

Case Reports

INSTRUMENTAL INTESTINAL TRAUMA DURING LAPAROTOMY

SPONGE AND TISSUE FORCEPS INJURIES

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IN the course of medicolegal postmortem examinations, the author has recently encountered two instances of severe trauma to the small intestine. These injuries were caused by repeated compression of the intestine by "loop sponge holding forceps" and "Babcock tissue forceps." In each instance these unfortunate complications occurred during the course of an exploratory laparotomy.

In a large autopsy experience, consisting of both medicolegal and permission autopsies, and extending over a period of many years, the author has never observed this type of intestinal injury.

However, since the findings may serve to re-emphasize the danger of undue and rough handling of tissues, it is believed that the following observations should be recorded. Personal inquiry amongst numerous surgeons has elicited the response that they had neither seen nor heard of similar injuries, and except for the possibility of tearing free a "red hot appendix" in a Babcock forceps, none had realized the damage which might result from the use of an instrument in a manner which apparently is very common amongst surgeons.

The operating surgeon, in both above noted instances, was very competent and well above average in his knowledge and application of operative technic. It is most interesting to note that one surgeon after his attention has been called to the intestinal injuries, related that occasionally after

laparotomy (in which no work has been done on the gastrointestinal tract) the nurse's observations would record the presence of some blood in the stool. This soon disappeared and no particular attention apparently was paid to the possible significance of this observation.

CASE REPORTS

CASE 1. Trauma to small intestine by a loop sponge holding forceps, during laparotomy for supposed intestinal obstruction: death on operating table from hemorrhage and shock.

A female, colored, twenty-seven years old, was admitted to the hospital with a six-day history of nausea, vomiting and soreness in the epigastrium. Bilateral salpingectomy had been done three years ago. There was an indefinite history of recent treatment for syphilis.

The patient was observed for six days in the hospital during which her highest temperature was 101°F.; leucocytes, 6,000 per cu. mm. with 60 per cent polymorphonuclear leucocytes. A preoperative diagnosis of intestinal obstruction probably due to old adhesions was made. It is interesting that an intern had noted "impression not surgical" on the patient's chart. The patient complained of pruritus but though no dermatitis was noted, an arsphenamine reaction was suspected.

Operation was performed under open drop ether anesthesia. On opening the abdomen practically no gross pathological lesions were discovered. Volvulus was suspected since one segment of the intestine appeared to be somewhat discolored. The patient suddenly vomited and stopped breathing. Respiration was re-

stored and the appendix removed. The eviscerated intestine was then returned to the abdominal cavity by repeatedly grasping it

the intestine. Many of these occurred in pairs on each side of the intestine and showed typical "pattern marks" of the size and shape of the



FIG. 1. Case 1. Several loops of small intestine after removal at autopsy. The characteristic "pattern marks" made by the loop of the sponge holding forceps may be noted.

with a uterine, straight, loop, sponge holding forceps. This instrument was $9\frac{3}{4}$ inches long, had round shanks, smooth jaws and a *box lock*. The abdomen was closed in layers in the usual manner. At the end of the operation the patient again ceased breathing and all resuscitation methods were of no avail.

Essential autopsy findings were as follows: An obese, colored woman, 180 pounds in weight, who had a recent lower midline laparotomy wound. A faint odor of ether came from the mouth. There was a small amount of light red fluid blood in the right side of the heart, and a faint odor of ether on section of the lungs.

The abdominal cavity contained no free blood; the small intestines presented a remarkable appearance; starting 6 inches below the duodenojejunal angle there were about fifty areas of light and dark red hemorrhage in the wall of the intestine extending over most of

loop end of the sponge holder. This is positive proof that they were caused by the grasping forceps. Other marks were smaller and had no particular pattern.

The small intestine contained over 1,500 cc. of fluid blood in its lumen. The blood was found down to the ileocecal valve, with very little in the large intestine. Practically all the marks seen on the outside of the small intestine, extended through the entire gut wall and there was extensive submucosal and mucosal hemorrhages, often with fine linear laceration of the mucosa.

Both Fallopian tubes had been removed at a previous operation. The uterus was normal in size and appearance. Both ovaries were present and a recent corpus hemorrhagicum was observed in one. There was no gross evidence of syphilis and no significant pathological lesions in any of the other organs.

Comment. Since the lumen of the small intestine contained more than a quart and a half of blood, the cause of death was

forceps. This instrument had a smooth triangular end about three-eighths of an inch in width, and was fitted with a *box lock*.

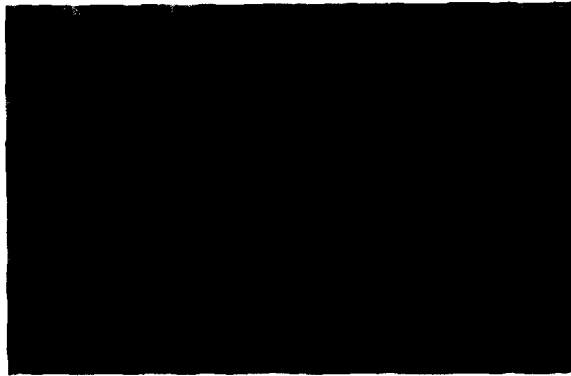


FIG. 2. Case 1. The middle segment shows the small intestine from the serosal side. The segments on the right and left demonstrate the extension of the hemorrhages to the mucosa.

undoubtedly hemorrhage and shock. A complete autopsy, including microscopic and toxicological examinations, disclosed no other cause of death. (Figs. 1 and 2.)

CASE II. *Traumatism to small intestine caused by a Babcock tissue forceps, during laparotomy for an "acute surgical abdomen;" death one day later from hemorrhagic pancreatitis.*

A male, white, twenty-nine years of age, was admitted to the hospital complaining of peri-umbilical, right rectus and left lumbar pain of four days' duration. The pain was sharp, constant, and aggravated by eating. Vomiting afforded little relief, and for the last forty hours the patient had been vomiting continuously. Constipation was present for four days; temperature 101°F., pulse 96, respirations 24 on admission; systolic blood pressure 130, diastolic 112. Urine showed a two-plus albumin and one-plus sugar; hemoglobin 107 per cent, erythrocytes 6,430,000 per cu. mm.; leucocytes 16,200 with 80 per cent polymorphonuclear leucocytes.

A preoperative diagnosis of an acute surgical condition of the abdomen was made, probably due to intestinal obstruction caused by old adhesions resulting from an operation for gangrenous appendicitis.

On opening the abdomen, very little gross pathological disturbance was discovered and after breaking up a few old adhesions the intestines were returned to the abdomen by repeatedly grasping it with a Babcock tissue

The next day the patient was moribund. Temperature was 105°F., pulse 160 and respirations 50. He had had several convulsive seizures and death occurred twenty-four hours after operation.

Essential autopsy findings revealed the following: A well developed and nourished male body, about 180 pounds in weight. There was an old laparotomy scar in the right lower quadrant. The recent laparotomy wound in the left upper quadrant was covered by a surgical dressing.

There was extensive acute hemorrhagic pancreatitis involving the left half of the body and tail of pancreas with extensive necrosis, autolysis and hemorrhage. There was typical fat necrosis over the lesser abdominal sac, about the hilus of the spleen and along the mesenteric attachment of the descending colon, and a gaseous phlegmon running down over the left psoas muscle to the pelvic brim. Most of the general peritoneal cavity was normal and the lesion had apparently escaped the surgeon's detection.

The gallbladder and bile ducts were free of inflammation. The pancreatic ducts in the tail of the pancreas contained creamy pus.

Scattered over the small intestine were about forty hemorrhagic areas, similar to those seen in Case 1, except that many were smaller in size and showed typical "pattern marks" of the size and shape of the end of the Babcock tissue forceps. Many marks extended through the thickness of the intestinal wall and could be



FIG. 3. Case 11. Several loops of small intestine after removal at autopsy. The characteristic "pattern marks" assuming the size and shape of the grasping end of the Babcock tissue forceps may be noted.



FIG. 4. Case 11. Interior of small intestine with marks of injury extending to the mucosa.

seen from the mucosal side. There was very little laceration of the mucosa and no gross blood was found in the lumen of the intestine.

Comment. The cause of death in this case is of course the acute hemorrhagic pancreatitis. Since there was no evidence of blood in the lumen of the gut we must conclude that the intestinal injuries did not influence or aggravate the primary clinical condition. (Figs. 3 and 4.)

CONCLUSIONS

Two cases of severe injury to the small intestine are reported. The injuries are due to the rather common practice of returning eviscerated intestines during laparotomy by grasping them with various types of instruments.

In the first case a loop sponge holding uterine forceps was used. This has a box lock and is able to exert great pressure. The surgeon unwittingly may have "clicked" it down to the lock on several occasions. If the use of such an instrument is necessary, could it not be covered with rubber tubing

of sufficient thickness to make it impossible to lock it? Or better still to have no ratchet or lock at all? This is a problem for the surgeon and instrument maker. Unfortunately, the intestinal hemorrhage caused by these forceps injuries caused death, since a careful autopsy ruled out any other cause.

In the second case, a Babcock tissue forceps was used. The injuries are similar to the first case but not so severe. This instrument also had a box lock. Since acute hemorrhagic pancreatitis is essentially a fatal disease, the injuries in this case did not apparently influence the outcome one way or another. In other circumstances, however, such injuries might seriously interfere with the postoperative convalescence.

It is quite possible that injuries of this type are much more common than one would suppose and since they frequently are not severe, the patient survives, and the cause of a stormy convalescence may be overlooked.

The importance of autopsies in fatalities after abdominal operations is emphasized.

