

## Original Articles.

CASES OF INTESTINAL OBSTRUCTION TREATED BY MEANS OF THE RECTAL TUBE.<sup>1</sup>

BY J. FOSTER BUSH, M. D. (HARV.)

CASE I. G. W., a detective policeman, was first seen by me February 21, 1882. He was suffering from abdominal pains, irregular in character, but severe. The abdomen was hard and tender to touch. Upon questioning, I found that he was habitually constipated and had not had a defecation for two days, and that on the night before he had indulged in a lunch of beer and cheese before retiring, and that a few hours after he was awakened by abdominal pain.

He applied hot poultices, took two large doses of tinct. rhei comp., followed by pulv. glycyrrhizæ comp. The pains increasing, he took, upon the recommendation of an apothecary's clerk, pulv. ipecac. comp. grs. x., following it up with Rochelle salts and Tarrant's seltzer aperient.

When I saw him he had experienced some nausea, but had not vomited, and he complained of feeling cold in his bowels.

I ordered a large rectal injection, turpentine stupes to the abdomen, a tablespoonful of "Warburg's tincture" in warm water, to be followed by liq. morphia sulphatis, one drachm every half hour till he obtained relief. Four hours later I again saw him. He was experiencing excruciating pains, abdomen tympanitic and generally tender, and a particularly sensitive indurated mass was found in the region of the transverse colon on the left side. Another large rectal injection was given without obtaining relief, therefore I administered morphia, giving within an hour and a half three subcutaneous injections of half a grain each, after which he was free from pain, but did not obtain sleep.

On February 22d I found him with a high pulse and temperature, tender and tympanitic abdomen, and a recurrence of the pain. Vomiting was a constant symptom, and the tongue was brown and dry. There was mild delirium. A dose of castor oil combined with opium was given, to be followed by a large rectal injection of molasses, olive oil, turpentine, and soap-suds; the hips to be raised on an inclined plane while the injection was being given. The pain and vomiting increased, and the injection came away clear.

The only sustenance given was cracked ice and clear coffee in small quantities often, which was well borne.

There was retention of urine, which required the use of the catheter. Hot flax-seed poultices were applied to the abdomen, and three quarters of a grain of sulphate of morphia was given subcutaneously.

On February 23d he felt comfortable, and there was reduction in both pulse and temperature. There were constant eructations, but no vomiting. The abdomen was less tympanitic, and on deep pressure gurgling could be felt. The only tenderness was in the neighborhood of the induration previously spoken of. Only one subcutaneous injection of a quarter of a grain of morphia was necessary.

The next day, February 24th, Dr. H. H. A. Beach saw the patient in consultation, and coincided in the opinion that continuation of the rectal injections was the best course to pursue, large quantities to be given,

and in order to have it reach as near the spot as possible he recommended that a rectal tube should be used, that morphia enough to quiet pain was to be given.

I obtained one of the Davidson Manufacturing Company's red-rubber stomach tubes twenty inches long, the exterior of which is as smooth as glass. This I introduced its full length, the patient lying upon his left side, and threw into the colon a large injection, which, when it came out, was found to contain fecal matter with a highly disagreeable odor.

On the 25th there was less constitutional disturbance. Two injections were given through the tube, each of which brought away fecal matter, but only in small quantities. His nourishment consisted of Valentine's beef juice in small quantities, often, home-made beef tea, and clear coffee. He experienced no pain except over the colon, the stomach doing its duty well, and there being little tympanites. Half an ounce of sulphate of magnesia, with half a grain of socotrine aloes, was given in equal parts of syrup of ginger and peppermint water.

On the 26th Dr. Beach again saw the patient in consultation, and advised a continuance of the injections, and a repetition of the salts combined with aloes. The only objection to the tube used was that the holes being on the side the flow of the injected water was obstructed; therefore we tried a piece of the common white tubing open at both ends. This was introduced twenty-four inches, and an injection given, but the exterior of the tube was rough in comparison to the red, and caused so much pain that we had to discontinue its use. Two injections were given on this day with the same results as on the day before.

The 27th found him in the same condition, save that he voided his urine voluntarily, the use of the catheter having been necessary till this time.

Early on the morning of the 28th I had given him another dose of the salts and aloes, to be followed in two hours by an injection given as usual. Upon the return of the injected water white particles resembling cheese were noticed, and also a substance which I did not see, but which, according to the statement of the patient's wife, must have been mucus, as it "looked like jelly." As the patient thought he felt wind pass through the bowels, ol. ricini, in teaspoonful doses, was ordered to be given every three hours unless nausea or pain was produced; only one dose was given, however, as the patient felt distressed from it.

On March 1st Dr. Beach again saw him. The constitutional symptoms were good. He had no pain. In the sediment from the injections fecal matter and mucus were found, and floating on top of the water were fat globules, and as no oil had been given per rectum for a number of days it was thought that the particles seen might have come from the oil administered the day before. It was decided to continue the injections, using glycerine and water, and to give per ora

R. Ol. ricini . . . . .	3i.
Glycerinæ . . . . .	3ij.
Tinct. opii comp. . . . .	3i. M.

every three hours, unless gastric disturbance or abdominal pain was created. The injection of the glycerine was followed by tenesmus. Four doses of the mixture were given before inducing any action, but the fifth was followed by expulsion of flatus, followed by a defecation, which was shortly followed by a second, of watery character, with mucus and pus, and small hard masses, in one of which was the presence of a sub-

<sup>1</sup> Read before the Boston Society for Medical Observation, November 20, 1882.

stance resembling potato, very smooth on one side and rough and irregular on the other, as if it had been detached from the outside of a mass. This faecal matter was the first of any distinct form passed.

On March 2d more faecal lumps passed. There was no pain, but there was local tenderness at times. From this time onward recovery was rapid.

The highest pulse was 120, and the highest temperature shown by the thermometer was 103.4° F.

CASE II. J. R., an American, aged thirty, had always enjoyed good health, but was habitually constipated. On September 14, 1882, he ate heartily of corned beef and cabbage. That night he was taken with abdominal pain, which was referred to the region of the ascending colon. He took a dose of castor oil, followed it up with rhubarb, and later on took laudanum, without experiencing any benefit.

On September 16th I saw him. The pain was intense, the abdomen was tympanitic and tender, and there was vomiting whenever any food was taken. The temperature was 102° F., the pulse 120, and the tongue dry. I gave half a grain of the sulphate of morphia subcutaneously, ordered fomentations to the abdomen, and directed that a large rectal injection of warm water should be given, and morphia enough, in the form of suppositories, to relieve pain.

On September 17th there was delirium, the abdomen was greatly distended, the temperature 104.2° F., the pulse 140, and the tongue brown and dry. Vomiting was frequent and eructation was constant. Retention of urine required the use of the catheter.

The injection of the day before having come away clear, I introduced the long Davidson tube, as mentioned in the previous case, and injected about three quarts of hot soap-suds. Hard, dry faecal masses came away with a return of the injection, but the pain and tympanites were not relieved. Vomiting still continued. I gave a subcutaneous injection of half a grain of the sulphate of morphia, and ordered the suppositories to be continued *p. r. n.*, and gave cracked ice and clear coffee for nourishment. The pulse and temperature still remained high.

On September 18th I gave through the tube another large rectal injection of soap-suds, sweet oil, and molasses. The fluid upon its return contained faecal masses similar to those of the day before. Flatus escaped soon after, and the intense pain subsided, though general tenderness continued. I gave a mixture containing

R Magnesiæ sulphat . . . . .	3 ss.
Syr. zingerberis . . . . .	1 3 i.
Aq. ment. pip. . . . .	3 ss.
Aq. . . . .	aa 3 i.

to insure complete evacuation of the bowels, and directed that a teaspoonful of the compound licorice powder be taken every night.

A week later the patient had a sharp attack of pleuritis, which confined him to the house for a time, but there had been no return of the abdominal pain or constipation, the powder producing a good effect.

CASE III. J. R., on Sunday, September 24, 1882, went out into the country for a day's pleasure, and while there ate largely of "choke cherries."

On September 26th he was unable to perform his work, that of a mason, on account of abdominal pain, for which he took fluid extract of senna and castor oil. When I saw him he located the pain as being on the right side of the abdomen and extending along the

line of the colon. Local pressure produced pain, but no induration was found. There was no elevation of the temperature and no vomiting. I gave a saline cathartic combined with twenty drops of laudanum. Four hours later I found him in great pain, the extremities were cold, and the abdomen was tympanitic and exquisitely tender, the slightest pressure producing pain. There was vomiting. A half a grain of the sulphate of morphia, given subcutaneously, relieved the pain; fomentations to the abdomen were employed, and a rectal injection of laudanum and starch was to be given every three hours if there was a recurrence of the pain. Coffee and ice, as in the other cases, was the only food given.

On September 27th I gave through the tube a large rectal injection, which came away without faecal matter. There was less tympanites and pain, but there was stercoraceous vomiting, and retention of urine, though the pulse and temperature were not much above normal. A second rectal injection was given, with a like negative result.

On September 28th his condition was unchanged; the pain and tympanites were not great, but the vomiting was still faecal in character and quite fetid. The patient felt flatus descend to a certain point and then stop; he declared that it was at the entrance of the rectum, but such was not the case. A large rectal injection was given, the tube being used, but the fluid did not return for some time, and when it did it was very offensive.

On September 29th a large rectal injection was again given, and this time dark, hard, faecal balls were expelled. They were covered with bloody mucus. Flatus escaped, at first in small quantities, the patient saying it seemed as if it came through a pin-hole. The patient having had a strong craving all day for beer, a glass of it was given, and it acted as a mild purge.

On September 30th a saline cathartic was administered. Since then there has been no trouble.

It will be noticed that in the first and third cases the exhibition of cathartics was followed by an exacerbation of pain and discomfort, yet none of this class of drugs were administered till the inflammatory symptoms had apparently subsided.

*Remarks.*—These cases are reported to show the use of the rectal tube, by which means the fluids injected can be carried well up the bowels and brought near the disease; and one who has not tried this means can form no idea of the ease with which the tube is introduced, the patient often not feeling its introduction.

In two of these cases the patients asked me, after the tube was introduced, not to hurt them, they not having felt its passage beyond the sphincter ani.

Exactly how far an injection may be made to penetrate has for a long time been under discussion. From some experiments performed on the cadaver it was shown that water could be made to pass beyond the ileo-cæcal valve. Others claim that though in death the fluid may be made to penetrate beyond this point, yet in the living subject under normal conditions the tonicity of the valves prevents the passage beyond to the small intestine. Upon this subject Leichtenstein, in Ziemssen, says: "If we wish to act directly with enemata upon incarcerations or invaginations in the lower part of the ilium it is advisable to relax the ileo-cæcal sphincter by chloroform narcosis or by large doses of opium, so as to open the way for the injected

water to reach the point of occlusion. But not only under these circumstances, but also when we wish to reduce a twist, knot, or invagination of the colon by enemata, it is advisable, for more than one reason, to aid the operation by previously bringing the patient under the influence of opium." Concerning the penetration of fluids beyond the cæcum a recent writer on rectal alimentation mentioned the case of a patient who had taken no nourishment by the mouth for some time, who lived on rectal injections of beef tea, and in whose vomitus particles of beef tea were found.

These cases tend to show to what extent the intestinal canal can be distended without injury either to the structure or functions.

In order that the injection may do the most good possible the patient must bear patiently with a little discomfort, for it is as much the hyperdistention of the parts as the solvent action of the water that causes relief.

In the cases reported numerous injections were given, but one was never repeated till the patient had recovered from the unpleasant effects of its predecessor.

In the first case mentioned the only time the injections were suspended for any length of time was when pain and intestinal spasm had been created, and whenever this is done, or whenever we have fear that the intestinal structures have been weakened by inflammation or ulceration, of course the injections would be contraindicated.

Distention from below is not a new method, and other means than fluids have been employed. Air, for instance, has been forced in by means of a pump or bellows, or by chemical action, as by the injection of an alkaline followed by an acid solution. These last have only to be mentioned to be discarded, for they have not the soothing or relaxing properties of the water, which also exerts a force directly proportionate to the bulk employed, by reason of its compressibility and by its being regulated at will.

## OBSERVATIONS ON THE MANAGEMENT OF ENTERIC FEVER ACCORDING TO A PLAN BASED UPON THE SO-CALLED SPECIFIC TREATMENT.<sup>1</sup>

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I DESIRE to lay before the college a plan of managing enteric fever, which I have employed during the past year, and which, tested by such uncertain but not necessarily fallacious means as are available for a limited series of cases, has yielded satisfactory results.

The object of this communication will, I believe, be best attained by first sketching in outline the plan of treatment itself, next by reviewing the considerations which led to its adoption, and finally by a brief study of the cases. This arrangement of the topics will enable us to economize time.

*The Plan of Treatment.*—The scope of this paper and the necessity to be brief debar me from the consideration of the general management of the patient, dietetics, the treatment of complications and sequels, and of the prophylaxis, and restrict me, in the main, to the subject of the management by medicinal means.

<sup>1</sup> Read January 3, 1883.

It is, in fact, this part of the treatment that, superadded to the so-called rational and expectant method in general use in this community, differs from the common practice, and constitutes the plan in question.

So soon as the patient is found to have enteric fever, or, in many instances, so soon as his symptoms warrant a reasonable suspicion that he is about to develop it, he is put to bed, ordered a diet consisting of milk, animal broths, jelly, and simple custards, in small amounts, and at intervals of two or three hours. At night he is given a dose of calomel. This dose varies in amount from seven and one half to ten grains (0.5 to 0.66 gramme), and is repeated every second evening until three, or, rarely, four doses have been administered in the course of the first six or eight days. It is given alone or in connection with sodium bicarbonate. There is commonly a slight increase of diarrhœa, if it be present, without aggravation of the other symptoms, and in some instances the tendency of the temperature at this time to steadily rise appears to be controlled. If, as is frequently the case, spontaneous diarrhœa has not recurred in the first week, the calomel usually brings about two or three large evacuations on the day following its administration, not more. In either case the tendency to frequent passages in the later stages of the attack is favorably influenced by the repeated administration of this drug during the first week. If the case does not come under observation until after the tenth day, one only or at most two doses of calomel are given. No further doses of it are, however, given during the course of the attack unless constipation occur. In this event, if the evidences of extensive or deep implication of the intestinal wall, such as abdominal pain, tenderness, or marked tympany, are absent, calomel in seven and one half grain (0.5 gramme) doses is given at intervals of three or four days. If there is reason to suspect serious intestinal lesions the lower bowel may be more safely emptied of its contents every third or fourth day by enemata of moderate size (eight to ten fluid ounces). It is necessary to bear in mind that the gravest lesion of the gut, leading even to hæmorrhage and perforation, have occasionally been observed in cases characterized not only by constipation but also by an entire absence of pain or tenderness, and very moderate tympany. The danger of salivation from calomel in these doses in enteric fever appears to be slight. In only one case in sixteen were the mercurial fetor and slight swelling of the gums observed.

Excessive diarrhœa has been controlled by the use of opium, either in suppositories containing one grain (0.06 gramme) or by the mouth in quarter grain (0.016 gramme) doses, often associated with bismuth and given *pro re nata*. It is an invariable rule that the patient be kept in the horizontal position, and to the use of the bed-pan and urinal from the time of the recognition of the disease until defervescence is completed. He is, however, turned upon his side from time to time, and made to maintain that position for twenty or thirty minutes, if necessary, being supported by the nurse.

From the beginning of the attack the following mixture is regularly administered in doses of one, two, or even three drops in a sherry glassful of ice-water, after food, every two or three hours during the day and night:—

R Tinct. iodinii . . . . . f ʒij. 8.00 cc.  
Acid. carbolicæ liq. . . . . f ʒi. 4.00 cc. M.