CROHN'S DISEASE INVOLVING THE STOMACH

A REPORT ON TWO CASES

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Crohn's disease is now a well-recognized pathological and clinical entity. It is generally agreed that the characteristic lesions occur predominantly in the terminal ileum, but that "skip" lesions are found anywhere in the jejunum, ileum, or colon. Crohn (1949) describes three main varieties: regional ileitis, ileo-jejunitis, and ileo-colitis. He also mentions cases in which the second and third parts of the duodenum were involved, and states that in two of these there were radiological appearances suggesting spread of the disease to the stomach. So far as we are aware, no cases have been published in which there has been proof of the disease occurring in the stomach, nor have the clinical or radiological features been described. In the following two cases Crohn's disease was shown to be present in the stomach.

Case 1

A single woman aged 23 was first seen on May 6, 1949, when she complained of peri-umbilical pain, accompanied by vomiting. Her vomit was alleged to have contained streaks of blood. Her appetite was good, she had no indigestion, and her bowels were said to act normally. Examination revealed the presence of a small, tender, irreducible umbilical hernia, which was dealt with by operation. She returned to the out-patient clinic one year later complaining of repeated attacks of epigastric pain, lasting for one to two hours at a time, associated with nausea. She had not lost any weight and had had no diarrhoea. Nothing abnormal was found on examination except some generalized abdominal tenderness. The operation scar was soundly healed.

During the next three months she was kept under observation, and a series of barium meals at six-weekly intervals revealed changes which may be summarized as follows. (a) There was absence of normal peristalsis in the pyloric antrum and cap. (b) There was deficient mucosal pattern in the pyloric antrum, the duodenal cap, and the upper half of the second part of the duodenum. The transition from normal to pathological mucosa was sharp and well defined in the stomach (Fig. 1) and in the second part of the duodenum (Fig. 2). Above and below the involved area the mucosal relief pattern was normal. Throughout the affected region the margins of the barium-filled lumen were slightly irregular, suggesting the possibility of superficial ulceration, but no definite ulcer crater was identified. The duodenal cap showed some contraction of the fornices, and its mucosa was devoid of folds. In the second part of the duodenum the usual feathery pattern was replaced by an unbroken column of barium until the normal mucosa was reached. The whole of the involved area remained motionless, showing complete absence of peristalsis, and even the cap was persistently full of barium. (c) There was no gastric or small-bowel stasis, and the colon showed no gross abnormality. At the x-ray examination on August 8, 1950, early changes in the mucosal pattern of the last 2 in. (5 cm.) of the terminal ileum were detected for the first time. (d) Her lung fields were normal, except for a calcified focus.

The changes in the stomach and duodenum were interpreted as a gastroduodenitis, and, in view of the appear-

ances of the terminal ileum, a provisional diagnosis of Crohn's disease associated with a gastroduodenitis was made.

During the three months she was under observation as an out-patient her general condition steadily deteriorated. On August 20 she was admitted to hospital. By this time her vomiting had become more insistent and she could retain only water. Attacks of severe abdominal pain occurred, but she had no diarrhoea during the week she was in bed before operation. Her pulse rate varied considerably, rising at times to 120-130, and she had some pyrexia. Though on palpation generalized abdominal tenderness persisted, at no time was there any distension or rigidity of the abdomen. Her haemoglobin was 82% and her E. S. R. (Westergren) was 38 mm. in one hour.

On August 29 it was decided to explore her abdomen. Typical changes of Crohn's disease were found in the terminal ileum and irregular inflamed patches were present throughout the colon. The stomach wall appeared to be only a little thickened, but in view of the previous barium-meal reports a biopsy of the gastric mucosa was taken from the region of the pyloric antrum. The disease was clearly too widespread for any benefit to be expected from short-circuiting or excision of affected portions of the bowel. The abdomen was therefore closed.

The histological report on the gastric biopsy was:

"The stroma is heavily infiltrated by lymphocytes, plasma cells, and endothelial cells. Giant cells are present. No caseation or tubercle bacilli were found. A chronic granulomatous process like Crohn's disease appears to be present."

After operation the patient appeared to convalesce satisfactorily. In view of her pyrexia it was decided to try the effect of a course of streptomycin, which was given with apparent benefit. Her vomiting became much less frequent, and she was sent home on the sixteenth day.

FIG. 1.—Case 1. Showing the absence of mucosal folds in the antrum, cap, and upper half of the descending part of the duodenum. The arrows indicate the junction of the normal and pathological mucosa.

FIG. 2.—Case 1. Showing the irregular margins of the duodenal cap and absence of folds in the mucosa of the cap and upper descending duodenum.

Her subsequent history is of interest. Some weeks after going home persistent vomiting and anorexia returned. She became seriously ill. Though she remained at home, in retrospect it is clear that she should have been readmitted to hospital at this time, since the difficulties of giving her enough nourishment might then have been decreased. As

it was, she started to make a slow improvement in the spring of 1951, and was well enough to come to the follow-up clinic in August. She then stated that there had been much less vomiting and abdominal pain in recent months, and that she was feeling much better. A barium meal was given on September 10. It showed that active peristalsis had now returned to the pyloric region and to the whole of the duodenum. Though there was still some residual narrowing of the lumen of the antrum, the outline was smooth and the mucosal relief pattern was normal. There was, however, delay in the emptying of the ileum, where after seven hours a considerable residue of barium remained. The last 3 in. (7.6 cm.) of the terminal ileum showed narrowing, and there was a typical Steirlin sign in the caecum. The ileum proximal to the narrowed portion was slightly dilated (Fig. 3). The x-ray appearances had therefore, after 12 months, become those typically found in regional ileitis.

Case 2

A married woman aged 24 with two children was first

seen in June, 1950. She complained that during the past three years she had suffered from lack of energy, lassitude, and attacks of abdominal pain and diarrhoea. Her stools were watery, but did not contain blood or mucus; her pain was relieved by evacuation of the bowels. Her appetite was good. On examination the only abnormal finding was tenderness in the right iliac fossa, where there seemed to be a palpable swelling. She was admitted to hospital for

observation. The results of investigations were as follows: F.T.M. was normal, haemoglobin 73%, and no pathogenic bacteria were found in her stools. On October 30 a barium meal showed normal functioning of the stomach and duodenum. No gross changes were seen in the small bowel.

She returned home, and on a subsequent visit complained of a vaginal discharge, for the treatment of which she was referred to a gynaecologist. He detected the presence of an ovarian cyst, and on February 7, 1951, he performed a laparotomy. The cyst was removed. On examination of the small bowel it was obvious that the terminal ileum was affected by changes indicating the presence of Crohn's disease. She was then referred to one of us (F. R. R. M.), and on April 6, when the abdomen was reopened, the diagnosis was confirmed. As the disease appeared to be confined to the terminal ileum, a right hemicolectomy was carried out, the caecum, ascending colon, and the last 3 feet (0.9 metre) of the ileum being resected. Histological report on the excised bowel confirmed the diagnosis.

She made a good recovery from the operation. When seen as an out-patient two months later she still complained of frequent motions, but the abdominal pain had disappeared. On August 21 she complained of anorexia and repeated vomiting. She had lost 14 lb. (6.4 kg.) in weight since her previous visit, and looseness of the bowels still continued to trouble her. She looked ill, but examination of her abdomen failed to reveal any significant abnormality. Further investigation showed that her E.S.R. had risen from 12 to 23 mm. in one hour. Her haemoglobin was 80%. The clinical picture thus seemed similar to that found in Case 1, and this opinion was confirmed when the supporting evidence of a barium meal was obtained (R. J. C.). The report may be summarized as follows: (1) There was pronounced gastric dilatation, with an excess of fasting juice. (2) Gastric peristalsis was almost completely absent. (3) The normal mucosal pattern in the pyloric antrum and in the duodenal cap was absent (Fig. 4). (4) The emptying rate of the stomach was normal. In six hours all the barium was in the colon, and in 24 hours most of it had reached the sigmoid.

Comparison of films taken at this time with those taken on October 30, 1950, showed that a great change had occurred in the interval. It was now clear that the change in symptoms had a pathological basis—that is, that of a gastroduodenitis, the nature of which might well be presumed to be similar to that described in Case 1.

Her subsequent history has amply confirmed this opinion. She has been in hospital since October, 1951. Her general condition has deteriorated on account of persistent anorexia and vomiting, and consequent inability to take adequate nourishment. She has become anaemic (Hb 63%) and suffers from frequent pyrexia. Oedema from alteration in serum proteins has occurred, and at times since admission to hospital it has often seemed as if she were going to die.

Discussion

These two cases appear to shed fresh light on the significance of anorexia and vomiting in cases of Crohn's disease. It would seem that such symptoms may herald the onset of this disease, and that when Crohn stated that "nausea and vomiting are rare manifestations and only occur in the later stenotic phases of the disease. Appetite is usually well preserved," he had not this possibility in mind. In neither of the above two cases was stenosis a primary feature. In fact, it was found only in the later stages of Case 1 when vomiting had ceased to feature in her complaints and when her gastric symptoms had largely subsided. No stenotic lesion was demonstrated in Case 2. It therefore seems justifiable to assert that when persistent anorexia and vomiting occur in Crohn's disease, and if other clinical evidence of intestinal obstruction is absent, the possibility of the stomach and duodenum being involved in the pathological process should always be considered. Having seen two cases of gastroduodenitis due to Crohn's disease in the limited practice of one surgeon in the last 18 months, we

FIG. 3.—Case 1. Showing the typical appearances of Crohn's disease in the terminal ileum and caecum at the end of the first year.

FIG. 4.—Case 2. One year later, when peristalsis and mucosal pattern were absent from antrum, cap, and upper descending duodenum.

feel that it is important to examine the stomach and duodenum carefully when clinical features such as we have described are encountered, since it may well be that these cases are less rare than a reading of the literature would suggest, and that this aspect of Crohn's disease has not received adequate attention.

The x-ray changes we have described are in our opinion characteristic. Further comment on the radiological findings may be made as follows: First, had the changes in Case 1 been confined to the stomach they might have been attributed to cancer of the diffusely infiltrating type (linitis plastica), but associated involvement of the duodenum and consideration of the age of the patient were of value in leading to a correct diagnosis. Secondly, the follow-up x-ray films of this case are also of interest in showing that the changes in the mucous membrane of the stomach and duodenum are not necessarily of a permanent nature, and that with the passage of time a return to a normal mucosal pattern is possible.

It should also be noted that both these patients became very ill on account of inability to assimilate adequate quantities of food. Case 2, which we have been able to observe in hospital, showed an upset in the protein content of the blood, and we feel it is important to stress the need for adequate dietetic care. Both these patients became anaemic, both appeared at one time to be going to die. A high-protein diet, as well as the prescribing of iron and vitamins, appears to us to be of importance in the handling of these cases.

Summary

Two cases of Crohn's disease involving the stomach and duodenum are reported; one of them was confirmed by biopsy of the gastric mucosa.

The radiological changes are described in detail.

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REFERENCE

Crohn, Burrill B. (1949). *Regional Ileitis*. Staples Press Ltd., London.

TOXOPLASMOSIS IN RELATION TO MENTAL DEFICIENCY

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Mental deficiency is a social problem and does not constitute a clinical or pathological entity. On the contrary, it indicates a degree of mental retardation ranging from the near normal to a completely vegetative state. It is even less of a disease entity than is, for example, jaundice, and, like jaundice, it may be produced by a very large number of noxious agents.

The severer degrees of mental deficiency—that is, idiocy and imbecility—are now recognized to be always attended by cerebral lesions, often gross and obvious. The causes of these lesions are, however, far from obvious. The diagnosis of "primary amentia" is often made, though, as in other fields of medicine, the use of the word "primary" is a cloak for our ignorance of the aetiology.

In the absence of any specific medical treatment for mental deficiency interest in this field of medicine is

naturally concentrated on prevention, for which a knowledge of aetiology is essential. It is understandable, therefore, that whenever any new suggestion is made regarding the cause of even a few cases of mental deficiency it should be eagerly grasped at and explored by those working in this branch of medicine.

Toxoplasmosis as a cause of mental deficiency has been considered in America and on the continent of Europe. Accounts of the cerebral pathology are given by Wolf, Cowen, and Paige (1939) and by Gard *et al.* (1949). The clinical and pathological pictures vary considerably, but the introduction of reliable skin and serological tests has raised hopes of a more precise diagnosis.

The skin and serological tests were recently carried out by Dr. O. D. Fisher at the clinical laboratory of the Hospital for Sick Children, Great Ormond Street, on the entire population of a group of institutions for certified mental defectives, comprising 698 patients, made up of 623 children almost equally divided between the sexes, and 75 adult females. Details of the technical aspects of the testing, together with the results of the survey, were reported by Fisher (1951). As the present paper is complementary to Fisher's survey his findings are briefly summarized as follows:

All the patients were skin-tested, and those of the children who proved to be skin-positive to toxoplasmin had samples of venous blood examined serologically, using Sabin and Feldman's dye or cytoplasm modifying test. An excellent correspondence between the skin test and the serological reaction was obtained. Of the 698 patients tested, 55 showed dermal sensitivity to toxoplasmin (T-positive). Of these, 20 were female adults who did not have their serum tested. The remaining 35, who were children, were positive to the dye test. Of the skin positive children, 14 were boys and 21 girls. Twenty serological tests done on toxoplasmin-skin-test-negative patients were all negative. In 14 T-positive cases lumbar puncture was carried out. In none of these did the cerebrospinal fluid show any abnormality, and toxoplasmas were not found.

Present Investigation

In this investigation a note has been made of the percentage incidence of positive reactors in the different age groups of the 698 patients tested in Fisher's survey, and the 55 patients who showed positive toxoplasmin skin and dye reactions have been scrutinized clinically and radiologically for signs of toxoplasmosis.

Methods of Examination.—The scrutiny consisted in physical and ophthalmic examination and radiography of the skull. As a guide in the examination we used the criteria cited by Sabin (1948)—internal hydrocephalus or microcephaly; chorioretinitis with predilection for the macular region; convulsions and other signs of involvement of the nervous system; and cerebral calcification.

Results

Incidence of Positive Reactions.—The age distribution of patients who were positive is shown in Table I. These figures show a steady and significant rise in the proportion of positive reactions with age.

Physical Findings.—As all the patients examined were mentally defective it was to be expected that they would

TABLE I.—Incidence of Positive Toxoplasmin Reactions in Different Age Groups of 698 Mental Defectives

Ages:	0-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-60	Total
Total	65	246	192	108	29	16	13	17	12	698
Pos.	0	9	13	10	5	3	3	5	7	55
% Pos.	0	3.6	6.7	9.2	17.2	18.7	23.0	29.4	58.3	7.9