not be pressed at this stage. Feeds should be given every two hours, and should be alternately milk (about 7 ounces with 3 ounces of water), and meat extract such as bovril. They should be cold, but not iced, or just warmed sufficiently to take the chill off.

The essential treatment is the administration of starch and opium enemata on the same plan as in Stage I of chronic colitis.

If the patient comes early under observation it is a good practice to employ the saline treatment as used in bacillary dysentery. Sodium sulphate, 1 drachm, is given every two hours for the first twenty-four hours, then every four to six hours for the subsequent four or five days. Cases must be carefully selected for this treatment. It must be employed only at the onset of the attack, not later than twelve or at most twenty-four hours from the commencement, and it is contraindicated by numerous previous motions and by great severity.

Injections of morphine must never be given. Alcohol is also contraindicated; the patient usually dislikes it, and it is apt to disturb the stomach.

THE USE OF RADIUM IN THE TREATMENT OF RECTAL CARCINOMA.

BY

J. P. LOCKHART-MUMMERY, F.R.C.S.Eng.,

SENIOR SURGEON TO ST. MARK'S HOSPITAL FOR DISEASES OF THE BOWEL.

THE treatment of rectal carcinoma by means of radium is still very much in the experimental stage, and it seems to me that it is important that at this stage we should frequently compare notes and review our successes and failures. There is still a great deal of work to be done before the results of treatment in rectal carcinoma can be compared favourably with the results already obtained in uterine and mouth carcinoma. Rectal carcinoma presents special difficulties, some of which are very hard to get over, and is beset with problems entirely its own.

Since radium needles and seeds for the treatment of rectal cancer first began to be used I have treated a number of cases by this method, and I think it may be of interest to others to survey some of the results.

Radium may be used in three ways in the treatment of rectal carcinoma: (1) As an adjunct to excision, thereby enabling a less serious operation to be performed. (2) To treat cases that are surgically inoperable. (3) As a substitute for the operation of excision.

Radium as an Adjunct to Excision.

At the present day it is generally agreed by surgeons that the only justifiable treatment for even early cases of carcinoma of the rectum is complete removal of the rectum and surrounding tissues. This of necessity involves the establishment of a permanent colostomy opening, which is naturally very distasteful to the patient. The old methods of local removal of the growth without leaving a permanent colostomy were some time ago universally abandoned because recurrence of the growth was the almost inevitable result. Since this principle of total removal of the rectum has been adopted the results of treatment in rectal cancer have greatly improved, so that the proportion of cures (based on a five years' survival) is now over 50 per cent. But the operation is a mutilating one, and it is obvious

that if a technique can be evolved by which the patient is saved a permanent colostomy and the proportion of cures can still be kept high a great advance will have been made over the present methods.

By the suitable use of radium we have, it seems to me, a means of treating at any rate early and favourable cases of rectal cancer by local excision of the growth without making a permanent colostomy, and yet obtaining a good percentage of cures. Many years must, of course, elapse before we can be sure that the results are satisfactory, or that they can be compared with the total excision of the rectum and colostomy, now the usual practice. The results in the few cases that I have already treated in this way have been sufficiently encouraging to warrant further trial of the method in suitable cases.

The cases treated were very early growths in the middle, or lower part, of the rectum on the posterior wall, and the patients were so extremely anxious to avoid a colostomy that they were prepared to run a possible additional risk of recurrence.

The Operation.—The rectum was cut down upon from behind after removal of the coccyx, or where necessary a portion of the sacrum, the muscular tissues were divided, and the rectum was well freed and opened to one side of the growth, which was then cut completely out with a margin of at least half an inch of apparently healthy tissue. The resulting wound in the rectum was then carefully closed by catgut sutures in a transverse direction, so as not to narrow the lumen more than could be helped, and the muscular structures were sewn back into place so as to support the first line of suture. Radium needles were then placed in the mesorectum as high up as possible and all along the line of lymphatic spread, also on each side of the rectum and in all the tissues in the immediate neighbourhood where it was considered possible cancer cells might be. The back wound was then entirely closed except for a small drain, the threads attaching to the radium needles being left inside the wound. The rectum itself was drained with a large tube through the anus. No colostomy was performed.

At the end of a week the wound was reopened, the radium needles were removed, and free drainage provided.

These cases have done very well, and in only one was there any faecal leakage through the back wound, and this was quite small and very soon closed up. Function has been perfectly restored, and the bowels act in the normal manner. If—which time alone will show—the ultimate result in these cases is good as regards recurrence, then we have a method in suitable cases which will enable a colostomy to be dispensed with and a normal functioning rectum to be left. One case showed a doubtful recurrence at a point in the scar some six months later, and this was treated again with radon seeds. It seems to me that this method of using radium in association with local removal of the growth may have a useful future in suitable cases.

Radium as a Substitute for Excision.

In view of the results up to date I do not think any surgeon would advise the treatment of an operable case of cancer of the rectum by radium alone. A few cases have been treated because the patient has refused colostomy, or excision was otherwise not advisable on account of age or infirmity, but the results of radium treatment at the present time do not justify it being used in place of excision in operable cases. The best results that I have seen have been in cases of epithelioma of the anus in elderly persons. One patient was 83, and a large and horrible epitheliomatous ulcer healed up as the result of the insertion of radon seeds.

Radium Treatment in Inoperable Cases.

Most of the cases treated so far have been in this category. The technique is still very much in an experimental stage, and we have much to learn as to the best methods of applying it. In the early stages a large dose was given and the needles, containing 5 to 20 mg. of radium, were removed in twenty-four or thirty-six hours. This proved unsatisfactory for two reasons: (1) there was too violent local reaction, and (2) the growth was not sufficiently