Surgical aspects of stomach and duodenum

Surgical treatment of uncomplicated peptic ulceration

1. The corner stone of treatment options.
2. Differential approach depend on the type of ulcer and duration also the sequelea of ulcer itself.

Operations for duodenal ulceration

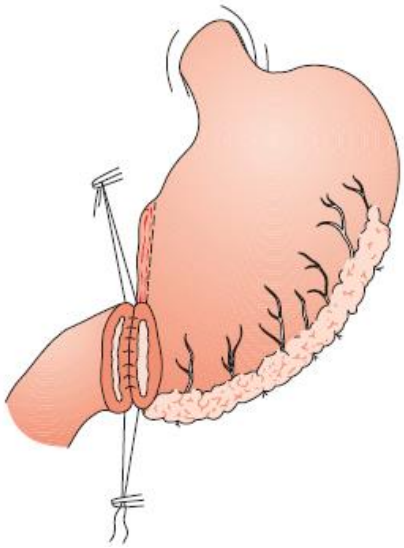
- This has been achieved by diversion of the acid away from the duodenum, reducing the secretory potential of the stomach, or both.
- HISTORICAL CONSEQUENCES:
- Billroth I gastrectomy. Followed by Billroth II Pólya Gasterctomy.
- The original Billroth operations consisted of a gastric resection with gastroduodenal anastomosis (Billroth I technique)
- A common cause of morbidity is leakage from the duodenal stump
- In the majority of expert centres a Roux-en-Y reconstruction rather than the Billroth II procedure is performed because postoperative function is better
- Gastrojejunostomy ALONE!
- This has been achieved by diversion of the acid away from the duodenum, reducing the secretory potential of the stomach, or both.

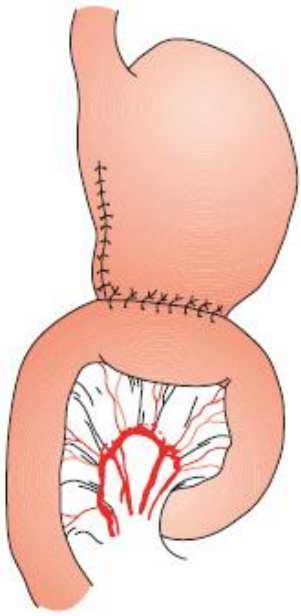
Leakage from the gastrojejunal anastomosis is unusual unless it is under tension or the stomach has been devascularised during the mobilization.

- Reflux of alkali from the small bowel into the stomach reduced duodenal acid exposure and was often successful in healing the ulcer. However, because the jejunal loop was exposed directly to gastric acid, stomal ulceration was extremely common, hence the procedure in isolation was ineffective.

Billroth I

Billroth II





Truncal vagotomy and drainage.

- The principle of the operation is that section of the vagus nerves, which are critically involved in the secretion of gastric acid, reduces the maximal acid output by approximately 50%. Because the vagal nerves are motor to the stomach,denervation of the antropyloroduodenal segment results in gastric stasis in a substantial proportion of patients on whom truncal vagotomy alone is performed. Like Heineke–Mikulicz pyloroplasty.
- It is simple to perform and involves the longitudinal section of the pyloric ring. The incision is closed transversely. Gastrojejunostomy was the alternative drainage
- a low incidence of side effects and acceptable recurrence rates when performed to a high technical standard. loss of receptive relaxation of the stomach did occur, leading to epigastric fullness and sometimes mild dumping.
- Highly selective vagotomy only the parietal cell mass of the stomach was denervated.
- Truncal vagotomy and antrectomy is one of the good options for ulcer management. The recurrence rates after this procedure are exceedingly

low. However, the operative mortality is higher than after vagotomy and drainage and the incidence of unpleasant side effects is similar.

Highly selective vagotomy

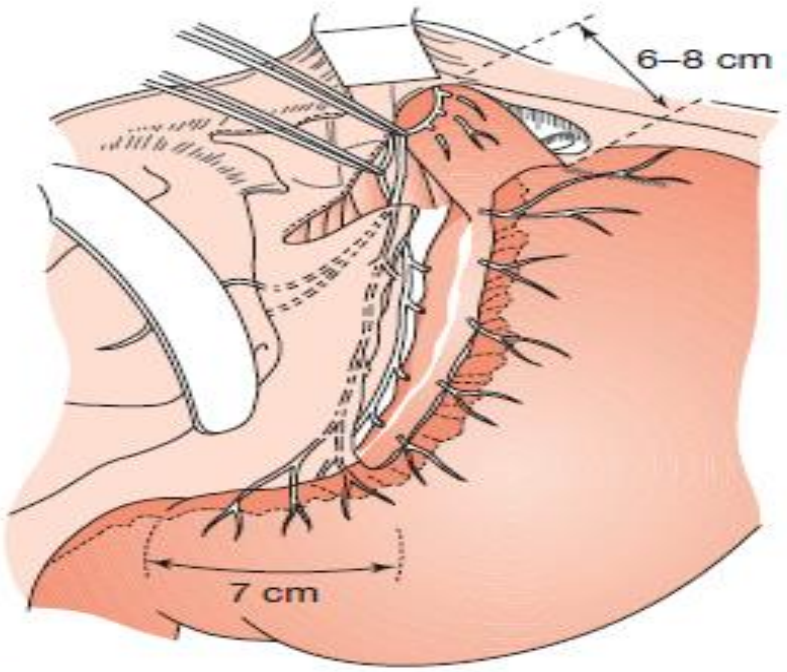


Figure 63.21 Highly selective vagotomy. The anterior and posterior vagus nerves are preserved but all branches to the fundus and body of the stomach are divided.

Gastric Ulcer Operations:

- In gastric ulceration the diseased tissue is usually removed as well.

- Billroth I gastrectomy This resection should include the ulcer that is usually situated on the lesser curve. The cut edge of the remnant is then partially closed from the lesser curve aspect, leaving a stoma at the greater curve aspect, which should be similar in size to the duodenum.
- **Sequelae of peptic ulcer surgery**
- Recurrent ulceration, will heal with potent antisecretory agents,
- Small stomach syndrome, Early satiety follows most ulcer operations to some degree, including highly selective vagotomy. That can pass without surgery.
- Bilious vomiting, Bile chelating agents can be tried but are usually ineffective, Bile vomiting can occur after any form of vagotomy with drainage or gastrectomy,, Following gastrectomy, Roux-en-Y diversion is probably the best treatment. Antrectomy and Roux-en-Y reconstruction may be the better option.
- penetrating colonic fistula Patients suffer from diarrhoea that is severe and follows every meal. The treatment of gastrocolic fistula consists of first correcting the dehydration and malnutrition and then performing revisional surgery
- Early and late Dumping, occur in 10% after vagotomy,
- Early Dumping. a high osmotic load, to small bowel leads to the sequestration of fluid from the circulation into the gastrointestinal tract. The principal treatment is:
- dietary manipulation.
- Small, regular meals based on fat and protein are best,
- Avoiding fluids with a high carbohydrate content also helps.
- Revisional surgery may be occasionally required. In patients with a gastroenterostomy, the drainage may be taken down,
- in the case of a pyloroplasty, repaired. Alternatively, antrectomy with Roux-en-Y reconstruction is often effective, although the procedure is of greater magnitude.

- Late dumping is reactive hypoglycaemia. . Octreotide is very effective in dealing with this problem.
- It also affects a small percentage of patients following highly selective vagotomy due to the loss of receptive relaxation of the stomach
- Malignant transformation four times of control populations and
- metabolic sequelae. Anaemia may be due to either iron or vitamin B12 deficiency, Bone disease is seen principally after gastrectomy and mainly in women
- Diarrhoea. This can be the most devastating symptom to afflict patients having peptic ulcer surgery, (with the exception of highly selective vagotomy) The diarrhoea in post-vagotomy patients may take several forms,
- gall stones: strongly associated with truncal vagotomy.
- Malignant transformations, bile reflux gastritis, intestinal metaplasia and gastric cancer are linked,

The complications of peptic ulceration and its operations:

- ***Perforated peptic ulcer***: patient develops sudden-onset severe generalized abdominal pain due to the irritant effect of gastric acid on the peritoneum. the patient may be shocked with a tachycardia but a pyrexia is not usually observed until some hours after the event, but in leaking ulcer They may present only with pain in the epigastrium and right iliac fossa as the fluid may track down the right paracolic gutter. 2:1 of male:female, NSAIDs appear to be responsible for most of these perforations. By far the most common site of perforation is the anterior aspect of the duodenum. Ix by An erect plain chest radiograph will reveal free gas under the diaphragm in excess of 50% of cases with perforated peptic ulcer, treatment The initial priorities are resuscitation and analgesia. . Following resuscitation, the treatment is principally surgical. The most important component of the operation is a thorough peritoneal toilet to remove all of the fluid and food debris, All patients should be treated with systemic antibiotics in addition to a thorough peritoneal lavage, there is some role for conservative measures

- Gastric ulcers should, if possible, be excised and closed, so that malignancy can be excluded.
- patient is seen who has a massive duodenal or gastric perforation such that simple closure is impossible; in these patients a distal gastrectomy with Roux-en-Y reconstruction is the procedure of choice.

Poor prognostic factors after perforation of an ulcer:

- delay in diagnosis (>24 hours); ● medical comorbidities; ● shock; ● increasing age (>75).

Bleeding peptic ulcers:

Therapeutic endoscopy can achieve haemostasis in approximately 70% of cases, with the best evidence supporting a combination of adrenaline injection with heater probe and/or clips.

Patients with a visible vessel in the ulcer base, a spurting vessel or an ulcer with a clot in the base are statistically likely to require surgical treatment to stop the bleeding

A patient who has required more than six units of blood in general needs surgical treatment.

The most common site of bleeding from a peptic ulcer is the duodenum

- Lifelong treatment with proton pump inhibitors is a reasonable option especially in those who have to continue with NSAID treatment.
- In recent years, the population affected BY BLEEDING has become much older and the bleeding is commonly associated with the ingestion of NSAIDs
- In patients where the source of bleeding cannot be identified or in those who rebleed after endoscopy, angiography with transcatheter embolisation may offer a valuable alternative to surgery in expert centres

BLEEDING PEPTIC ULCER MANAGEMENT:

Commonest site which is usually found posteriorly or superiorly.

- this should be controlled using well-placed sutures on a small round-bodied needle that under-run the vessel.
- In a giant ulcer the first part of the duodenum may be destroyed making primary closure impossible
- In this circumstance one should proceed to distal gastrectomy with Roux-en-Y reconstruction.
- The principles of management of bleeding gastric ulcers are essentially the same.

THE DOUDENUM SHUOLD BE FULLY MOBALIZED. TO FACILITATE CONTROL OF BLEEDING & allow access to the ulcer.

- Accurate haemostasis is important and can be achieved initially by direct pressure.
- in bl. Gastric ulcer, If the ulcer is not excised then a biopsy of the edge needs to be taken to exclude malignant transformation.

- **Gastric outlet obstruction**
- **Penetration to the underlying vital organs.**

Mallory–Weiss tear

- This is a longitudinal tear at the gastro-oesophageal junction, which is induced by repetitive and strenuous vomiting
- When it is a cause of haematemesis, the lesion may often be missed as it can be difficult to see as it is just below the gastro-oesophageal junction,
- The experienced surgeon will perform on-table endoscopy prior to embarking on surgery. The stomach is opened by longitudinal gastrotomy and the upper section is carefully inspected.

- It is normally possible to palpate the longitudinal mucosal tear with a little induration at the edges, Under-running is all that is required

Dieulafoy's disease:

- This is essentially a gastric arterial venous malformation that has a characteristic histological appearance.
- The lesion itself is covered by normal mucosa and, when not bleeding, it may be invisible. If it can be seen while bleeding, all that may be visible is profuse bleeding coming from an area of apparently normal mucosa.
- If the lesion can be identified endoscopically it can be delt with by, injection of sclerosant and endoscopic clips. If it is identified at operation then only a local excision is necessary.

Acute gastric dilatation:

This condition usually occurs in association with pyloroduodenal

disorders or post surgery without nasogastric suction.

The stomach, which may also be atonic, dilates enormously.

Often the patient is also dehydrated and has electrolyte disturbances.

- Failure to treat this condition can result in a sudden

massive vomit with aspiration into the lungs. The treatment

is nasogastric suction, with a large-bore tube, fluid replacement

and treatment of the underlying condition.