ULCERATIVE COLITIS: ITS TREATMENT BY IONIZATION.

SUMMARY OF TWENTY-EIGHT CASES.*

BY

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WITH a view to estimating the value of ionization as a treatment for colitis an analytical summary was prepared of a consecutive series of cases dealt with in this way. In some, ionization was the sole treatment; in others, it was tried after various other methods had failed. In two cases emetine was given at the same time by impatient observers, although it was extremely doubtful that the patients could have been infected with amoebic dysentery. Included in this series were several fatal acute cases which ran a very rapid course, and some chronic cases which were apparently incurable.

In all there were twenty-one cures. Six patients relapsed, and four were again treated with satisfactory results; the other two, who did not carry out the instructions, failed to get relief at other hospitals. Two failures are still alive, but one of these ascribes the improvement in his general health and increase in weight (2 st. 11 lb.) to the ionization. Another who refused the treatment had a colectomy performed. Three patients were too ill to stand the treatment. One case of spontaneous cure without any special treatment is of importance in assessing the value of treatment.

All the patients but one were treated in hospital—the West London Hospital, the London Jewish Hospital, and St. Mary Abbots Hospital. They were seen in conjunction with colleagues, who are responsible for the reports on the sigmoidoscopic examinations.

The first case was treated in 1923, and the detailed history is instructive.

M. R., a married woman, aged 33, had been in the London Hospital for nine months (June 29th, 1922, to February 26th, 1923) with ulcerative colitis. She had suffered for four months previously with diarrhoea and the passing of blood and mucus. An appendicostomy had been performed and daily lavage given, but when seen at home after her discharge she was very ill, and had been sinking for some time. She was admitted to the London Jewish Hospital in a condition of collapse, being very emaciated. Grey slimy stools were passed every half-hour, accompanied by constant abdominal pain and persistent vomiting. Around the appendicostomy wound there was extensive sloughing and leakage of faecal material. The weight on admission (July, 1923) was 4½ stone. At my request Captain Marsh started ionization the day after admission with 2 per cent. zinc sulphate, using the appendicostomy wound for the positive electrode. This was repeated three times weekly, and the bowel washed out daily with hypertonic saline. Improvement was noted from the commencement of the treatment; the vomiting ceased, the appetite returned, the pain did not recur, and within a fortnight the stools had decreased to five in the twenty-four hours, and she had increased in weight (August 8th). On September 5th she was much improved, but the treatment was interrupted for a month. During this time she had daily lavage, but the stools increased in frequency to eight daily. While no blood or mucus was passed, the faecal fistula around the appendix appeared to be spreading. Ionization was started again on October 8th, this time the bowel being filled with zinc sulphate. Three days later there was a considerable improvement; the stools were brown and partially formed, the wound was looking better, and the leakage was less. Ionization was continued at weekly intervals, and she was discharged on November 30th. The appendicostomy was almost closed, but there was still a slight faecal leakage. She attended the out-patient department regularly. In January, 1924, when she weighed 7 st. 11 lb., she reported traces of blood in the stools, so ionization was again started and maintained at weekly intervals for a time. She was then on a normal diet, and had no diarrhoea. In May she was admitted to the surgical wards for closure of the very small faecal fistula which remained. This was done by Mr. Slesinger; since then her condition has been normal. She was seen in February, 1925, and was perfectly well, her weight being 10 st. Recently she reported that her good health had continued, and that her weight had increased to 11 st.

* Since submitting this summary for publication five more cases have been under treatment, with strikingly successful results. A detailed analysis of all these cases will be presented at an early opportunity.

Further work on these lines has confirmed the impression that ionization has the same striking effect on ulcers of the colon as it is known to have on superficial ulcers and sinuses. In certain cases treatment failed; this might be explained by an appreciation of the extent of the pathological processes. All the cases gave evidence of inflammation of the bowel, the stools or diarrhoeic flux containing pus and blood with admixture of mucus. In most the sigmoidoscope revealed ulcers in the rectum and pelvic colon, but these parts in some of the cases were not affected. In one or two, at a previous operation, ulcers had been determined in the colon. None showed evidence of bacilli or specific organisms.

The symptoms are not always proportionate to the extent of anatomical lesions. Sometimes the toxæmia is extreme with slight lesions, though this is usually not the case, and exhaustion from diarrhoea is the outstanding symptom. In one fatal case with a long history of diarrhoea a thickened, enlarged, and chronically inflamed appendix was removed, but death occurred from exhaustion. There were only a few small scattered ulcers in the colon. In patients who recover there is no evidence of the full extent of the damage.

Our earlier knowledge of the disease, based on post-mortem and museum specimens, pictured it as of uncommon incidence, generally occurring in middle age, resistant to treatment, and terminating after a long course by exhaustion. In these chronic cases the mucosa is extensively destroyed throughout the whole or greater part of the colon, with exposure and even invasion of the muscular coat; in places the remnants of mucous membrane give the appearance of polypoid; in some cases the wall of the gut has hypertrophied and become pigmented. In the chronic variety the microscope reveals diffuse inflammation spreading throughout the intestinal coats, and even fibrosis. It is difficult to see how so extensive a destruction of tissue could be repaired under any treatment. Most of the fatal cases met with have been of this type. Some acute cases run so rapid a course that death occurs in a few days; here again there is often extensive destruction of the bowel wall.

Long experience suggests an increasing incidence of alimentary ulcers. Many more cases of acute and sub-acute ulcers are noted than can be accounted for by more refined instrumental methods of diagnosis. For a time these are merely superficial erosions, though, as in the case of peptic erosions, they are not always dissociated from serious symptoms. It must be recognized that these erosions can heal spontaneously. This can be verified by sigmoidoscopic examinations. The etiology of these ulcers is unknown. The only factor common to all the cases is constipation, in some cases stubborn, and lasting as long as a week. In one case there was not even diarrhoea. All the patients on being discharged were prescribed liquid paraffin in one or other of its elegant preparations, and advised to persist with it.

Duration of Symptoms.

The duration of symptoms prior to treatment is a variable factor and difficult to determine. Nor can the time factor be regarded as invariably indicating the extent of the mischief. Most of the patients had diarrhoea with "blood and slime" for a few months only. In Case 6 there was recurrent diarrhoea for nine years; in Case 3 blood was passed for ten years, but blood and slime for only eight months. One patient had a definite acute onset one year and two months previously, and another had symptoms for a year. Of the unsuccessful cases, one patient had acute symptoms for four years. Some, however, were of short duration. Nevertheless, my impression is that the longer the disease has progressed the less certain is the cure.

Appendicostomy with subsequent lavage—the treatment recommended by most surgeons—had been tried in some cases. Colon lavage with various saline and astringent solutions had failed in others. In some antidyenteric serum had been used, but without the striking results reported by some observers.

	Name.	Age.	Duration of Symptoms.	Sigmoidoscopy.	Duration of Treatment.	Ionization.	Result.	Relapse.	Remarks.
1	M. R.	33	18 months	Too ill	21/7/23-30/11/23	Thrice weekly	Cured	No	Case reported in text.
2	M. A.	28	Months	Ulceration	26/10/26-2/12/26	× 10	Cured	No	"Terrific constipation."
3	M. R.	32	10 years	Ulceration	5/12/27-29/3/28	Weekly	Cured	No	Recurrent attacks of diarrhoea.
4	M. A.	35	Months	Ulceration	14/6/28-13/7/28	× 6	Cured	Yes	Relapse accompanied constipation.
5	R. B.	25	5 weeks	Ulceration	5/7/28-1/9/28	Twice weekly	Cured	No	Rapid improvement. Weight increased 1½ st.
6	J. F.	43	9 years	Haemorrhagic mucosa Ulceration	16/7/28-26/8/28 11/2/30-5/5/30	× 8 × 11	Cured Cured	Yes No	Recurrent diarrhoea with arthritis. Preceded by constipation.
7	S. K.	37	7 months	Ulceration	31/1/29-21/3/29	Twice weekly	Cured	Yes	Relapse accompanied constipation.
8	R. B.	33	2 months	Ulceration	23/10/29-8/12/29	× 7	Cured	No	Stubborn constipation for years preceded attack.
9	S. D.	33	5 months	Ulceration	22/11/29-21/5/30	Twice weekly, then once	Cured	No	Very intractable case. Intolerant of treatment and very anaemic.
10	A. W.	57	Months	Ulceration	25/6/28-10/6/29 5/2/30-31/2/30	Twice weekly × 5	Cured Cured	Yes No	Rapid improvement.
11	E. P.	21	2 months	Ulceration	12/1/29-22/3/29	× 12	Cured	No	Regained 2 st. in weight by Sept., 1929.
12	A. J.	22	Months	Haemorrhagic	19/3/30-2/6/30	× 9	Cured	Yes	Admitted as suffering from chlorosis. Under treatment for relapse.
13	W. W.	30	9 months	Ulceration	25/5/29-7/8/29	× 6 from 19/7/23	Cured	No	Serum and lavage ineffectual.
14	A. J.	53	5 months	Haemorrhagic	12/6/25-10/8/25	× 8 from 7/7/25	Cured	No	Lavage for one month ineffectual.
15	L. B.	40	8 months	Ulceration	31/10/29-31/12/29	× 3 from 17/12/29	Cured	Yes	Lavage ineffectual. After ionization stools normal.
16	F. C.	45	14 months	Ulceration	1/12/29-13/3/30	Began 16/1/30	Cured	No	Appendicostomy and lavage ineffectual. Emetine used.
17	G. G.	25	6 weeks	Injected mucosa	13/11/29-31/1/30	× 8 from 19/12/29	Cured	No	Serum and lavage ineffectual. Emetine also given; no evidence of dysentery.
18	R. N.	53	10 days	Ulceration	27/7/28-13/11/28	× 3 from 5/12/28	Cured	No	Improved under lavage but relapsed. Rapid cure after ionization.
19	M. C.	35	2 months	Ulceration	24/6/30-12/7/30	× 6	Cured	No	Hypochlorhydria. Rapid improvement.
20	S. H.	23	1 year	Ulceration	21/3/30-12/7/30	× 5	Cured	No	Preceded by constipation and arthritis.
21	F. G.	—	8 months	Ulceration	21/8/29-19/11/29	× 10	Cured	No	Rapid improvement. Gained 1½ st.
22	I. F.	48	10 months	Ulceration	14/5/29-31/7/29 30/9/29-30/11/29	Via appendicostomy Per rectum	Failed —	— —	Appendicostomy and lavage ineffectual.
23	J. C.	34	4 years	—	15/9/25-3/3/26	Frequent	Failed	—	Under ionization weight increased from 6 st. to 8 st. 11 lb., but ulcers remained. Appendicostomy. Transverse colostomy. Ulcers in transverse colon, which bled readily.
24	L. D.	—	Months	Ulceration	25/1/29-18/2/29	Intolerant	Died	—	Discharged himself and was treated elsewhere with serum and lavage, but died in a few months.
25	U. W.	21	3 months	—	4 days	Too ill	Died	—	Extensive destruction of mucosa of entire colon. Peritonitis.
26	Mrs.	—	Years	—	—	Through appendicostomy. × 3	Refused to continue	—	Improved after ionization, but ceased treatment. Colectomy.
27	Mrs.	45	Months	—	Months	Intolerant	Died	—	Lesion confined to pelvic colon. Extensive ulceration for six inches.
28	S. S.	30	6 weeks	Ulceration	14/1/25-3/2/25	No treatment	Cured	—	Constipation. Spontaneous cure with liquid paraffin.

Technique.

In the earlier cases daily lavage was employed, but patients at times became intolerant of this, and rendered the ionization difficult. There is no sound argument for sluicing the bowel contents. It can neither rest the gut nor disinfect it, for within a very short time of washing out the colon the contents become foul again. In the later cases, therefore, the daily lavage was omitted, and castor oil was administered twenty-four hours before each ionization.

A special flushing electrode was used. This was made for me by the Medical Supply Association. The ionization is carried out while the zinc solution is passing in. At first 2 per cent. solution was used, but latterly only 1/2 per cent. in quantity up to the limit of tolerance. At first only a little may be tolerated with 2 or 3 ma. of current, but finally three pints may be held whilst a current of 20 ma. is passing for fifteen minutes or longer.

The dietetic factor is important in view of the nutritional disturbance. It is not possible to alter the consistence of the contents of the colon to any extent by varying the food given by the mouth. The solid residue from a purely milk diet cannot be less irritant to a diseased colon than that resulting from a light diet, more varied, more palatable, and certainly more nutritious to an adult. Hence a liberal light diet was always allowed.

Several manifested a hypochlorhydria, and some achlorhydria. In these hydrochloric acid in doses of half a drachm was given, together with glycerin of papain.

Cure is judged by the presence of normal stools containing no pus, and to a lesser degree—as only a part of the bowel falls within the field of vision—sigmoidoscopic evidence.

Relapses.

Relapses are liable to occur in all cases of ulcerative colitis; in my series there have been several. These, however, have been of a mild nature, and have readily responded to treatment where the patient returned for advice early. In each of these the relapse was caused by indiscretion of diet or a return of constipation. Apart from those shown in the table, no other relapses have occurred up to the present time.

An important point is the secondary anaemia which often supervenes. This is at times resistant to treatment. One patient (Case 12) has returned to hospital for a blood transfusion, which, I think, could have been done with advantage much sooner. This patient was actually sent to hospital as suffering from chlorosis, with a haemoglobin content of 21 per cent.; colitis was diagnosed only after admission.

In conclusion, it would seem from the evidence here adduced that in ionization we have a distinct advance on previous methods for treating ulcerative colitis.

The first case was treated at my request by Captain Marsh, but the remainder have been done by me with the assistance of my various house-physicians, to whom I am indebted for carrying out with so much patience the detail essential to success.