Surgery of The Stomach (3)

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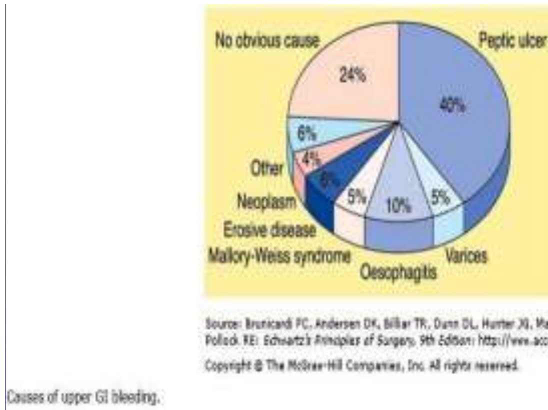
Complications of peptic ulcer

Acute complications:
(1) Bleeding
(2) Perforation

Chronic complications:
(1) Contracture causing pyloric stenosis, or hour glass stomach.
(2) Penetration
(3) Malignant transformation

Bleeding peptic ulcer

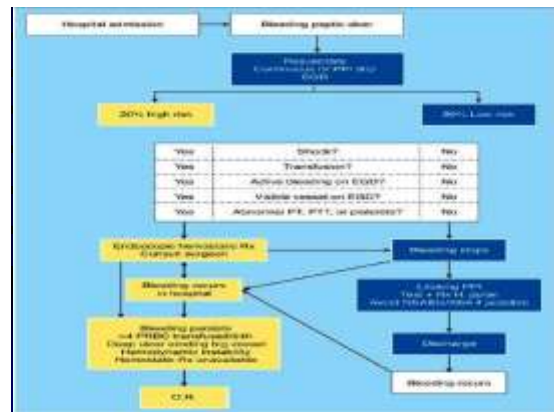
Hematemesis:
*- Causes
*- Management

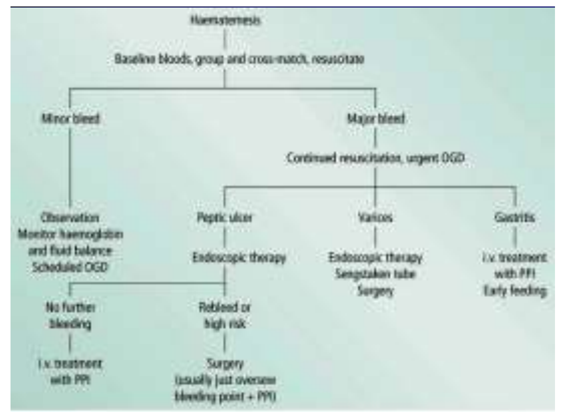


Causes of upper GI bleeding.

Table 60.4 Causes of upper gastrointestinal bleeding

Condition	Incidence (%)
Ulcers	**60**
Oesophageal	6
Gastric	21
Duodenal	33
Erosions	**26**
Oesophageal	13
Gastric	9
Duodenal	4
Mallory–Weiss tear	***4***
Oesophageal varices	***4***
Tumour	***0.5***
Vascular lesions, e.g. Dieulafoy's disease	***0.5***
Others	***5***



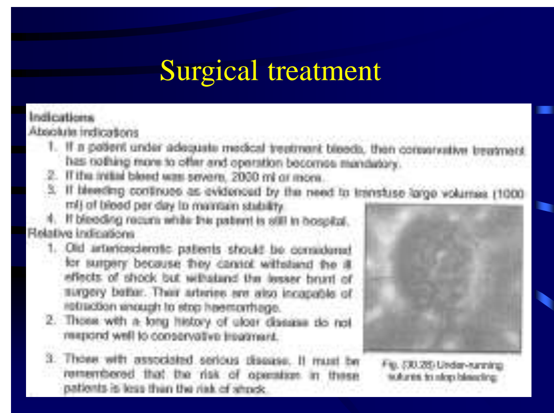


Treatment:

Conservative treatment

The following cases usually respond favourably to conservative treatment

1. Young patients under 45 years.
2. Minor bleeds.
3. Short history of dyspepsia.
4. Recent history of ulcerogenic drug intake, for withdrawal of the drug may be all that is required.



Surgical treatment

Indications

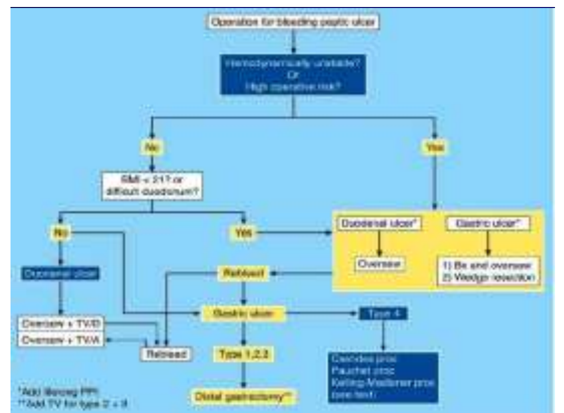
Absolute indications

1. If a patient under adequate medical treatment bleeds, then conservative treatment has nothing more to offer and operation becomes mandatory.
2. If the initial bleed was severe, 2000 ml or more.
3. If bleeding continues as evidenced by the need to transfuse large volumes (1000 ml) of blood per day to maintain stability.
4. If bleeding recurs while the patient is still in hospital.

Relative indications

1. Old arteriosclerotic patients should be considered for surgery because they cannot withstand the ill effects of shock but withstand the lesser brunt of surgery better. Their arteries are also incapable of retraction enough to stop haemorrhage.
2. Those with a long history of ulcer disease do not respond well to conservative treatment.
3. Those with associated serious disease. It must be remembered that the risk of operation in these patients is less than the risk of shock.

Fig. (30.28) Under-running sutures to stop bleeding



Perforation

Clinical features

These are usually described in 3 stages.

1. **Stage of chemical peritonitis**
   - At the time of perforation the patient experiences sudden severe pain starting i
     the epigastrium, and later becomes generalized.
   - The patient often collapses especially with a large perforation.
   - There is tachycardia, but the temperature is often subnormal.
   - Abdominal examination reveals board-like rigidity,and tenderness mainly in tl
     epigastric region. Sometimes there is tenderness in the right iliac fossa whi
     may be misdiagnosed as acute appendicitis. Percussion reveals attenuated liv
     dullness and auscultation reveals a silent abdomen.
2. **Stage of illusion** The peritoneum reacts to chemical peritonitis by secreting copio
   amounts of fluid, and thus lessening the chemical irritation. The patient feels bet
   with less pain and less rigidity.
3. **Stage of bacterial peritonitis** Secondary infection of the peritoneal cavity leads
   septic peritonitis. Pain increases and there is rising temperature and tachycarc
   Abdominal examination reveals generalized tenderness, rigidity and progress
   abdominal distension.

the contents of an acid-producing stomach are relatively low in bacterial load, bacterial peritonitis supervenes over a few hours, usually accompanied by a deterioration in the patient's condition.

Figure 60.22 A sketch of Mr Hamilton Bailey watching for abdominal movement on respiration. In the case of a classically presenting perforated ulcer, the abdominal movement is restricted or absent.

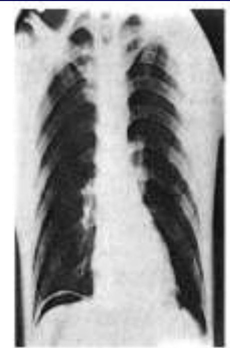
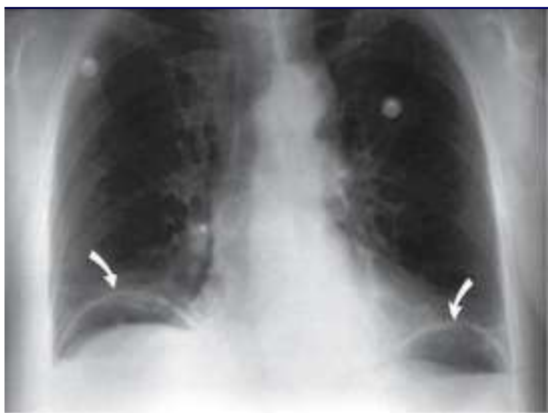


Figure 60.23 Plain abdominal radiograph of a perforated ulcer, showing air under the diaphragm.



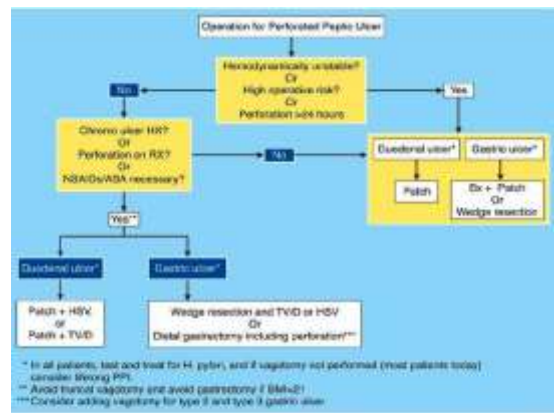
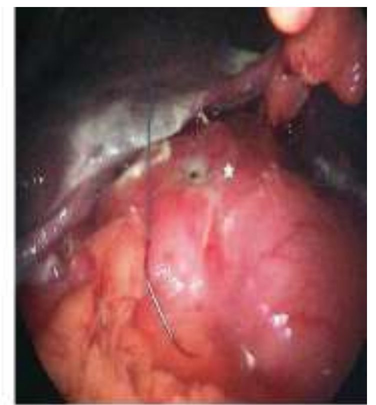


Fig. 15.1 Anterior duodenal ulcer perforation (∗)



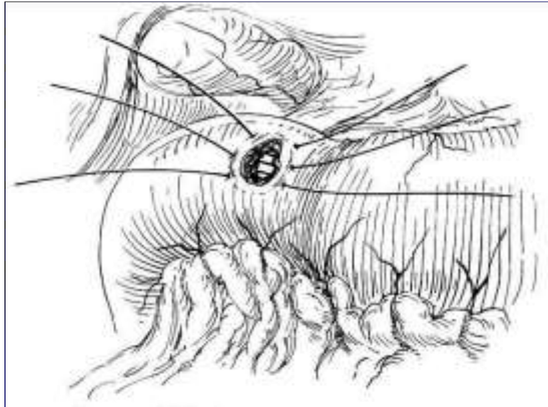
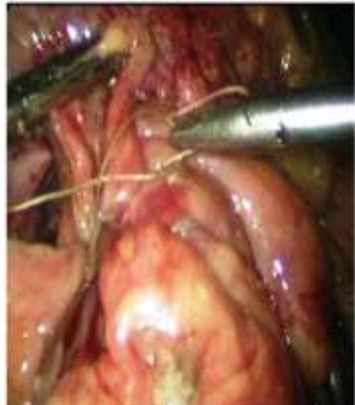
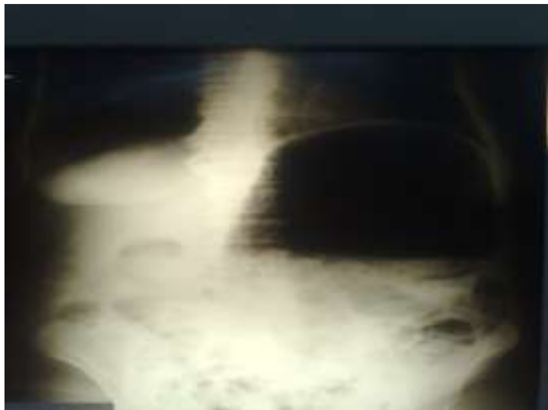


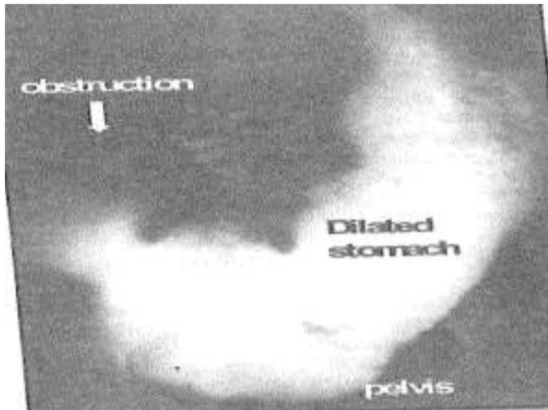
Fig. 15.2 Laparoscopic Graham patch completed

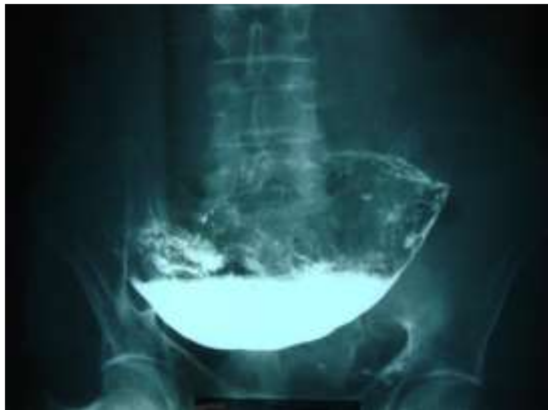


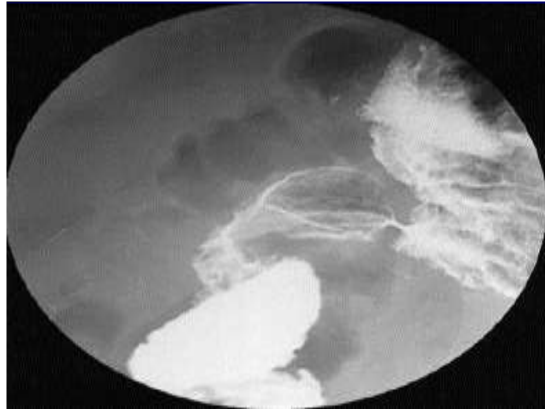
Cicatrization

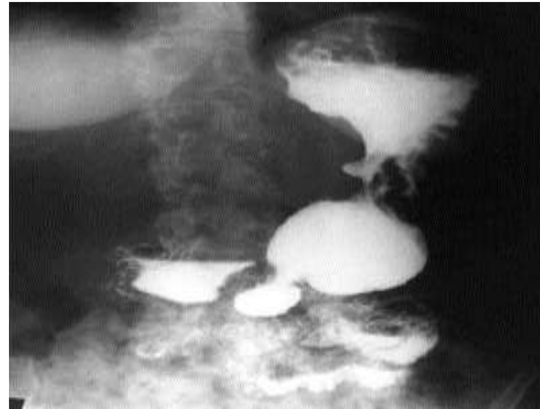
Pyloric obstruction
Hourglass stomach











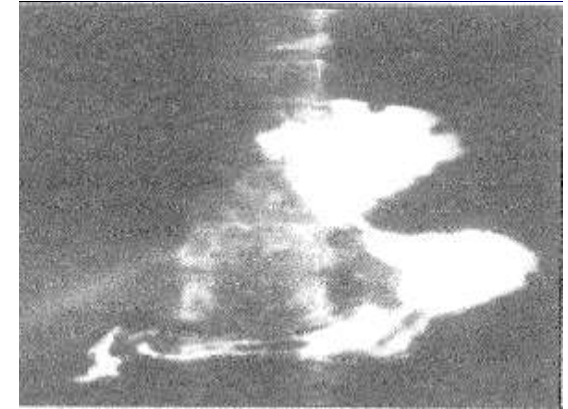


Table 15-8. Choice of Operative Procedure Based on Indication

Indication	Procedure
Acute gastritis	Vagotomy and pyloroplasty with oversewing of erosions or near-total gastrectomy
Gastric ulcer	Subtotal gastrectomy with ulcer excision
Duodenal ulcer	
Intractable pain	Parietal cell vagotomy
Perforation	Simple closure or closure and parietal cell vagotomy
Bleeding	Vagotomy and antrectomy with suture ligation of bleeding vessel or
	Vagotomy and pyloroplasty with suture ligation
Obstruction	Vagotomy and antrectomy
Zollinger-Ellison syndrome	Tumor resection or parietal cell vagotomy or total gastrectomy

TABLE 25-7 Clinical Results of Surgery for Duodenal Ulcer

	Parietal cell vagotomy	Truncal vagotomy and pyloroplasty	Truncal vagotomy and antrectomy
Operative mortality rate (%)	0	<1	1
Ulcer recurrence rate (%)	5–15	5–15	< 2
Dumping (%)			
Mild	< 5	10	10–15
Severe	0	1	1–2
Diarrhea (%)			
Mild	< 5	25	20
Severe	0	2	1–2

Source: Modified with permission from Mulholland MW, Debas HT: Chronic duodenal and gastric ulcer. *Surg Clin North Am* 67:489, 1987.

Table 26-13 Differential Diagnosis of Intractability or Nonhealing Peptic Ulcer Disease

Cancer
Gastric
Pancreatic
Duodenal
Persistent *Helicobacter pylori* infection
Tests may be false-negative
Consider empiric treatment
Noncompliant patient
Failure to take prescribed medication
Surreptitious use of NSAIDs
Motility disorder
Zollinger-Ellison syndrome

TABLE 25-10 Differential Diagnosis of Hypergastrinemia
With excessive gastric acid formation (ulcerogenic)
Zollinger-Ellison syndrome
Gastric outlet obstruction
Retained gastric antrum (after Billroth II reconstruction)
G-cell hyperplasia
Without excessive gastric acid formation (nonulcerogenic)
Pernicious anemia
Atrophic gastritis
Renal failure
Postvagotomy
Short gut syndrome (after significant intestinal resection)

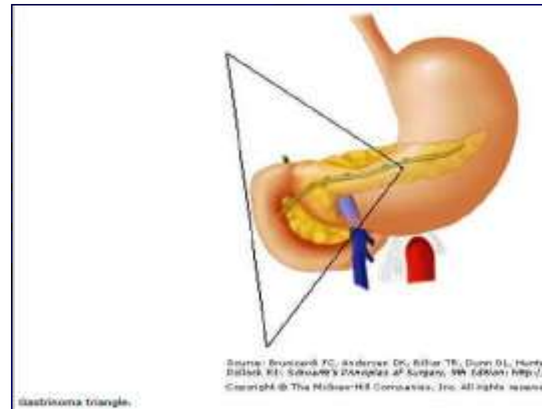
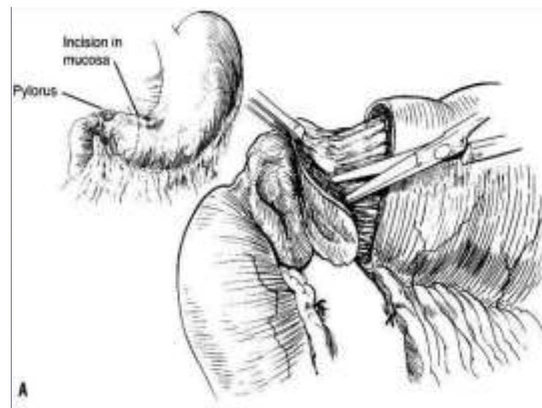


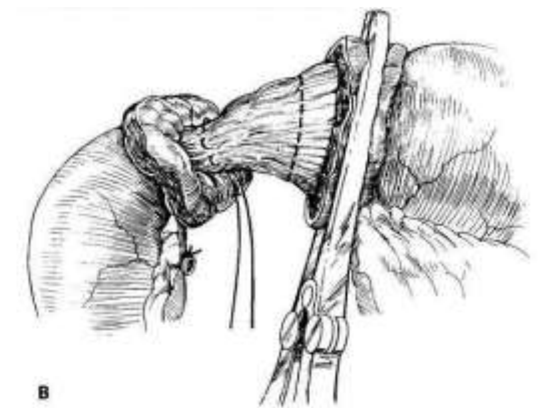
Table 26.2 Sequelae of gastric surgery.
Recurrence of the disease: recurrent ulcer, recurrence of gastric carcinoma
Nutritional consequences: weight loss, iron-deficiency anaemia, B_{12} deficiency
Milk intolerance
Bone disease
Dumping symptoms
Reactive hypoglycaemia
Bile vomiting
Diarrhoea
Small stomach syndrome
Mechanical complications: afferent/efferent loop obstruction, jejunogastric intussusception, gastro-oesophageal reflux
Others: bezoar formation, gastric carcinoma

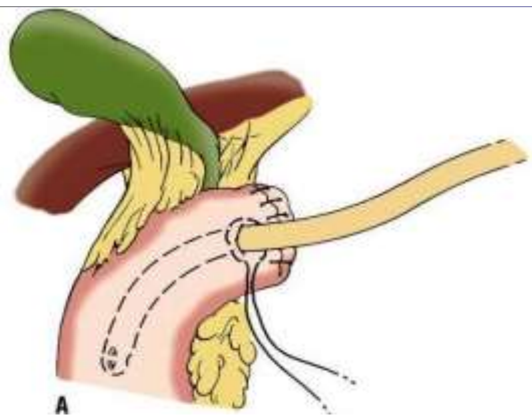
Post-gastrectomy complications

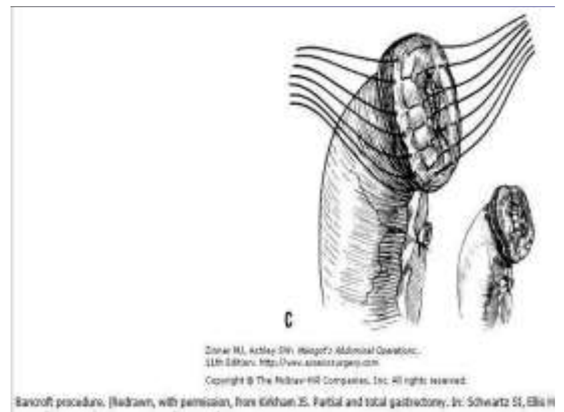
I- Early complications:

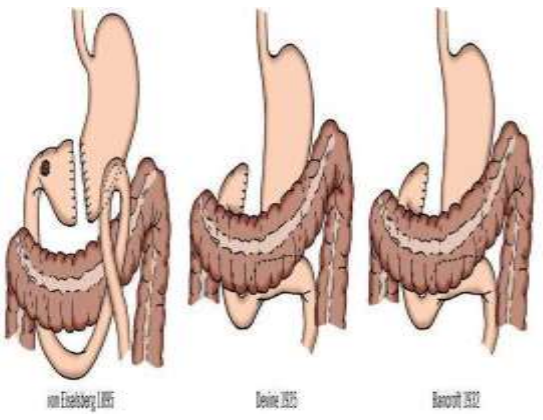
- *- Bleeding
- *- Stomal obstruction
- *- Duodenal blow-out
- *- Post op. pancreatitis









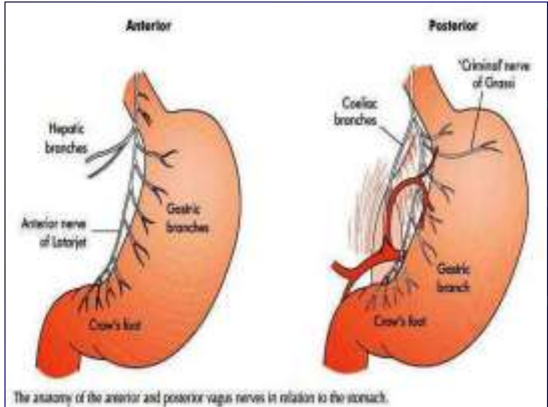


II- Late complications:

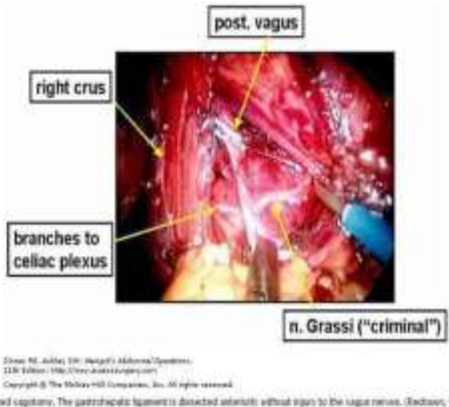
*- Recurrent ulceration
*- Dumping syndromes (early and late)
*- Biliary gastritis (alkaline reflux gastritis)
*- Afferent loop syndrome
*- Post vagotomy diarrhea
*- Gastro-jejuno-colic fistula
*- Post gastrectomy nutritional disturbances
*- Gastric carcinoma in the remnant
*- Other complications as adhesions, internal herniation, ….

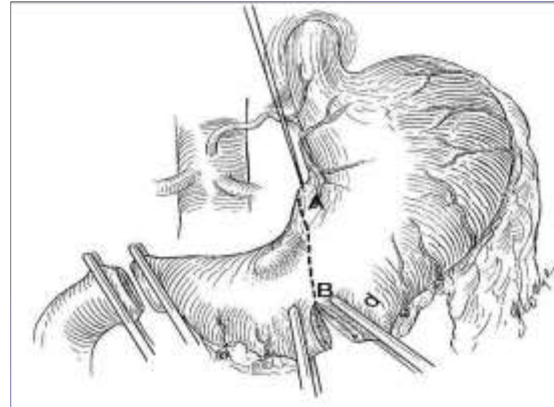
Recurrent ulceration:

Causes
Clinical presentation
Diagnosis
Treatment:
Sometimes controlled by medications, but surgery somewhat unavoidable
*- Completeness of vagotomy
*- Antrectomy or gastrectomy after vagotomy
*- Vagotomy after gastrectomy



The anatomy of the anterior and posterior vagus nerves in relation to the stomach.





Post gastrectomy dumping syndrome

Early dumping (within ½ hour after meals)

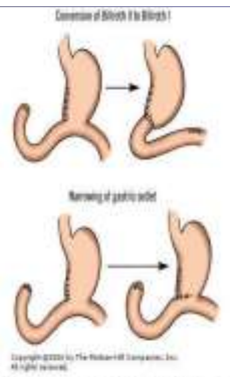
Late dumping (delayed 2-3 hours after meals

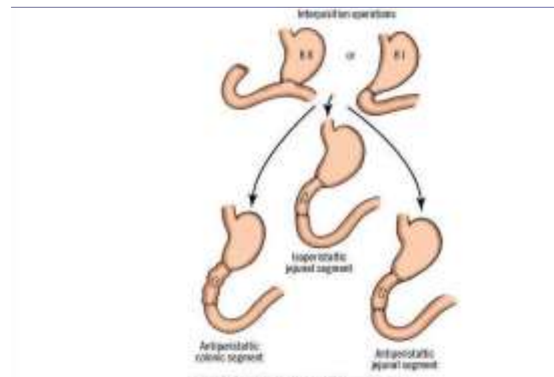
Table 26.3 Manifestations of dumping syndrome.

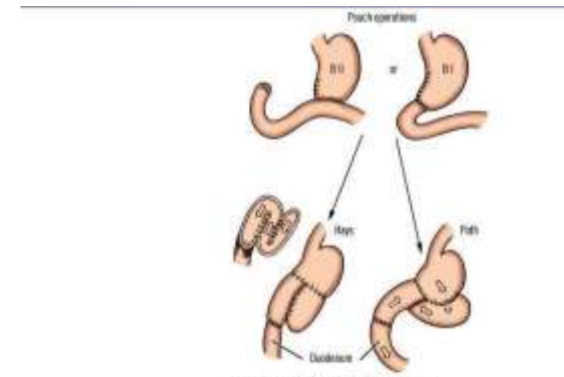
Vasomotor (systemic)
Weakness
Tiredness
Dizziness
Headache
Fainting/wanting to lie down
Warmth
Palpitations
Dyspnoea
Sweating

Gastrointestinal
Fullness
Epigastric discomfort/heaviness
Nausea
Vomiting
Distension
Excessive borborygmi/distension
Diarrhoea

	Early	Late
Incidence	5–10%	5%
Relation to meals	Almost immediate	Second hour after meal
Duration of attack	30–40 min	30–40 min
Relieved by	Lying down	Food
Aggravated by	More food	Exercise
Precipitating factor	Food, especially carbohydrate-rich and wet	As for early dumping
Major symptoms	Epigastric fullness, sweating, light-headedness, tachycardia, colic, sometimes diarrhoea	Tremor, faintness, prostration

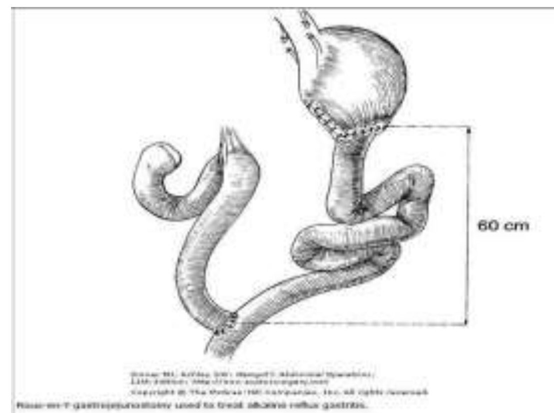


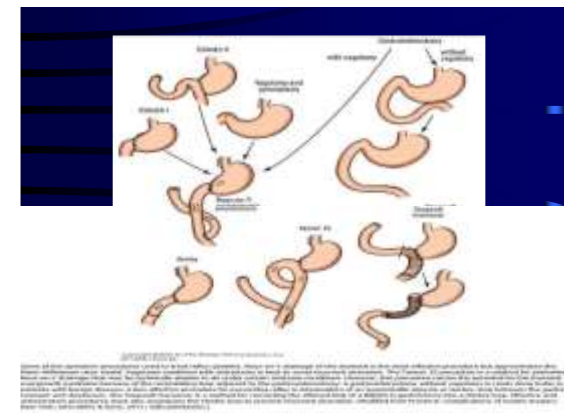




Biliary gastritis
(Alkaline reflux gastritis)

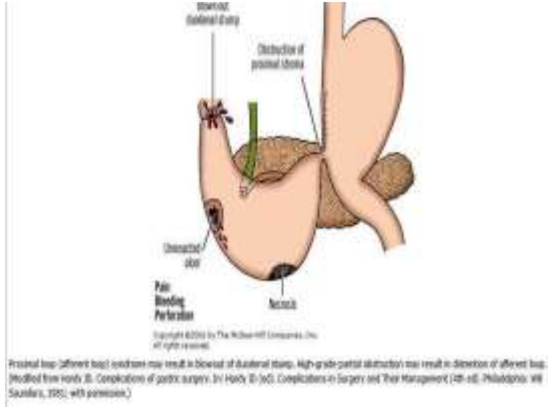
Clinically mimic recurrent ulceration,
added by bilious vomiting

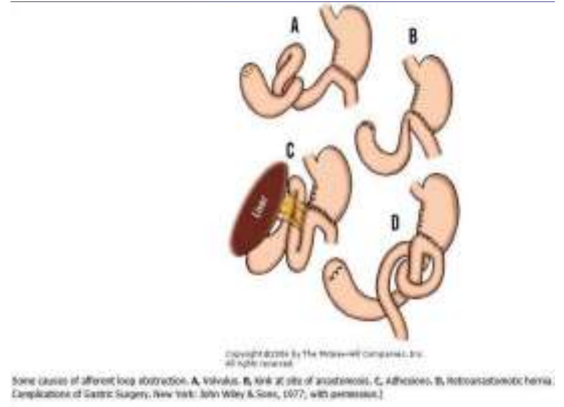


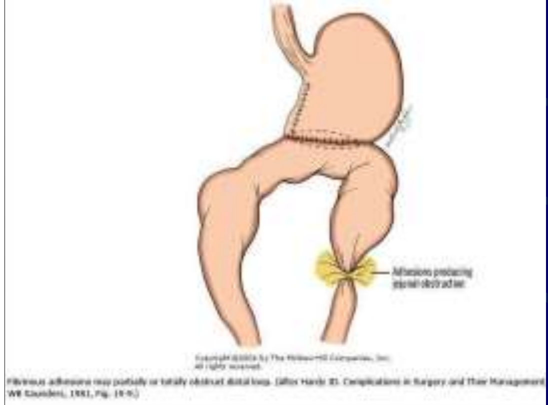


Afferent loop syndrome

Causes
Clinical presentation
Treatment

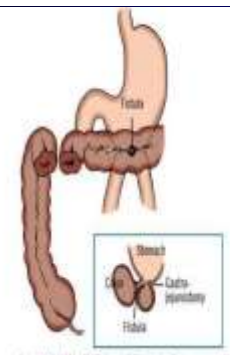






Postvagotomy diarrhea A tendency to loose stools most cases. Rarely in about 3% of cases, the diarrhoea is watery and explosive. The cause is obscure but may be related to bile acids being delivered too rapidly to the colon due to dysfunction of the ileo-caecal valve. The condition gets better as time goes on.

Gastrojejunocolic fistula This is due to a recurrent ulcer following an operation in which a gastrojejunostomy was used. The ulcer will adhere and then penetrate into the colon resulting in a fistula between the stomach, the jejunum and the colon (Fig. 30.34). The symptoms of recurrent ulceration will be modified by the occurrence of severe diarrhoea, ill health, loss of weight, and anaemia. The diarrhoea is due to an enteritis caused by the entry of colonic contents into the jejunum. For its visualization a barium enema (and not meal) is needed. The treatment is surgical. Proximal diverting colostomy is performed at first, followed later by correction of the fistula.



Postgastrectomy nutritional disturbances.
Weight loss, anaemia (iron deficiency or megaloblastic), steatorrhoea, vitamin B deficiency, calcium deficiency, early satiety, and an increased