

POST-OPERATIVE OBSTRUCTION OF THE BOWELS.

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Following any operation within the abdomen there is more or less interference with peristalsis. In some cases—such as gastroenterostomy, intestinal resection or anastomosis and wounds of the gut, inactivity is favorable since it permits of the formation of protective adhesions; but in ordinary abdominal sections the conscientious surgeon feels anxiety until after the bowels have moved freely. For of all post-operative complications excepting acute sepsis, *ileus paralyticus* is most feared; and indeed many cases of so-called "obstruction" after operation are but acute sepsis, the non-movement of the bowels being merely one of the symptoms. But even when septic or agglutinative peritonitis is not severe, intestinal inertia may result in kinking of the gut with adhesions and fatal obstruction, particularly when there has been much rough handling of the intestines.

Obstruction of the bowel soon after operation may depend upon:

1. Paralysis of the bowel, either septic or spontaneous.
2. Volvulus.
3. Internal hernia.
4. Thrombosis of the intestinal vessels.
5. Surgical interference with peristalsis.
6. Preoperative conditions.

1. A paralytic condition of the bowels, or at least an inability to move them properly, is one of the first symptoms of so-called "septic peritonitis," really acute sepsis; and associated with the failure to pass gas or feces is vomiting—followed after a few hours by "reversed peristalsis," the expulsion of bile-tinged water and mucus from the stomach, changing to stercoraceous vomiting. This is the "black vomit" of acute sepsis so greatly feared. It is to prevent this failure of proper bowel-movement that the experienced surgeon withholds opiates and gives early cathartics. Indeed some operators give a large dose of castor oil or a saline laxative two hours before operation—a rather commendable practice if it be known positively that operation upon the intestine will not be necessary. And others begin the administration of half a centigram of calomel every hour as soon as the patient recovers consciousness, following it the next day with a saline purge or an ox-gall enema, or both. In addition to this, when reversed peristalsis becomes alarming one milligram of salicylate of eserine every hour may be given hypodermatically, repeated four times. And above all the stomach must be washed out twice daily with normal salt solution.

But a paralytic condition of the bowel may arise which is not of septic origin. Rough handling, prolonged exposure of the intestines to the air, and the prolongation of the intestinal inertia naturally following any extensive intraabdominal operation may be followed by failure of the bowels to move. This paralysis of the intestine is said to be due to inhibition from stimulation of the fibers of the splanchnic nerves, or from over-stimulation resulting in fatigue of the ganglia in Auerbach's and Meisner's plexuses. Hence to overcome this paresis of the muscles essential to peristalsis, stimulation of the sympathetic and spinal centers is imperative. Here, then, the injection of the salicylate of eserine works more effectively than in septic paralysis; and two milligrams of sulphate of strychnine hypodermatically every six hours will add to its efficiency. The saline laxative, also, is indicated. The best way to give it is to wash out the stomach with normal salt solution and then pour in two tablespoonsfuls of Epsom salts dissolved in as little water as possible and repeating the procedure in four hours. An enema of strong alum-water also tends to induce a downward peristaltic wave.

2. When these measures do not result in free movement of the bowels and arrest of vomiting, the condition is a very grave one, because the trouble is either sepsis or due to some mechanical obstruction—the one not to be benefited by secondary opera-

tion, the other perhaps curable by early interference. Of the mechanical impediments the most easily recognized is twisting or kinking of the bowel, technically designated volvulus. This is easily distinguished clinically from intestinal paralysis, septic or otherwise, by the fact that it (like all the mechanical obstructions) is accompanied by griping. It may be due to kinking in returning the bowels to the abdomen or by the adhesion of two surfaces of a coil of gut partially or wholly denuded of its serosa. It is most likely to occur in the sigmoid; so when suspected, copious enemata through the high rectal tube must be given in the hope that the intestine may be straightened. If this fails, immediate re-opening of the belly and correction of the difficulty is advisable. But it takes a vast amount of courage to do this, particularly in the face of opposition from the family and the criticism that "something was done wrong." Yet there should be no delay when the indication seems clear. Many lives have been saved by such brave operative work.

3. During operation, a hole may be torn in the mesentery through which a loop of intestine may slip and become attached in such a way as to produce a fatal internal hernia; or the intestine may crawl in between the uterus and belly-wall in an operation for ventral fixation and be caught with like result. Such a condition may, necessarily, be relieved only by reopening the abdomen and correcting the trouble.

4. Thrombosis of the intestinal vessels is far more common than generally suspected. By reason of faulty technic the mesenteric vessels may be injured in such a way that the blood supply of a considerable area of gut is cut off and localized gangrene with fatal perforation follows. Or by tearing adhesions around abscesses, tumors, etc., the operator may without fault so injure these vessels that thrombosis follows. On opening the abdomen for this complication there will generally be found a lot of dark-colored fluid (with fecal odor if perforation has already occurred); hence copious irrigation is advisable. This is one of the few instances in which water is of use in the abdominal cavity. If the general condition of the patient will permit, a resection of the bowel should be made—the enterorrhaphy being well beyond the area of possible extension of gangrene—by means of a Murphy button. Generally the condition of the patient is such that extreme haste is imperative; in which case it is best merely to bring the affected loop well out of the abdomen, irrigate the belly, dry it, pack gauze in around the extruded intestine sufficiently tight to prevent more gut from being forced out, then clamp

healthy gut above and below the dying portion and cut away all of the necrotic part and a little more, tying the bleeding vessels with fine catgut. The clamp on the upper extremity of the cut intestine may be removed in twenty-four to forty-eight hours and the bowels allowed to move into cotton. If this artificial anus be high in the ileum or jejunum it will be necessary to do a secondary operation within a few days—as soon as the patient is out of immediate danger. The best operation is to invert the ends of the gut, sew them over by at least one row of Lembert sutures (two rows are better on the upper portion of gut as the point of closure has to withstand the force of the entire fecal stream) and then make a wide lateral anastomosis, the belly to be closed without drainage.

5. Among the causes of failure of the bowels to act must be mentioned inclusion of a part of the intestine in a ligature or suture. Rarely the rectum has been ligated and cut across by mistake, the error in technic being demonstrable at the post-mortem examination. Occasionally other portions of the intestine have been similarly mistreated; but most often a needle is thrust through a small section of the sigmoid in ligating the broad ligament or a little of the small intestine is caught in the suture when the peritoneum is being closed. In such cases the bowels have a singular inclination not to move however much they may be encouraged by enemata and purgatives, even though there is not the slightest leakage at the point of local injury. Correction of the difficulty by secondary operation is the only treatment. However, the patient usually dies even when the source of trouble is removed early. Wounding of the bowel may occur during the separation of adhesions; and unless this is noted at the time and the injury attended to by proper closure of the opening, fatal sepsis may result. Or an obstruction of the bowel may seem to be present by reason of nature's arresting peristalsis while adhesions form as an effective barrier against leakage. When such a condition is suspected (as when extensive adhesions have been roughly separated deep in the pelvis) it is far better to keep the patient absolutely quiet by large doses of morphia than to give cathartics, etc., in the vain hope of securing early bowel-movement. When it is known that the bowel is injured, as in removal of the appendix, closure of intestinal wounds, etc., it is best not to try to force peristalsis. Rather is it advisable to give enough opiates to prevent bowel movement for at least two days, and three are better. Another surgical interference with peristalsis is too close packing of the pelvis, or sometimes other parts of the peritoneal

space. The bowel is pressed between the packing and the hard walls or is caught in the folds of gauze as they are jammed in to control oozing and a mechanical obstruction of the bowel is produced. Fortunately the packing is generally removed within forty-eight hours and the bowels then take care of themselves. But sometimes symptoms of obstruction persist after the tampon is removed and it then becomes necessary to reopen the wound and overcome the difficulty if possible, by liberation from bands, resection of gut if pressure-necrosis has arisen or formation of an artificial anus as a *dernier ressort*. Rough handling of the intestines, too, may cause such abrasion of the serosa that the intestine may attach itself to some raw surface and in this way become fixed even if not twisted, and so give rise to serious symptoms of obstruction. For which reason the intestines should be handled in soft gauze pads instead of the hands or retractors, and not subjected to wiping. The obstruction from this source is more likely to be late—probably months after operation, a stricture or bands or a twist being found when the abdomen is opened.

6. Not infrequently certain conditions existing before operation are not recognized during the excitement of the work and so, uncorrected, lead to obstruction. This is conspicuously the case in adhesions of the gut around the infected areas of an appendicitis. On account of this death from obstruction of the bowels occurs quite often in appendicitis operated upon at the height of the inflammatory process. Hence the advice to operate during the first forty-eight hours of the disease or else let the case go on until the eighth to tenth day when the abscess is well walled off and the conditions such that they can be met without danger of injury to contiguous gut by packing, tearing, etc. Adhesions around an inflamed gall-bladder, too, may not be discovered and a tight packing induce acute angling of the colon or ileum with immediate obstruction. Also in certain conditions there may be an obstruction from impacted feces, from inflammatory bands, etc., just beginning at the time of operation. Perhaps the obstruction rather than the disease is productive of the acute symptoms—vomiting, collapse and so on—and the obstruction not being discovered, death may follow although the pathological condition for which operation was undertaken may have been perfectly remedied.

Obstruction of the bowels may appear late—after the patient has returned home and is considered perfectly well—strictures, bands, adhesions and scar-contractions causing it. For the prevention of this the experienced abdominal surgeon has learned to

cover all denuded points with peritoneum when possible, even the omentum being stitched over any raw surface which cannot otherwise be protected.

But whenever symptoms of obstruction appear, however late, the wise surgeon opens the belly and corrects the cause at the earliest moment the patient will consent to operative work. Inability to secure bowel-movement, followed by vomiting which changes from being merely bile-stained to stercoraceous, and not relieved by gastric lavage, especially if associated with distention of the abdomen and griping, cannot be mistaken. They form a group of symptoms invariably meaning mechanical obstruction and certainly indicate immediate operation. To wait until collapse appears is a crime: it spells death in most cases.

In the possibility of encountering post-operative difficulties such as these, lies the incentive to refer patients to experienced operators rather than subject them to the hands of the "county-seat surgeon." Every such operator should be prepared to open the abdomen in any case of emergency—acute appendiceal rupture, strangulated hernia, intussusception and even Cesarean section. But when it comes to an operation of choice, where the patient can be sent to a good hospital and secure the services of a skilful operator who has (a) become possessed of great anatomical knowledge, (b) who has been taught much pathology, (c) who has spent months assisting some master of abdominal surgery and (d) who has by the successful management of many hundreds of cases in his own work learned not only to overcome operative difficulties readily but also to carry the patient through the dangerous post-operative days—it is little less than criminal to permit the inexperienced or infrequent operator to open the abdomen. The doctor who will permit some ambitious friend to undertake the operation "for experience" (unless he has had the advantages already specified) or to gain local prestige as a surgeon, is taking dangerous liberties with the life of the patient who has trusted him. Entirely too many bellies are being opened by inexperienced "surgeons."