TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the digestive system met with in general practice.

CHRONIC DIARRHOEA IN ADULTS

BY

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Diarrhoea is a symptom—the too-frequent passage of too fluid stools—and it may be a symptom of many diseases. The chronic diarrhoeas form one of the most confused groups in modern medicine. It is quite impossible to get a clear-cut system of diagnosis and treatment such as can be used, for instance, in the treatment of cardiac irregularities. As every case of chronic diarrhoea is one that has been treated so far without success, a preliminary review of the diagnosis is imperative.

Differential Diagnosis

Most cases of chronic diarrhoea sent to hospital prove on examination to be due to intestinal obstruction. A digital examination of the rectum is essential, and will decide both diagnosis and treatment in many of these cases. But if the examination per rectum is negative we have to decide whether to put the patient to the expense, there and then, of full biochemical, radiological, and sigmoidoscopic examinations. When the abdomen, on careful inspection and palpation, reveals no localized distension of the bowel and no tumour of any kind, and where naked-eye examination of the stools does not reveal any solid scybala amidst the fluid, as in spurious diarrhoea, or macroscopic blood and mucus, one is justified in postponing these special examinations, particularly if the illness has lasted so long that the diagnosis of new growth can be excluded, or if the onset has been sudden and febrile. One then passes in review such causes of chronic diarrhoea as hyperthyroidism (usually obvious), Addison's disease (which may be extraordinarily difficult to diagnose), uraemia, ulcerative colitis, tuberculosis, and amyloid disease (with its large liver and spleen). The possibility of arsenical poisoning must not be forgotten, or the self-administration of purgatives. All these having been reviewed and, where possible, excluded, we are left with the group of "chronic diarrhoeas."

Classification and Pathogenesis

It can be stated that modern investigation appears to be progressing towards the view that chronic diarrhoeas all result from chronic enteritis, colitis, and often gastritis. There seems to be no practical value in the differentiation of "dyspeptic" from "inflammatory" cases. For the present purpose a simple and practicable classification would be into enteritis, with (1) fermentative, (2) putrefactive, and (3) fatty diarrhoeas; and therapy is largely based upon this classification. One and the same case may exhibit all three types of diarrhoea at different times. The pathogenesis can perhaps be summed up as follows:

1. Fermentation is due to the hurrying of unabsorbed sugars and undigested starch into the caecum, where for the first time the intestinal contents come to rest and absorption is slowed down: fermentation results.

2. Putrefaction occurs in the more severe cases, in which the inflamed and irritated intestine pours out an albuminous secretion, which itself undergoes putrefaction in the lower ileum and caecum.

3. Fatty diarrhoea begins when absorption is seriously impaired and fat is excreted in large quantities, usually as soaps. There is also evidence of faulty absorption of sugar and amino-acids. As a result of this impaired absorption all kinds of secondary symptoms—rickets, tetany, microcytic and macrocytic anaemias, infantilism, and scurvy—develop, and will require treatment.

The fermentation cases are the mildest; the steatorrhoea cases are the most severe and correspondingly more difficult to treat.

Fermentative Diarrhoea

This condition is recognizable by the stools being (a) pale yellow, and (b) sour in smell and acid in reaction (beware of contamination with urine), and (c) containing bubbles of gas and froth. It is relatively easy to treat when recognized. The root of the trouble, however, is an enteritis and not the fermentation, hence a good rule in all cases is to insist on rest in bed for at least a few days, combined with a diet which will entail the minimum of work for the intestines and which has an absence of fermentable residue. Hence rest in bed should be enforced in all cases requiring serious treatment: it is extraordinary how it stops the diarrhoea in many cases. The dietetic principle, first laid down by Schmidt, is to remove all carbohydrate from the alimentary canal for a few days. It is still sound, though few people in this country could consume the diet recommended by him.

The following foods only are allowed: coffee or tea with glucose or sugar and cream, eggs, jelly, fish with butter, fowl, and beef-steak. It is difficult to make up a satisfactory civilized diet on these ingredients, but the patient can exist on his own selection. By the end of the second day the diarrhoea has usually ceased, and one can gradually add milk puddings, sponge cakes, thin dry toast, and, later, ordinary bread. There will probably have to be permanent restrictions of some vegetables, especially of those containing much intracellular starch, such as turnips, carrots, and potatoes. Patients differ in the way they tolerate greens such as spinach, which must be added, tentatively, in purée form. Fruit must also be permanently restricted. If there should be any fear of vitamin C starvation a little orange or lemon juice will supply all that is necessary. Drugs are not in any way essential, but there is some evidence that a vegetable diastase may be useful; malt extract or one of the proprietary preparations may be given.

Putrefactive Diarrhoea

This is a more serious condition. The stools are dark in colour, foul in smell, and alkaline in reaction, and they are usually more fluid in consistency than in the fermentative type of diarrhoea. It is useful to examine the stomach contents for achlorhydria, and, if this is found, to treat it by prescribing dilute hydrochloric acid, one or two drachms in a tumbler of water flavoured with orange or lemon juice, and sugar. It is best taken with meals, through a glass tube. The mouth may be washed out with sodium bicarbonate, one drachm to the pint, which should not be swallowed; but this is rarely necessary.

The treatment of the diarrhoea itself should begin with a two-days fast, relieved only by drinks of tea sweetened with glucose or cane sugar. Barley sugar may be sucked to allay the pangs of hunger. It is a good plan to try

next the effect of pure milk, for if milk is well borne it is most useful in the after-treatment of what may be a long and difficult illness. The patient at this stage is only too willing to discover that milk "suits his case," so two pints of milk may therefore be given, and the results watched. If these are favourable another pint is added; in this way an intake of 1,200 calories is reached, which is almost enough for the basal requirements of the patient. Milk being tolerated, milk pudding, cornflour preparations, biscuits, toast, and butter can then be gradually added. It is not advisable to add meat, fish, or eggs before two or three weeks have passed. Foods rich in cellulose, such as vegetables, salads, and fruit, are best avoided if things are going well, though, as will be noted later, they may be valuable in the treatment of some cases. If milk is not tolerated buttermilk or whey can be tried, and if they fail one would then have to consider the trial of some of the more or less freak diets which have been successful in various cases. The rationale of these freak diets is probably that they completely change the bacterial flora of the intestine.

Intestinal antiseptics seem to be indicated, but they have not yet proved their value. Some of these putrefactive cases, and especially those which border on steatorrhoea, seem to benefit by the use of chalk, of which there is no better preparation than the old *mist. creta*. It cannot, of course, be prescribed with acids. The favourable cases recover completely, but the condition is apt to recur. The patient should be warned against the danger of further attacks of acute gastro-enteritis, due to infection of any kind.

There are other measures which may be of help in the individual case. It is important to remember the possibility of a specific infection by amoebae or lamblia, though both are rare in this country. Amoebiasis is almost certainly curable by emetine and stovarsol, but these drugs should never be prescribed without a definite pathological diagnosis after an expert examination of the stools.

Freak Diets

An apple diet has been given with great success in the treatment of diarrhoea in children. It is occasionally successful in adults, and is worth a trial. The diet, for a few days, should consist of four to five pounds of apples a day. They should be peeled, and either grated or well masticated. Improvement, if any, is evident in a day or two, and it is not worth while persevering unless early benefit is obtained. Once the typical brown apple stools are being passed more orthodox food may be added gradually to the diet. A banana diet has also been used, though the rationale of both is unknown, and their success has caused much speculation. There are many other raw fruit regimes which may succeed. I have seen some good results from a diet consisting almost entirely of cheese. These cases, however, were more nearly subacute colitis than true diarrhoea.

Fatty Diarrhoea

Cases of fatty diarrhoea, under which may be classed non-tropical sprue and coeliac disease, are usually described as coeliac disease in this country. The large, greasy, offensive stools are characteristic. The fatty nature of the stools has led many to regard this "fat indigestion" as of aetiological importance, but it is probably an effect and not a cause. The results of treatment by a fat-free diet have been malnutrition, adult rickets, and little, if any, compensation in abdominal comfort. Adolf Schmidt pointed out many years ago that the intestine is very tolerant of undigested fat, in contrast to its intolerance of undigested carbohydrates. It is gradually being realized that this is a sound principle for the treatment of coeliac disease. The irritating factors appear to arise from

cereal starch and some sugars, of which cane sugar and lactose are the chief. Proteins are well tolerated, and milk fat is not only tolerated but fairly well absorbed. The rationale of treatment is: (a) to provide carbohydrate in some acceptable form, as, for instance, in bananas; (b) to make up for the loss of calories on abandoning cereals for bananas by giving a fair ration of fat or milk fat; (c) to give meat protein; and (d) to correct the various deficiencies of calcium, iron, vitamin D, and liver factors, as indicated by the accessory symptoms.

Dietetic Therapy

This can be summed up as a diet of sugarless milk, bananas, and meat (Roberts, C. G.: *Lancet*, 1934, i, 130). Four pints a day of sugarless milk are made as follows:

Take gelatin, four sheets; Callard's prolacto flour, one packet (2 oz.); liquor potassae (half strength), 2½ oz.; thick cream (that can be just poured), 7 oz.; Callard's saccharin elixir, 15 drops. Place the gelatin in an enamelled saucepan, pour on about half a pint of boiling water, and stir until dissolved. To the prolacto flour in another saucepan add about half a pint of cold water and stir until mixed. Add the liquor potassae, stirring all the time, and pour the gelatin solution on to this. Transfer without delay to a clean stoppered bottle (for example, a Winchester flask) marked at the 80 oz. (four pints) level, using a funnel. Add the cream and then cold water to the four-pint mark. Lastly, add the saccharin elixir and shake. Keep in a cool place, and shake well every time before use.

The patient must be in bed, and bread and buns are totally excluded from the diet. It is best to start with a fast-day, allowing only glucose and water. The milk should then be given up to 80 ounces per day, in hourly feeds. Bananas, kept if possible until dark, are added on the third day and increased gradually up to twelve a day. Some glucose may be taken if desired. When the stools appear normal, carrots, peas, French beans, spinach, lettuce, and celery may be added, and, later, apples and oranges. Each addition must be carefully watched.

C. G. Roberts gives the following as a complete day's diet.

8.30 a.m.—Cold ham, 3 oz.; two bananas; one apple; special milk, 13 oz.

11 a.m.—Four bananas; special milk, 13 oz.

1.30 p.m.—Beef cake, 4 oz.; rabbit or kidneys; carrots, 2½ oz.; two baked bananas; one baked apple; orange juice, 7 oz., with glucose, 1½ oz.; special milk, 13 oz.

4.15 p.m.—Special milk, 13 oz.; four bananas.

7.30 p.m.—Beef cake, 4 oz.; rabbit or kidneys; cold tongue, 3 oz.; carrots, 2½ oz.; one baked apple; two baked bananas; special milk, 13 oz.

10 p.m.—Four bananas; one apple; special milk, 13 oz.

Pankreon in tablet form may be taken to aid fat digestion.

Treatment of Complications

The accessory therapeutics may be summed up as follows:

Rickets, Tetany, and Osteoporosis.—Calcium chloride, 15 grains, or calcium caseinate (casec); vitamin D in a good commercial concentrate. In a bad case of tetany 15 c.cm. of a 5 per cent. solution of calcium chloride may be injected slowly—intravenously.

Anaemia.—If the anaemia is microcytic, pil. ferri, 20 grains t.d.s.; if megalocytic, the intramuscular administration of one of the proprietary liver extracts.

Scurvy and Oedema.—Scurvy will not arise in this diet, and oedema will remedy itself. Oedema may be one of the earliest signs that things are going wrong. I had one patient who could produce oedema by eating bread and then cure it by restricting himself to a meat and fat diet. The multitude of secondary symptoms which may arise in coeliac disease demand the fullest co-operation between the doctor, the patient, and the patient's family.

Drug Therapy

Drugs take a secondary place in the treatment of chronic diarrhoea. The only way in which a drug can be assessed at its true value is to use it when the effects of rest in bed, diet, and regimen have been fully tested. Employed at this stage, when things hang fire so to speak, it will generally be found that drugs have little effect. The tendency to recovery in acute cases is so great that one cannot attribute any part of a rapid recovery to a drug given at the height of an acute attack of enteritis.

Chalk has already been mentioned. It is rational to prescribe it because diarrhoea tends to deplete the body of calcium. Probably, too, it neutralizes fatty acids and diminishes irritation. There is a class of adsorbents, such as charcoal and kaolin, which are credited with the ability to adsorb the toxins from the intestinal contents, and so protect the epithelium and the body generally. There are also numerous proprietary remedies of a similar nature. It must be realized, however, that adsorption depends on physical factors, and the reaction of the surrounding media and the electrical charge of the adsorbed substance are of

great importance. It is quite possible that success may be obtained on one diet with one drug, and on a second diet with a different drug. In order, therefore, to ensure a fair trial the exact conditions of diet and regime must be reproduced. I have had no success with repeated trials of kaolin and some of its congeners. I. Strasser gives fairly exact directions for treatment with charcoal, which he says never wholly fails. Cases of an obvious fermentative nature are excluded, and treated on the lines indicated above. All other cases are treated by preliminary purgation with castor oil. The patient is then given for four to six days two to four dessertspoonfuls a day of finely powdered charcoal, suspended in water.

The diet is "perfectly protein-free," consisting of finely milled carbohydrates such as arrowroot and cornflour. Milk is avoided at the beginning of the treatment, but is tried later. When the diarrhoea is followed by constipation, and stools are retained, the bowels must be evacuated, otherwise the adsorbed poisons seem to be transferred from the adsorbent charcoal to the intestinal mucosa. The charcoal must not be continued for more than a few days, but the treatment can be repeated after about ten days.

THE JOINT TUBERCULOSIS COUNCIL

DR. ARTHUR MACNALT'S TRIBUTE

The winter meeting of the Joint Tuberculosis Council was held in London on February 22nd, and the members, with a number of workers in allied fields, were afterwards entertained to luncheon by the chairman, Dr. G. LISSANT COX, at the Hotel Russell. Proposing the toast of his guests, the chairman welcomed in particular Professor Bedson, Dr. Allen Daley, Dr. Maitland Radford, M.O.H. for St. Pancras, Dr. W. G. Savage, president of the Society of Medical Officers of Health, Professor W. W. Jameson, Dr. Charles Porter, and Captain G. S. Elliston, M.P., whom he thanked for much kindness and encouragement to all members of the public health service. Dr. Lissant Cox grouped the medical editors present into whole-time or pure, and part-time or impure, remarking that a characteristic of the former could be expressed in the North Country dictum, "Think owt, say nowt." He coupled with the toast the name of Dr. Arthur MacNalty, whom he congratulated on attaining the high post of Chief Medical Officer of the Ministry of Health.

The National Anti-tuberculosis Campaign

Dr. MACNALT, in reply, said he was proud to have taken some share in the early deliberations of the Council and to have been the first representative of the Ministry of Health to serve upon it. It was a great moment when the idea of an association of representative workers in tuberculosis was born in the fertile brain of Dr. Ernest Ward, and the founding of the council marked a great step forward.

"The national tuberculosis scheme in less than a single generation has provided a foundation for general measures for the health of the people throughout the land. It led to the appointment of an authorized agent, the tuberculosis officer, with a public duty to co-ordinate under the M.O.H. the various anti-tuberculosis services of the local authority; it brought about the establishment of the dispensary or tuberculosis clinic; and it caused a great extension of the sanatorium principle. We now have in England and Wales some 400 tuberculosis officers, 459 tuberculosis dispensaries, and 26,773 sanatorium beds for tuberculosis, as compared with 5,700 in 1911. The dispensary and sanatorium have greatly improved the diagnosis and treatment of cases of tuberculosis. The application of x rays has been an important contributing factor, and the orthopaedic treatment of non-pulmonary tuberculosis has made great strides. The mortality from non-pulmonary tuberculosis has been halved within a decade, a reduction only comparable with the decline in infant mortality.

"Another great advance has been the general application of various forms of collapse therapy in pulmonary tuber-

culosis. In 1922 Dr. Burrell and I made a report to the Medical Research Council on artificial pneumothorax. You may be sure we are looking forward to the further report which is now being prepared under the auspices of your council on the results of this treatment. There are other important advances to which I can only make brief allusion. There is a better understanding of the aims and uses of the sanatorium-hospital as an institution for medical and surgical treatment and for occupational therapy. These are designed to lead to the re-establishment of the patient, and are to be followed by connected and intelligent medical supervision and care after the patient leaves the institution. The village settlement has fully demonstrated the importance of this work, and in the cases which do not or cannot go to such settlements after-care work becomes all the more important. I have just received your fourth report on Care and After-care Schemes, which I am reading with much interest and appreciation.

"The encouraging picture of anti-tuberculosis work which I show you has been painted by your diligent hands. Our work in Whitehall would be but dry bones if the labours of medical officers of health, tuberculosis officers, medical superintendents, nurses, and health visitors did not make them live. But without the Joint Tuberculosis Council and the Tuberculosis Association many of you would be isolated and unaware of the work of your colleagues. The council provides opportunity for interchange of views and knowledge, the garnering of the fruits of experience, and, above all, arrival at a coherent and reasoned agreement on problems of tuberculosis. I must also refer to the post-graduate courses which Dr. William Brand has done so much to promote and make successful.

"Now all this is of great help to Dr. Chapman and myself at the Ministry. If we want information on a particular point we could, of course, ask the aid of Dr. Lissant Cox, we could communicate with Dr. Sutherland, or spend a pleasant day at Alton with Sir Henry Gauvain. But now we can consult the Joint Tuberculosis Council, which will give us counsel embodying not only the advice of those experts whose names I have mentioned but will also include the views of all the distinguished members of the council, a wealth of collated experience. My personal knowledge informs me that the close link between the council and the Ministry is of mutual benefit. You realize that we are always willing to help you. When you have any project for extending and improving anti-tuberculosis work you can come and talk it over with us: if the plan is practicable and calculated to achieve results we will do what we can to favour it."

Sir HENRY GAUVAIN, in proposing the toast of "The Joint Tuberculosis Council," added his tribute to Dr. MacNalty, and gave some amusing recollections of the B.M.A. world tour. Dr. ERNEST WARD, who replied, spoke of the interesting and stimulating contacts he had made with members of the tuberculosis service and medical officers of health during his twelve years as honorary secretary of the council. The proceedings ended with a toast to the chairman, whose many valuable qualities Dr. C. O. HAWTHORNE pointed out in a brief speech.