

## ACUTE INTESTINAL OBSTRUCTION—ITS TREATMENT\*

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THE successful management of acute intestinal obstruction depends as much on the treatment before operation as on the operation itself. The general practitioner usually sees the patient before the surgeon. He is called during the first few hours of the obstruction. The suffering is so intense that the patient disregards the various cults and isms and early seeks medical aid. The usual surgical mortality of 30 per cent or more can be lowered to 5 or 10 per cent only by early operation, i. e., the first twelve or twenty-four hours.

### THE DANGERS OF MORPHIN

Early operation is prevented by morphin. Morphin obscures the symptoms. The patient is made perfectly comfortable and no one can more than guess at the diagnosis. Obvious, pathognomonic symptoms are entirely concealed. The innocent-looking hypodermic of morphin is responsible for the death of at least twenty-five of every hundred operative intestinal obstruction cases. It seems difficult for the physician to sense the dangers of morphin in abdominal pathology. It is the duty of the surgeon to warn against its use to relieve abdominal pain. It is our opinion that each year in our land, more lives

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are destroyed by the hypodermic than by automobile accidents. Pain is not in itself deadly, but its relief by morphin often results in death. Patients will endure severe pain for long periods of time and survive—for example in facial neuralgia, sciatica, tabes, arthritis and labor. Relieve the pain of acute intestinal obstruction by morphin for forty-eight hours and the patient will likely forfeit his life.

We are told that we must not give morphin for abdominal pain until we are positive of the diagnosis. Can we be certain that the cause of the pain is not intestinal obstruction? Two of our thirty fatal cases had been given morphin for two days under the diagnosis of gall stones. We shall look in vain for improvement in our death rate until the entire profession discards the hypodermic as a remedial agent in all acute surgical abdominal diseases. We do not need better surgical operations so much as less preoperative morphin. Any surgeon in any community by repeated and continuous admonitions against the use of morphin in abdominal pain can reduce his surgical mortality in referred obstruction cases 50 per cent. In 1925, we had twenty-three referred obstruction cases with three deaths (13 per cent). The mortality of all referred cases previous to 1925 was 27 per cent. The difference represents the results of a campaign of education with my colleagues against the hypodermic in colic.

#### IMPORTANCE OF EARLY OPERATION

The importance of an early operation is the one point on which all writers on this subject agree. With no morphine, most cases would be operated early. Intestinal obstruction operated the first twelve or twenty-four hours will give a mortality of 5 to 10 per cent. Those operated the

second day will give a mortality of probably 20 to 30 per cent, operated on the third day approximately 50 to 60 per cent, a small percentage will survive operation on the fourth day and practically all will die if operated on as late as the fifth day. An operation by a novice in surgery on the first day may have a better outcome than one done by a master surgeon on the third or fourth day. There is no medical treatment for intestinal obstruction. Cathartics do damage and nothing but damage.

#### SURGICAL PROCEDURES

Having established the desirability of an early operation, our plan of management is as follows:

General anesthesia—gas and ether. A long midline incision, extending from the pubis to well above the navel is necessary to readily find the obstruction. Contrary to the usual teaching, we practice complete evisceration. The operating room should be warm—80 degrees or above. The intestines are kept warm by covering with large hot saline napkins, which are renewed as they become cool. Traction on the mesentery should be avoided. The obstruction is readily found and relieved. Constricting bands of adhesions are severed, intussusceptions and internal hernias reduced, a volvulus untwisted, or an impacted gall stone removed. Gangrenous bowel will require resection, though it may be wise to leave both proximal and distal ends of the bowel protruding through the wound and unite them subsequently. Obstructing cancer cases should be done in two stages. The carcinoma is removed at the second operation. Large masses of tangled, adherent, nonstrangulated bowel may be best handled by no effort to break up the adhesions, but short-circuited by an entero-enter-

ostomy. We have never resorted to jejunostomy in mechanical ileus. However, we have used it in paralytic ileus.

The entire bowel is emptied from the duodenum to the point of obstruction. This may be done before or after relieving the obstruction. There are conflicting experimental conclusions regarding the toxicity of the imprisoned bowel contents. Clinically, patients do very much better if the imprisoned contents are removed. This is done as follows:

A short distance below the obstruction, a linen purse-string suture is placed longitudinally in the bowel. The intestine is opened and the flanged end of a large test tube is inserted and the purse string suture drawn tight, the first tie of the knot being clamped with a hemostat. The closed end of the test tube has been previously removed and fitted with a piece of rubber tubing about two feet long. The operator's hands are well anointed with sterile vaselin. Beginning as near the duodenum as possible, the entire intestinal tract is gently and rapidly pulled through the surgeon's fingers by the assistant. Care must be taken not to make traction on the mesentery. The distal end of the rubber tube connected with the test tube is held by a nurse, while the intestinal contents pour into a basin. Formerly, we had a much longer rubber tube, reaching to the floor. Frequently siphonage sucked the intestinal wall into the test tube completely blocking the tube. A short tube held nearly horizontally prevents this trouble. Occasionally, if there are many seeds, corn or barium in the intestine, the rubber tube may become clogged. The rubber tube may then be removed and the test tube can be cleaned

with a curet or gall stone scoop. The test tube has the advantage of simplicity and is easy to obtain. After stripping the intestines once and occasionally twice, the tube is easily removed by unclamping the hemostat on the purse-string suture and loosening the first tie of the knot. As the flanged end of the test tube slips out, the purse-string suture is tightened, thus closing the opening into the bowel. A second line of Lembert sutures finishes the repair of the enterostomy. The intestines are ribbon-like and closure of the abdomen can be done with dispatch. This entire step may be completed in five minutes. The operation should not be long. Obstructed patients do not stand long operations. This method is employed in all cases of obstruction, except strangulated external hernias.

The abdominal wall is closed without drainage. A few cases of gas bacillus infection in the wall have been reported. The writer has been spared that experience. It would seem that this complication is no more likely to occur than after any other intestinal operation.

Gastric lavage is used before operation and for postoperative vomiting. Before using the above-described method of emptying the bowel, postoperative vomiting was distressing. Often gastric lavage was necessary every few hours for several days. Now, it is rare to use the lavage at all. In fact, the convalescence is as smooth as after an appendectomy.

Proctoclysis, normal salt solution, is routine. Hypertonic salt solution (3 per cent) subcutaneously has been used to combat the sodium chlorid deficiency. No cathartic is used. The intestinal walls have been overdistended by the obstruction. Rest is indicated. No food is al-

lowed for two or three days. The bowels will generally move spontaneously by the fourth day. If not, an enema may be given on the fifth day.

Our experience is based on the following cases:

	Cases	Died	Per cent Died
Cancer .....	22	7	32
Strangulated hernia (all varieties)....	39	6	16
Old postoperative adhesions .....	62	13	21
New postoperative adhesions .....	11	0	0
Intussusception .....	15	2	13
Volvulus .....	12	1	8
Miscellaneous .....	10	1	10
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	171	30	17½
Referred cases .....	115	27	23½
Not referred cases .....	56	3	5½

None of the fifty-six cases in our own practice received any morphin or cathartics. Many of the 115 referred cases had been given both morphin and cathartics before we saw them. No case of obstruction has been refused operation. The deaths include two that died after leaving the hospital, one gangrene of the lung and one abscess of the lung. In both, the abdominal pathology was completely relieved. Intestinal obstruction surgery is either delightful or distressing, depending on early or late operation.

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