

Acute Gastric Dilatation

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In the early days of abdominal surgery, surgeons particularly dreaded two post-operative complications: one was pulmonary embolus and the other acute gastric dilatation. The mortality rate of all reported cases of acute gastric dilatation analysed in 1907 was 72%. Doolin, in 1918, reported reduction in mortality to 7% with the use of postural treatment and gastric lavage. Today this condition is not common, and is almost never the sole cause of death. This is almost entirely due to the routine use of gastric suction during and after major abdominal operations.

However, it is probable that acute gastric dilatation is more common than the records show. Many mild cases go undiagnosed or are misdiagnosed as persistent post-anaesthetic vomiting, excessive post-operative vomiting, ileus, mild peritonitis, gastric retention, excessive aerophagy or just a epigastric distress, thought to be "normal" after an operation on the abdomen.

It is important to remember that 15-20% of all cases of acute gastric dilatation occur following conditions other than abdominal surgery.

In the following discussion, one should keep in mind that this problem, like that of carcinoma of the cervix, is not so much one of diagnosis as one of maintenance of a high index of suspicion.

DESCRIPTION

Acute gastric dilatation is a condition in which there is sudden dilatation of the stomach with retention in the atonic dilated stomach of gastric, of duodenal, biliary and pancreatic secretions, as well as air, 75% of which is swallowed. In the untreated case, this results in regurgitant vomiting of hematin-tinged vomitus, progressive dehydration, hypovolemia, hypochloremia, alkalosis, shock, coma and death.

INCIDENCE

65 to 70% of cases of acute post-operative dilatation of the stomach follow abdominal operations. A few cases occur during operation due to the forcing of anaesthetic gases into the stomach. The remaining situations when one sees acute gastric dilatation are:

1. After operations on the extremities;
2. After abdominal injury;
3. After childbirth;
4. During acute illness (e.g. pneumonia);
5. After a large meal or an excessive bout;
6. After genito-urinary operations;
7. With some spinal deformities and Pott's disease;
8. After application of hyperextension body cast.

Of those cases that follow abdominal operation most occur after operations on pelvic organs. Next in frequency are those following gall bladder and bile passage operations and finally those following surgery for the appendix, stomach and hernias.

ETIOLOGY

The most widely held theory regarding the etiology of acute gastric dilatation is reflex inhibition of motor nerves to the stomach or paralytic ileus of the stomach. The superior mesenteric artery duodenal compression syndrome is particularly important, as a secondary etiological factor. Many consider mesenteric root constriction to be important. Starr theorizes a humoral etiology involving potassium balance.

PATHOLOGY

At post mortem, a huge dilated, thin walled stomach is found to fill the abdomen. It contains a dark watery fluid. Dilatation usually involves the duodenum up to the point of the crossing of the mesenteric vessels. There is almost never any evidence of local or general peritonitis.

PATHOGENESIS

The stomach and duodenum are secretory and not absorptive; therefore the retained secretions are completely lost from the body. Due to the high chloride content of the gastric juice, there follows a hypochloremic alkalosis. The hypovolemia, oliguria and "shocky" picture are due to gross dehydration as the result of large amounts of fluid loss into the dilated stomach. The dyspnea and cyanosis sometimes seen are due to encroachment on pulmonary mechanics by the enormous stomach.

CLINICAL PICTURE

In the typical case, signs and symptoms arise within 32-76 hours post-operatively. Distention is usually preceded by slight nausea and mild pain or fullness in the epigastrium. Pain is ominously absent in gross distention. Hiccough is not uncommon in the early phase and may be the only symptom during this time. Copious vomiting may never occur and vomiting is absent in 10% of cases. When it does occur, it means the stomach is grossly dilated, and it is regurgitant vomiting of hematin-tinged fluid. Vomiting is never projectile because of the paralysed stomach.

In many cases there is an extremely rapid course with a resultant state of shock, preceded by little or no warning.

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On physical examination the distention may be seen. The patient will look very ill. The blood pressure may be low with a thready pulse, and cold sweating may be present. Dehydration may be marked with an insatiable thirst and oliguria. In the advanced case there may be dyspnea and cyanosis. A succussion splash may be heard over a markedly tympanitic abdomen. Bowel sounds may be present.

The blood chemistry, of little value in diagnosis, will show low serum sodium and chloride with high blood urea nitrogen and carbon dioxide combining power. The hemoglobin and hematocrit will be high due to dehydration.

The final confirmation of diagnosis is the aspiration of large amounts of fluid from the stomach. It should not be necessary to X-ray.

With respect to differential diagnosis one must consider:

1. High obstruction of small bowel
2. Septic peritonitis
3. Acute ileus elsewhere in the G.I.T.
4. Post anaesthetic vomiting
5. Acidemia, alkalemia, uremia
6. Intra-peritoneal hemorrhage—leakage
7. Acute drug reaction

TREATMENT

Prevention by the use of suction through a stomach tube after all major abdominal operations is extremely important. Following every abdominal operation there is some degree of paralysis of the gastro-intestinal tract. Treatment involves the aspiration of fluid from the stomach with subsequent continuous suction until

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bowel function returns. Electrolyte and fluid balance must be restored with intravenous fluids. This will take energetic fluid therapy in most cases because of the "shocky" picture.

SUMMARY

1. Acute gastric dilatation is probably a more common post operative complication than the records indicate.

2. It should be remembered that acute gastric dilatation can follow many conditions other than the abdominal operation.

3. The problem is one of maintaining a high index of suspicion.

4. Acute gastric dilatation is probably caused by reflex vagal inhibition but other factors are involved.

5. Prevention is the most important treatment—this is facilitated by simple gastric suction post operatively.

6. There is more truth than not in the statement that the intern would probably relieve more ills if he were to wear a Levin tube around his neck instead of a stethoscope.

REFERENCES

Christopher's *Textbook of Surgery*—7th ed.

Conner, *Am. J.M.Sc.*, 133:345, 1907.

Doolin, *Brit. J. Surg.*, 21, 125, 1918.

Maingot, *Abdominal Operations*,—3rd. ed., Page 59-64.

Sadone & Cross, *The Recovery Room*.

Starr, *Ann. Roy. Coll. Surgeons, Eng.*, 12:71, 1953.

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