ACUTE POST-OPERATIVE ABDOMINAL EMERGENCIES

By Jean-Jacques Brossy, F.R.C.S.

From the Department of Surgery, Postgraduate Medical School of London

Whether or not to operate again on a patient who suffers an acute complication in the early post-operative period following a major operation is one of the most difficult decisions with which a surgeon can be faced. This picture of laparotomy with apparently satisfactory recovery followed by sudden onset of distention, pain and other symptoms some four to ten days later is by no means uncommon. All the cases which presented in this fashion after gastro-oesophageal surgery during the course of one year at Hammersmith Hospital, numbering twelve, were subjected to detailed analysis; this group was chosen because of the unique multiplicity of complications which may follow gastric surgery, and because the author had some contact with nearly all the cases involved. A similar number of other abdominal emergencies was also studied. It is hoped that the observations made will be of help in the management of these cases.

Although the basic decision is two-fold—to operate or not—accurate diagnosis is no less important. Thus peritonitis (once the cause has been removed), paralytic ileus or acute pancreatitis need conservative treatment only, but mechanical obstruction due to fibrous adhesions or closed loop lodged behind the afferent anastomotic loop require urgent operation. Intermediate conditions such as stomal oedema and suture-line bleeding usually improve on conservative treatment but may need laparotomy if severe or prolonged; a few surgeons treat anastomotic and duodenal stump leaks conservatively and it is true that the degree of oedema and friability of tissue often precludes resuture, but the majority advocate operation in these cases, bearing in mind alternative techniques such as conversion of the leak into an external fistula with catheter and purse-string stitch. These and other mishaps may present in classic fashion, with no diagnostic difficulty; but often two concomitant conditions confuse the picture. All cases require careful evaluation, and the author believes that we tend to be too conservative in the management of these problems.

Of fundamental importance is the general approach: first, the fact that the patient has just undergone a major operation must be disregarded except as an aid to diagnosis. This emphasises the importance of adequate pre-operative preparation, particularly nutritional. The patient with a minor or degree of pyloric stenosis is probably the most often neglected in this respect; any major operation case should have three to five days in hospital for 'work-up', and if there is any question of malnutrition as much as three to six weeks may be necessary to rectify this. Then the question 'can the patient stand another laparotomy?' need not arise (except of course where intercurrent disease such as cardio-pulmonary co-exists). This can only one's decision be unbiased.

The second fundamental is that a decision must be made. Four to six hours for assessment is permissible, but there is no place for 'he looks a little better, let's wait a little longer'. Vigorous therapy of paralytic ileus during the assessment period should result in such improvement as to make the diagnosis clear; if doubt remains, it is usually wiser to operate; the patient is then at his fittest, and if an obstructing lesion does exist, nothing but deterioration can be expected from there on. At all costs one must avoid getting to the stage of 'desperation measures'.

In the examination of the abdomen, local signs are difficult to evaluate. Tenderness and guarding may be due to wound sepsis and haematoma, or may be minimal in a closed-loop obstruction. Paralytic ileus occurs about the second to fourth day after operation in a certain percentage of cases however careful the operative technique; if another complication coincides the observer may be misled by diminishing bowel sounds. Marked distention is uncommon in obstruction because this usually involves the upper small gut; but epigastric distention is a significant pointer to gastric dilatation. Aspiration of gastric
contents is of little diagnostic value because of the presence of the newly-constructed by-pass between stomach and small gut.

Certain clinical features and laboratory investigations are most useful.

1. **Pain.** If this is the predominant feature, re-operation is almost certainly advisable; the only exception to this is acute pancreatitis. Serum amylase estimation should always be done if possible; values of up to 500 units may occur after any laparotomy (Burnett and Ness, 1955), but 500-1,000 u. is highly suspicious and over 1,000 u. probably diagnostic. Sometimes **restlessness** is a marked and significant feature.

2. **The relation of pulse to temperature.** The masking effect of antibiotics must be remembered (we do not approve their prophylactic use unless specifically indicated). Certainly a rise in pulse rate of more than 20-25 per minute in the absence of equivalent temperature rise (6 beats to $1^\circ$ F.) is strongly in favour of an organic lesion requiring laparotomy.

3. **Straight X-ray of the abdomen** should always be done, preferably in both erect and supine positions, and preferably not with a portable machine (also X-ray of chest). Gas under the diaphragm must be interpreted with regard to the nature of and time interval since the previous operation. Fluid levels per se indicate only stasis; but the presence and distribution of distended loops, particularly in a serial plate after an enema, is highly significant.

4. **Drainage.** The nature and quantity of discharge from wound or stab drain are important in both diagnosis and therapy.

5. **Rectal examination** should never be omitted. A tender bogosity points to an infective basis.

6. **White cell count** may also indicate inflammation, but is not a reliable aid; **electrolyte** studies are done routinely.

Finally the mortality of re-operation must be weighed against the morbidity of conservative treatment, and thought given to parenteral therapy and the timing of the operation.

**Illustrative Cases**

**J.T., 87381, male, aged 54.**

In 1948, a vagotomy and pylorectomy for duodenal ulcer. Gastric suction consistently exceeded oral intake indicating a stomal obstruction, and on the sixth day a posterior gastro-enterostomy was performed. The patient did well after this, but some months later developed severe 'dumping' symptoms. In 1953 a partial gastrectomy and Billroth I type anastomosis was done; the gastro-enterostomy was excised and jejunal continuity restored. On the third day he was moderately distended and suffered occasional small vomits of bile-stained gastric contents. On the fifth day the patient complained of severe pain in abdomen and back; he was still regurgitating small amounts of fluid, but the distention had not increased and his abdomen was soft. One bowel action was recorded. Temperature varied between 99 and 100°F. and the pulse rose to 100-110 (pre-operative norm 70-80). Pethidine eased the pain and he improved somewhat but on the tenth day had another attack of pain. The central portion of the wound dehisced with copious discharge of small bowel content; after this the pain abated. Treatment was conservative with careful attention to fluids and nutrition, and over a period of two months the fistula gradually dried up. However the patient once again complains of abdominal pain after meals.

**Comment.**—In the 1948 episode, the post-operative complication was effectively treated by re-operation; but the presumed leak at the jejuno-jejunal anastomosis in 1953 was not attacked. One wonders whether prompt re-operation would have saved the patient a long convalescence and residual symptoms which are probably due in part to fibrous tissue reaction around the fistula.

**D.D., 152963, male, aged 45.**

Antecolic Polya type gastrectomy (afferent loop to lesser curve) for duodenal ulcer. On the third day the patient was diagnosed as having a left basal atelectasis with temperature 100°F. and pulse 110 (normal 80). Later that day sudden onset of epigastric pain, and 300 ml. of bile-stained fluid was vomited. The abdomen was soft, though tender in the upper part. A few hours later, the patient suffered a circulatory collapse, the pulse rising to 140 and the blood pressure dropping to below 80 systolic. The patient was resuscitated and re-operated. A strangulated loop of small bowel was found volved behind the afferent loop. Correction of this pathology resulted in rapid and satisfactory recovery.

**Comment.**—From the operative findings it was clear that an X-ray would have shown the distended loop; the significance of the pain and the rise in pulse rate was overlooked, but the delay in this case was fortunately not fatal.

**T.M., 109609, male, aged 38.**

Antecolic Polya gastrectomy for duodenal ulcer. A mild pyrexia was thought to be due to acute bronchitis and penicillin was prescribed on the fifth day. On the seventh day the temperature rose to 102°F. and the white cell count to 10,000 per cu. mm. The following day the patient complained of pain and tenderness in the right upper abdomen and his temperature was 104°F. It was decided to re-operate: a haematoma was found in
the rectus sheath with poor wound healing; no pathology was found in the abdomen. A diagnosis of penicillin sensitivity was then made and in fact as soon as this drug was stopped a dramatic improvement followed.

Comment.—Stricter attention to the criteria discussed in this paper might have avoided the second operation; however, no harm came of it whereas delay might have proved fatal had the lesion been obstructive.

E.G., 163213, female, aged 55.

This patient had a haematemesis whilst being investigated for a large chronic gastric ulcer. An emergency Billroth I type gastrectomy was done and the abdomen was drained by rubber tube through a stab in the flank. At operation the temperature was 101°F., and this dropped over four days to 99°. The pulse rate, however, increased from 110 to 120 beats per minute. On the fourth day a copious discharge of duodenal content started coming through the drain opening, after which the pulse dropped to 90. Electrolyte values were normal; intravenous drip and gastric suction were instituted. Three days later the laboratory report was: Carbon dioxide 28 mEq., Potassium 2.3 mEq/L. The patient was noted to be drowsy. Intensive therapy with potassium solutions giving 60-80 milli-equivalents of the ion per day took one week to bring the blood level back to normal. Subsequent convalescence was slow, but full recovery has taken place.

Comment.—This case illustrates how rapidly an electrolyte depletion can develop and how fraught with danger conservative management can be.

L.P., C-4563, male, aged 62.

This patient had a perforated duodenal ulcer sutured in 1947, and returned in 1955 with recurrent ulcer and pyloric obstruction. A Billroth I type gastrectomy was done; separation of duodenum from pancreas caused severe bleeding which was eventually controlled by blind transfusion sutures. On the second day the patient had sudden severe abdominal pain (pulse 130, temp. 100-101°F.). A little bile escaped from the drainage wound which was probed, resulting in a free flow of bile-stained fluid. Bile peritonitis was diagnosed and in spite of energetic conservative treatment the patient's condition gradually deteriorated and he died three days later.

Comment.—At autopsy the diagnosis was confirmed—two transfusion sutures had perforated the common bile duct. Prompt and adequate drainage of the biliary system and peritoneal cavity might have saved this man's life; also his pre-operative nutritional status was probably poor.

W.G.F., C-6198, male, aged 54.

This patient with duodenal ulcer, benign hypertension and emphysema had a vagotomy and Polya type hemi-gastrectomy. Two days later he was restless and perspiring, with a pulse rate of 120, moderate abdominal distention and high pitched peristaltic noises. Over the following week his condition varied, but restlessness and an elevated pulse rate were prominent throughout. On the ninth day he complained of severe backache and appeared cyanosed. His pulse was thready. An X-ray showed distention of small gut with one prominent loop containing a fluid level in the left upper quadrant. He was then laparotomised, and the upper one-third of the jejunum, including part of the proximal loop, was found to be gangrenous or nearly so. This area was resected and a fresh anastomosis made. The patient died a week later after a temporary improvement. At autopsy the remaining part of the small gut was gangrenous due to a thrombus at the origin of the superior mesenteric artery.

Comment.—An earlier operation might have allowed post-operative heparinisation before the clot had grown to occlude the artery completely. The history and post-mortem findings suggest that this process started on the second day and proceeded gradually over the following two weeks.

Conclusions and Summary

The problem of re-opening an acute abdomen in the early post-operative period illustrates the importance of careful management of all major laparotomy cases throughout their illness, with particular emphasis on adequate pre-operative build-up. It should be possible to maintain a patient sufficiently fit for a second operation should it be necessary. Decision on the course to be adopted should not be delayed for more than six to eight hours. The author believes that in most instances we are too conservative, and that if surgeons re-operated more often in accord with the indications discussed a much reduced morbidity would result—and probably also a lower immediate mortality. Six case histories are presented to illustrate these points.

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BIBLIOGRAPHY