The Diagnosis and Treatment of Intestinal Obstructions, and the Management of Greatly Distended Intestines during Laparatomy.

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INTESTINAL OBSTRUCTIONS.[1]

The following case will answer as a text for a few remarks which I wish to offer on the importance of making a diagnosis and locating the position of intestinal obstructions, and of managing the greatly distended intestines during the operation which may follow. As gynecologists of to-day, we are expected to do laparatomies for other conditions than those absolutely depending upon pathological changes in the uterus and its appendages. We must remember that probably one-half of the deaths which follow our laparatomies are due to intestinal obstruction, resulting from and caused by adhesive inflammations around the pedicle, or around wounded intestines. We must remember, also, that the female is particularly prone to have pelvic peritonitis, and that therefore we must expect that the larger number of cases of obstruction of the bowels will be among women.

The following history has been furnished by Dr. Coxe, house surgeon :

Mrs. F. D., age 47 years, married twelve years, duration of illness nine days, admitted to Woman's Hospital December 20th, 1890. Diagnosis, uterine fibroid and obstruction of bowels. First menses at 13 years, last three years ago. One child ; normal labor, though tedious ; nursed the child. Patient has had three abortions. Has had the tumor for three years. It has given her no trouble whatever, excepting a sense of fulness. One week ago the patient was taken with cramps in the abdomen, and nausea and vomiting, since which time she has had no movement of the bowels, though she has

[1] Read before the New York Obstetrical Society January 20th, 1891.

taken considerable physic and many rectal injections. Patient has been taking morphine constantly for pain. General health has always been good. Urine normal. Of late there has been some slight loss of flesh. She attributes these conditions to her change of habits, as she has been compelled to work nights. (Dr. Fuller, her physician, has, since her death, learned from a friend of the patient that she had noticed a slight rectal discharge and a slight odor to the discharge.) I placed the patient in the knee-chest position and gently crowded the uterus and tumor above the brim, and a tube twelve inches long was introduced into the rectum. No gas escaped, and the tube could not be passed further. I believed the tube touched the obstruction above, and some distance from the uterine tumor. One-quarter grain doses of calomel triturates were given every hour for eight hours. In the meantime, the patient was placed in the knee-chest position as often, and as long, as her strength would allow. At the end of eight hours a saline laxative was given and later a high saline enema, and retained, by pressure over the anus, for fifteen minutes. On its expulsion a large amount of gas was forced out with great violence. No fecal matter came away. There was decided relief, however. Later, when the same plan was followed, no gas, even, escaped. After consultation with Drs. Bache Emmet, Nicoll, and Talbot, it was decided to do a laparatomy.

The patient had retained considerable fluid food and vomited but once during the last twenty-four hours.

December 22d, 1890, laparatomy, Dr. Nicoll and house staff assisting. Usual antiseptic precautions. Ether used. Incision in linea alba five inches in length. Peritoneum found in a congested condition, intestines greatly distended with gas. A large aspirating needle was used to puncture the most distended portion of the intestines, and the gas allowed to escape. A Lembert catgut suture was used to tightly close these punctures. A careful search was made for the obstruction, but it could not be found, as the large fibroid presented at the incision and filled the pelvis and abdominal cavity. The abdominal incision was lengthened to eight inches, and hysterectomy was performed. The tumor was easily withdrawn from the pelvis, pedicle clamped, transfixed with pins, and cut off. By relaxing

the clamp the vessels were found and ligated. The pedicle was sutured to the lower angle of the incision. Pure carbolic acid was applied to the stump. A rectal tube was passed as far as possible up the bowel. The intestine was now run over carefully with the finger. The tube could not be felt through the intestines. At last this tube was removed, and it was found that it had doubled upon itself. Another was substituted, and it passed above the brim and was felt by finger, and the hand was directed by it to a firm, hard band in the colon four inches above the sigmoid. Through this constriction not even gas could be forced. By all present the mass was pronounced malignant. About three inches of intestine were now excised. The lower end of the intestine was tightly sutured and disinfected, and dropped back into the abdomen. The other end was quickly sutured to the incision, just above the stump, leaving one inch protruding beyond the abdominal wall for a spur. During the operation the intestines had been outside of the abdominal cavity, covered with hot towels soaked in warm, sterilized water. They were then returned to the abdominal cavity. In all suturing of the stump and of the intestine, catgut was used. The abdominal cavity was then thoroughly flushed. Incision closed with silkworm gut. Time of operation, two hours. Patient put to bed in poor condition. Free stimulation was used, but her pulse never improved. She died in two hours.

I shall not detain you with a careful, methodical study of all the causes which may lead to an obstruction of the intestines. I wish, however, to urge the importance of this subject to the gynecologist of to-day. We must remember how fatal these conditions are, when not properly treated, and how often the accident occurs even in our own practice. I shall consider the subject from the standpoint of my own clinical experience.

We are all aware that the more common obstructions are frequently located in the rectum and sigmoid flexure; the former caused by stricture and cancer, and the latter caused by twisting or volvulus. The ascending colon is generally the seat of fecal impaction. In the ileo-cecal region it is due to exudation around, and inflammation of, the appendix. In the region of the junction of the common bile duct and the

duodenum, this is due to inflammation from the presence of gall stones, travelling towards the intestine. In children it is due to intussusception at the junction of the ileum and cecum, and in the colon, and at the sigmoid flexure. After laparatomy the site of the obstruction will generally be found around the neighborhood of either pedicle, but exactly at what part of the intestines cannot easily be determined, except imperfectly by the character of the vomited fluid, and the general constitutional disturbance caused by the obstruction.

The symptoms of obstruction of the bowel are the symptoms, more or less pronounced, of strangulated hernia—local pain, tympanites, vomiting, more or less anxious expression of face, restlessness, increase of pulse, pain steadily increasing unless anodynes are given, vomiting, changing from retching to vomiting of bilious matter, and later often of stercoraceous matter, constipation. The temperature is not affected as early as the pulse. Later, collapse.

The possibility of being quite certain in our diagnosis of the condition which causes the obstruction, will depend upon our ability to appreciate the symptoms present, together with the history given by the patient. A careful ocular and manual inspection should be made of the abdomen. Even the ear should be used to learn where the gases of the intestine are moving, and thus help to decide what portions of the intestines are paralyzed or closed.

I will hastily call your attention to the symptoms and diagnosis of the more common forms of obstruction.

1. *Acute Strangulated Hernia.*—Of course every case of obstruction simulates, with more or less regularity, this most common of accidents. The symptoms are well known to you all, but often are so carelessly weighed that a hernia may not be suspected or discovered. Given the usual symptoms of strangulation or obstruction of the bowels, we ought first of all to search for an inguinal, femoral, or umbilical strangulated hernia. This possible condition should ever be before our eyes when we first visit our patients suffering from obstruction.

2. *Cancer of the Rectum.*—This is a very common form of obstruction. It can always be located. Eighty per cent of malignant intestinal diseases occur in the rectum. It should

always be suspected when certain symptoms of chronic obstruction are present, such as pain in this region, a heavy, uncomfortable sensation, sacral pains shooting through the gluteal muscles or down the thighs, diarrhea alternating with constipation, general emaciation, frequent desire to go to stool. If the disease is high up the pain will be less, and if low down, more intense. Discharge of pus occurs later. Vomiting comes on later; hiccough and vertigo during the last stage. In stricture of the rectum all symptoms will be less severe. A diagnosis can be made easily in all such cases. Even the finger will often reach the disease when low down, and a bulb-shaped tube will locate it, and before complete closure will tell the extent of the disease, and the amount of the stricture present.

(The tube consists of a small, ovoid hard-rubber bulb, varying from one-quarter to two thirds of an inch in diameter, and one and one-half inches in length, perforated through the centre in its long diameter. This is attached to a handle—also perforated in its long diameter—by means of small, strong steel wire from ten to fifteen inches in length. There is also a soft-rubber tube which completely covers this small wire, and this rubber tube is attached to the ovoid hard-rubber bulb and to the distal end of the perforated handle. The steel wire gives elasticity to the instrument. The rubber tube covering the wire, and connecting with the bulb and the handle, allows any fluid to be injected into the rectum or descending colon. The bulb end is easily forced along in the track of the intestine, and any slight constriction of the rectum, or descending colon can be located and measured by it. The tube does not bend upon itself, as do most rectal tubes. It does not cost much. It can be made antiseptic quickly. It is specially useful in detecting stricture of the lower bowel.)

The shape of the fecal matter often leads to suspicion of the disease before complete obstruction has taken place. Our treatment must depend upon the site and extent of the disease. When the disease is low down and not extensive, it should be dissected out; when high up or very extensive, a lumbar colotomy, or a laparatomy, should be performed; when seen before complete obstruction has taken place, the patient must be taught to use the bougie with unfailing regularity.

3. *Lead Poisoning.*—Obstruction due to lead poisoning should not be forgotten when we have any obscure case of obstruction. The well-known appearance of the belly, the location and character of the pain, the typical signs around the gums, the chronic constipation, make the diagnosis generally very positive. The treatment by means of sulphate of magnesia and faradism is so certain, that we cannot long be in doubt, after such treatment is instituted.

4. *Impaction of Feces.*—Obstruction due to impaction of feces is a not uncommon condition, but one that requires more than a passing word. It occurs more frequently with women than with men, and in those past 50 years of age. The condition of chronic constipation is almost always present. The patient gives often a history of having passed bullet-shaped fecal matter. Vomiting comes on late. There is often a distinct tumor felt in the region of the ileo-cecal valve, which is not tender. There is later some form of mild septic fever from reabsorption of fecal gases, etc. There is often the history of previous attacks. Under an anesthetic, which should certainly be given in each obscure case, the tumor will be found hard, movable, pitting on pressure, independent of the liver and in front of it. High enemata of oxgall, or solutions of sulphate of magnesia, or glycerin, diluted, following proper cathartics, at the same time that faradism is used and massage is practised, will cure this disease. Opium *pro re nata*, but only as absolutely needed, should be given.

5. Obstruction due to *peritoneal bands* comes on suddenly, and the symptoms are generally as well marked, and generally as alarming, as those of strangulated inguinal hernia. And this is especially so when the small intestines are occluded. The distention is most marked when the lower bowel is involved. It is a very simple accident, and we all wonder that it does not occur more frequently than it does, since we find, in our abdominal sections, so many adventitious or false bands. The veins, being more easily compressed than the arteries, are quickly engorged, and the intestine, when once caught, cannot easily liberate itself. The alarming symptoms are soon manifest, and nothing, as a rule, can relieve the patient until a laparatomy allows the cutting of the false bands. Nearly similar symptoms are manifested when, instead of a

false band, the cause of the accident is a slit in the omentum, the result of a sudden jar, or a previous laparatomy. Here, too, the symptoms come on suddenly. In obstruction due to false bands there will be the history of a previous peritonitis. The symptoms will be so alarming that the wise physician will summon aid within twenty-four hours, and will resort at once to laparatomy as soon as help arrives.

6. *Intussusception.*—Obstruction due to intussusception is generally found in young children, and often follows dysentery, or some exhausting diarrheal disease. There is great tenesmus when the accident occurs in the descending colon or rectum. There is the passage of some mucus and blood, but absolutely no fecal matter. The vomiting is often sudden, without nausea; the symptoms rapidly grow more severe. The tumor can sometimes be felt in the rectum, on introducing the finger. Injection of gas, slowly but surely, has often relieved this dangerous condition. Opium should be given *pro re nata.* If such a course is not followed by improvement, an early operation is imperative.

7. *Volvulus.*—Obstruction due to volvulus is more frequent in males over 40 years of age. Symptoms of this condition are rapid and extreme distention, followed by alarming collapse. Pains are exceedingly severe from the first, vomiting less marked, and the disease grows rapidly fatal. It is far more frequently situated in the region of the sigmoid flexure, and may often be mistaken for hernia, on this side, when the patient is stout, and the abdominal wall above the inguinal ring is thick. An anesthetic should be given, if a diagnosis is not quickly made. If a high injection of warm water or gas, while the patient is in the knee-chest position, does not liberate the intestines at an early hour, laparatomy must be resorted to at once.

8. We who do much laparatomy work see one other form of obstruction most frequently. I refer to *obstruction following laparatomy.* Here we cannot tell what intestine is involved; we only learn that after a secondary laparatomy. We are quite certain, however, of finding the obstruction somewhere near the region from which we removed the tumor, unless the intestines were accidentally injured in the operation, and adhesions had resulted. Vomiting comes on gradually,

the distention slowly; the pain cannot be located, owing to the great tenderness all over the abdomen. The more pronounced the pain and vomiting, and profound the effect on the patient, the more sure we are that the small intestine is being strangulated around the exudation. If the symptoms come on very slowly, we may hope that our saline laxatives may prevent additional exudations, and the peristalsis may be restored, and the intestine may not be completely closed. When the respiration and pulse, however, slowly creep up, the vomiting becomes more frequent, the distention slowly extends, the countenance gradually becomes more and more anxious, even though, as is often the case, the temperature remains not over 101°, we must operate. Our results have not been so promising as to encourage us to a resort to a secondary laparatomy without due evidence that it is demanded. When, however, the symptoms are acute, no response following our high enemata, our saline laxatives, etc., we must not wait, but do a secondary operation at once, or the patient will die.

It requires good judgment and clinical experience to be able to determine the etiology of obstructions which may be due to these more common causes just enumerated. To be able to locate the condition is perhaps a still more difficult matter, requiring rare and well-trained talents. We must not forget to question the character of the onset, the character of the pain, the character of the vomited fluid, the character of the pulse—which gradually creeps upward, whether the temperature corresponds or not—the character of the distention, the amount and character of physic taken, and, last, we must know just how far a rectal tube can be passed, and how much fluid can be retained, by gentle pressure, in the rectum and colon. By weighing all these different symptoms, we can generally decide which part of the intestine is involved, and act in such a manner as will be safest for the patient.

In this case just recited, the natural supposition of all was, that the fibroid tumor itself had pressed upon the intestines, and caused the obstruction. I supposed so myself, until I had pressed the tumor out of the true pelvis while the patient was in the knee-elbow position, and a rectal tube had been passed in full ten inches. The obstruction was then located above the brim. But had I suspected a cancerous disease just above

the sigmoid flexure, I might have done a lumbar colotomy and given the patient a far better chance of living for a few months. I was sure, however, that the obstruction was not caused by direct pressure of the fibroid on the descending colon, or rectum; and I was equally sure that the obstruction was not far from the rectum, as only about two pints of fluid could be easily retained in the bowel. I was greatly surprised, however, after I had opened the abdomen and pushed the tumor to the right side, and had passed a rectal tube, inserted for ten inches, that I could not at once feel the tube and discover the obstruction. It was not known then, that the tube had bent upon itself in the rectal pouch, and had not passed above the brim at all. Later, after the hysterectomy, another rectal tube was passed up, and my hand found it and it was a guide to the obstruction. This accident can occur easily, and because of it the tube may not only injure the rectal pouch, but fail of its purpose in serving as a guide for the operator's hand along the colon to the seat of the disease. And later, and a most important use, it allows the gas to pass off through it.

With reference to the best manner of managing intestinal distention when laxatives and the customary treatment by medication, rectal enemata, etc., have been faithfully tried, we have been urged to resort to puncturing the intestines through the abdominal wall. Some cases have been reported where the relief and cure quickly followed this plan of treatment. (See Ogle's "Memoirs," London, 1888, p. 61, cases I., II., III., etc.). With the wonderful strides which have been made in abdominal surgery during the last ten years, and in intestinal surgery during a still shorter period, we are all quite willing to agree with Sir William McCormick, Matthews Duncan, Wood, Allingham, Tait, Treves and Jessett in Europe, and Da Costa, Grey, and in fact all the leading surgeons in the United States, that puncture before laparatomy may relieve and be followed by a cure. Still it is not sure of being even a relief, and certainly it may result in additional peritonitis. We may have recourse to puncture to bridge the patient over until we can do a laparatomy, or, when the disease permits, a lumbar or inguinal colotomy. We must remember that the eye and nose cannot detect the degree of virulence of the

poison of fecal matter and fecal gases. The putrefactive changes which go on in one patient when the bowels are obstructed, are not necessarily the same in the next patient; and the ptomaïnes which may be present in the intestines in one case, may not be present in the next. The one may be quite innocuous when coming into the peritoneal cavity, and the other patient, with a fecal gas less offensive, and apparently less putrid fecal matter, may be profoundly virulent. We must also remember that many patients have the abdomen punctured, and, as death followed, no report was made of such cases. I believe, therefore, that when obstruction is not overcome after the usual preliminary trials, carried out in a methodical, judicious, and gentle but thorough manner, we have both the evidence of our own experience, and the preponderance of evidence from the most experienced surgeons, that we should operate by opening the abdomen. When the disease or obstruction is in the region of the sigmoid flexure, lumbar colotomy is the better method. When the tumor or obstruction can be felt in front, through a thin abdominal wall, we should cut down over the tumor, and do such operation upon the intestine as will restore it to its original integrity, without making an artificial anus. When the obstruction cannot be located, the median line is always preferable for incision. The experience of surgeons, which I have given, who have punctured through the abdominal wall, leads us to be willing to accept the advice of some of our best laparatomists to incise the intestine when great distention is present, during, or after laparatomy. I have watched with deep interest the different discussions on the surgery of the intestines which have been published during the last few years. I have occasionally incised, and have punctured the intestines to allow the escape of gas after opening the cavity; I have accidentally wounded the intestine and so allowed the escape of the intestinal fluids, but in none of these cases has there been any trouble due to such procedure and such accident. We have, too, the advice to puncture, or incise, as may be necessary, after opening the abdominal walls, in Smith's "Abdominal Surgery," page 379; Jessett, British Gynecological Trans., November, 1890; Allingham, Homans, Senn, and many others. And many of you who listen to me, have practised it. I desire particularly to *advocate*, during a

laparatomy, this method of incising the intestines if excessive gas is present, and if the rectal tube does not reach it and allow it to pass off through it. I believe that it is far better than to trust to keeping the intestines at a normal temperature, after evisceration has been practised. We must remember that, if we follow the teachings of those who have done this work often of late—Bull, Abbe, Wyeth, and many of our own fellows—we shall open the intestine, evacuate its contents, and close the wound in five minutes, and do it without leaving any sepsis in other parts of the intestinal tract. I have no new method of enterorrhaphy to advocate in closing the intestinal wound. Gregg Smith's method is satisfactory. Kelly's method may be better; I have not tried it, however (see last number Johns Hopkins Transactions). I believe good catgut will be a sufficiently strong suture material, because only a moderate wound is to be made.

My purpose has been (1) to advocate the necessity, or the importance, of locating the obstruction in the bowel when possible; (2) I believe this can be done with much more certainty than is supposed in many cases; (3) to urge the general practitioner to send for the experienced laparatomist at once, when great distress is present from obstruction of the bowels; (4) that puncture of the abdomen is justified at such time when death seems imminent; (5) when there is great distention of the bowel after the abdomen has been opened, the aspirator needle, or, better still, the scalpel, should be resorted to at once, to allow the escape of such gas and intestinal contents, before an effort is made to search for the obstruction.