

# Peptic Ulcer Disease

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# INTRODUCTION

- Peptic Ulcer is a lesion in the lining (mucosa) of the digestive tract, typically in the stomach or duodenum, caused by the digestive action of pepsin and stomach



Lesion may subsequently occur into the lamina propria and submucosa to cause bleeding. –

Most of peptic ulcer occur either in the duodenum, or in the stomach – Ulcer may also occur in the lower esophagus due to reflexing of gastric content – Rarely in certain areas of the small intestine

# PATHOPHYSIOLOGY

- Bicarbonate
- Mucus layer
- Prostaglandins
- Mucosal blood flow
- Epithelial renewal

Defensive



- *Helicobacter pylori*
- NSAIDs
- Pepsins
- Bile acids
- Smoking and alcohol

Aggressive





Under normal conditions, a physiologic balance exists between gastric acid secretion and gastroduodenal mucosal defense. Mucosal injury and, thus, peptic ulcer occur when the balance between the aggressive factors and the defensive mechanisms is disrupted. Aggressive factors, such as NSAIDs, *H pylori* infection, alcohol, bile salts, acid, and pepsin, can alter the mucosal defense by allowing back diffusion of hydrogen ions and subsequent epithelial cell injury.

# ETIOLOGY/ RISK FACTORS

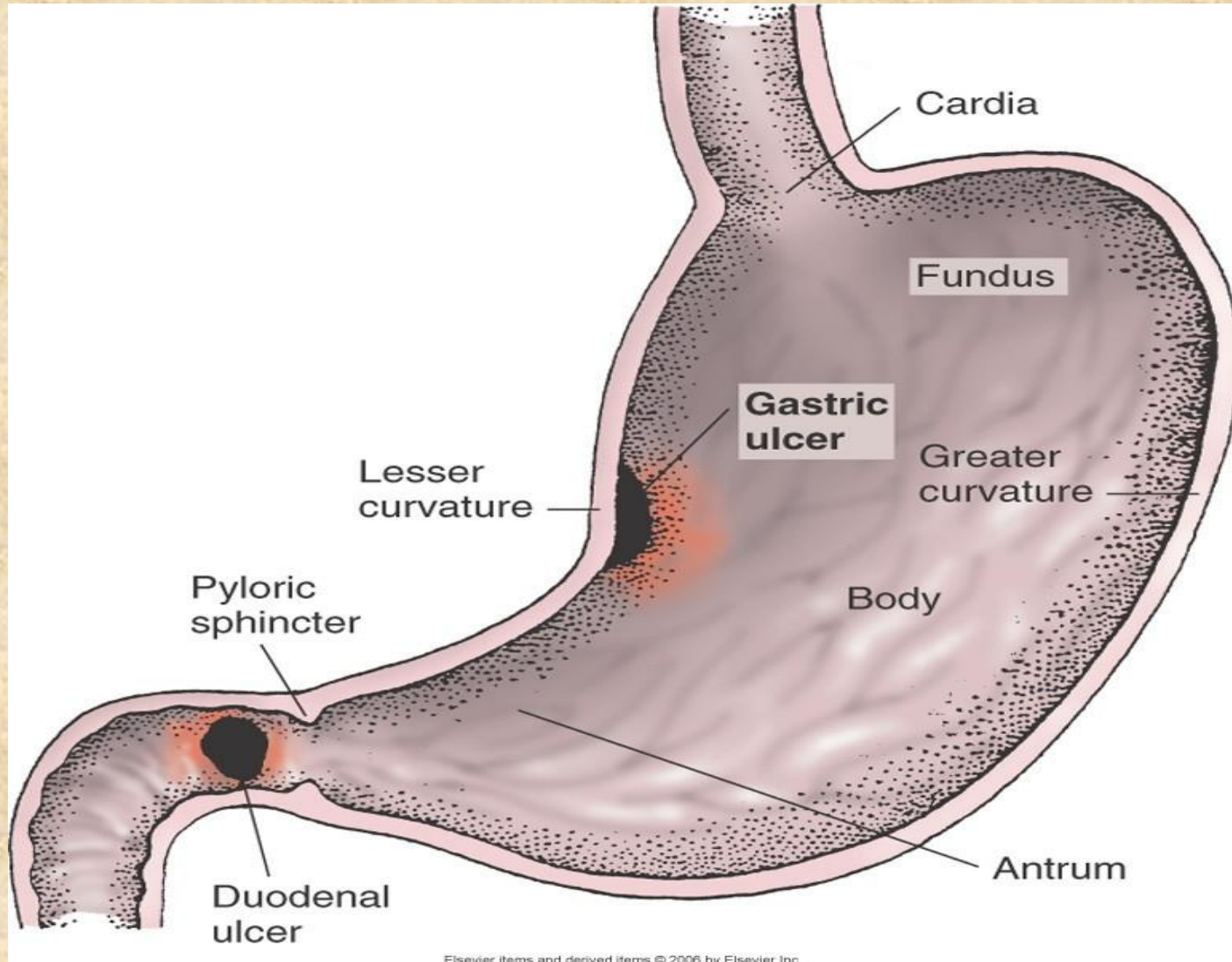
- Lifestyle
  - Smoking
  - Acidic drinks
  - Medications
- H. Pylori infection
  - 90% have this bacterium
  - Passed from person to person (fecal-oral route or oral-oral route)
- Age
  - Duodenal 30-40
  - Gastric over 50
- Gender
  - Duodenal: are increasing in older women
- Genetic factors
  - More likely if family member has Hx
- Other factors: stress can worsen but not the cause



# TYPES

- GASTRIC PEPTIC ULCER
- DUODENAL PEPTIC ULCER

# Gastric and Duodenal Ulcers





	<u><b>Duodenal Ulcer</b></u>	<u><b>Gastric ulcer</b></u>
<b>Age</b>	Any age specially 30-40	middle age 50-60
<b>Sex</b>	More in male	More in female
<b>Occupation</b>	Stress job eg. Manager	Same
<b>Pain</b>	Epigastric , discomfort	Epi. Can radiate to back
<b>Onset</b>	2-3 hours after eating & midnight	Immediately after eating
<b>Agg.by</b>	Hunger	Eating

	<u><b>Duodenal Ulcer</b></u>	<u><b>Gastric ulcer</b></u>
<b>Relived by</b>	Eating	Lying down or vomiting
<b>Duration</b>	1-2 months	Few weeks
<b>Vomiting</b>	Uncommon	Common(to relieve the pain)
<b>Appetite</b>	Good	Pt. afraid to eat
<b>Diet</b>	Good , eat to relieve the pain	Avoid fried food
<b>Weight</b>	No wt. loss	wt. Loss
<b>Hematemesis</b>	40%	60%
<b>Melena</b>	60%	40%



# INVESTIGATION

- Stool examination for fecal occult blood.
- Complete blood count (CBC) for decrease in blood cells.

# DIAGNOSTIC TEST

- Esophagogastroduodenoscopy (EGD)
  - Endoscopic procedure
    - Visualizes ulcer crater
    - Ability to take tissue biopsy to R/O cancer and diagnose H. pylori
  - Upper gastrointestinal series (UGI)
    - Barium swallow
    - X-ray that visualizes structures of the upper GI tract
  - Urea Breath Testing
    - Used to detect H.pylori
    - Client drinks a carbon-enriched urea solution
    - Exhaled carbon dioxide is then measured



In all patients with “**Alarming symptoms**” endoscopy is required.

- ☐ Dysphagia.
- ☐ Weight loss.
- ☐ Vomiting.
- ☐ Anorexia.
- ☐ Hematemesis or Melena

# Complications of Peptic Ulcers

- Hemorrhage
  - Blood vessels damaged as ulcer erodes into the muscles of stomach or duodenal wall
  - Coffee ground vomitus or occult blood in tarry stools
- Perforation
  - An ulcer can erode through the entire wall
  - Bacteria and partially digested food spill into peritoneum=peritonitis
- Narrowing and obstruction (pyloric)
  - Swelling and scarring can cause obstruction of food leaving stomach=repeated vomiting



# MANAGEMENT

- LIFE STYLE MODIFICATION
- HYPOSECRETORY DRUG THERAPY
- *H. pylori* ERADICATION THERAPY
- SURGERY

# LIFE STYLE MODIFICATION



Discontinue NSAIDs



Smoking cessation.



Alcohol cessation.



Stress reduction.



# Hyposecretory Drugs

- Proton Pump Inhibitors
  - Suppress acid production
  - Prilosec, Prevacid
- H<sub>2</sub>-Receptor Antagonists
  - Block histamine-stimulated gastric secretions
  - Zantac, Pepcid, Axid
- Antacids
  - Neutralizes acid and prevents formation of pepsin (Maalox, Mylanta)
  - Give 2 hours after meals and at bedtime
- Prostaglandin Analogs
  - Reduce gastric acid and enhances mucosal resistance to injury
  - Cytotec
- Mucosal barrier fortifiers
  - Forms a protective coat
    - Carafate/Sucralfate
  - cytoprotective

# *H. pylori* Eradication Therapy:

- **Triple therapy:**

- Proton pump inhibitor .
- 2 Antibiotics:
  - Metronidazole + Clarithromycin.
  - Clarithromycin + Amoxicillin.





# SURGICAL TREATMENT

## *Indications:*

- ☐ **Failure of medical treatment.**
- ☐ **Development of complications**
- ☐ **High level of gastric secretion and combined duodenal and gastric ulcer.**

## *Principle:*

**Reduce acid and pepsin secretion.**



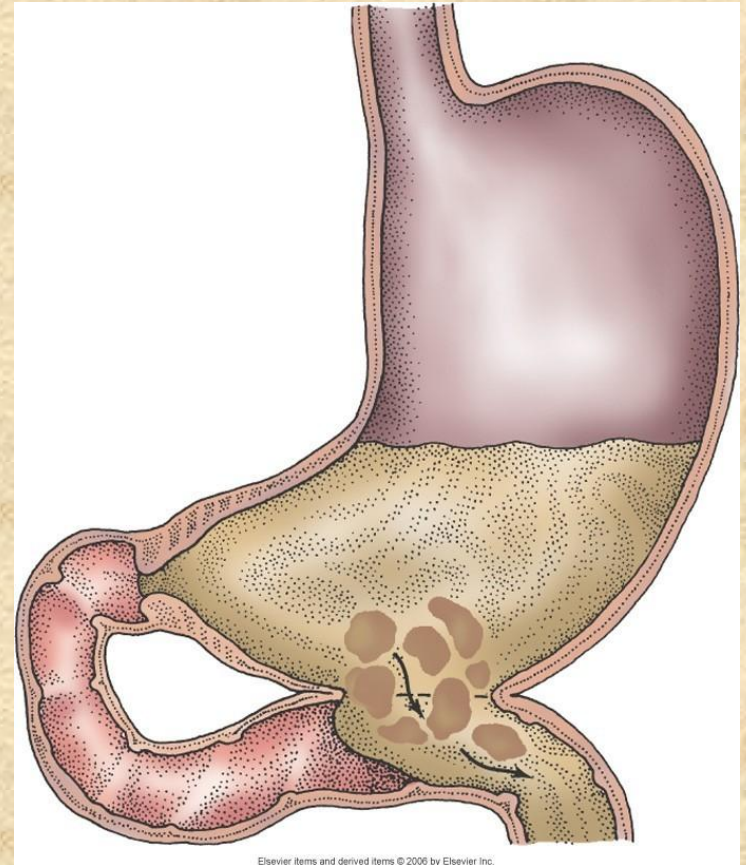
# Types of Surgical Procedures

- **GASTROENTEROSTOMY**

Creates a passage between the body of stomach to small intestines.

Allows regurgitation of alkaline duodenal contents into the stomach.

Keeps acid away from ulcerated area

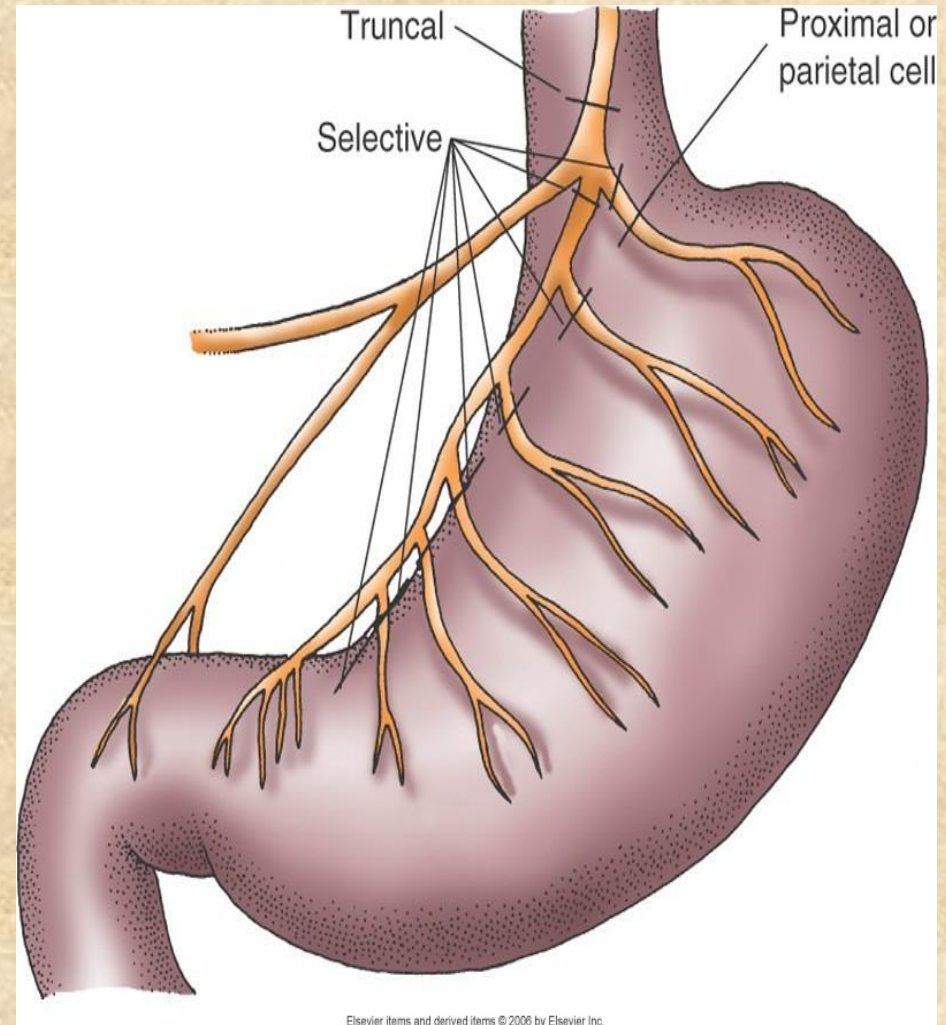




# Types of Surgical Procedures

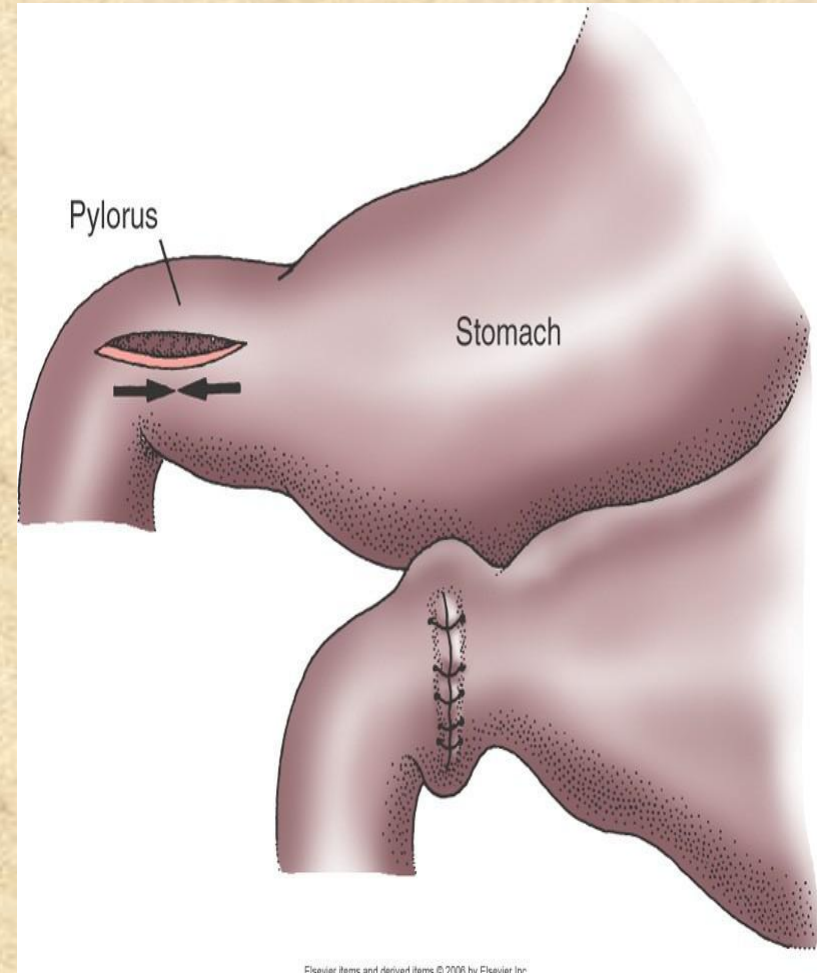
- **VAGOTOMY**

- Cuts vagus nerve
- Eliminates acid-secretion stimulus



# Types of Surgical Procedures

- **PYLOROPLASTY**
  - Widens the pylorus to guarantee stomach emptying even without vagus nerve stimulation



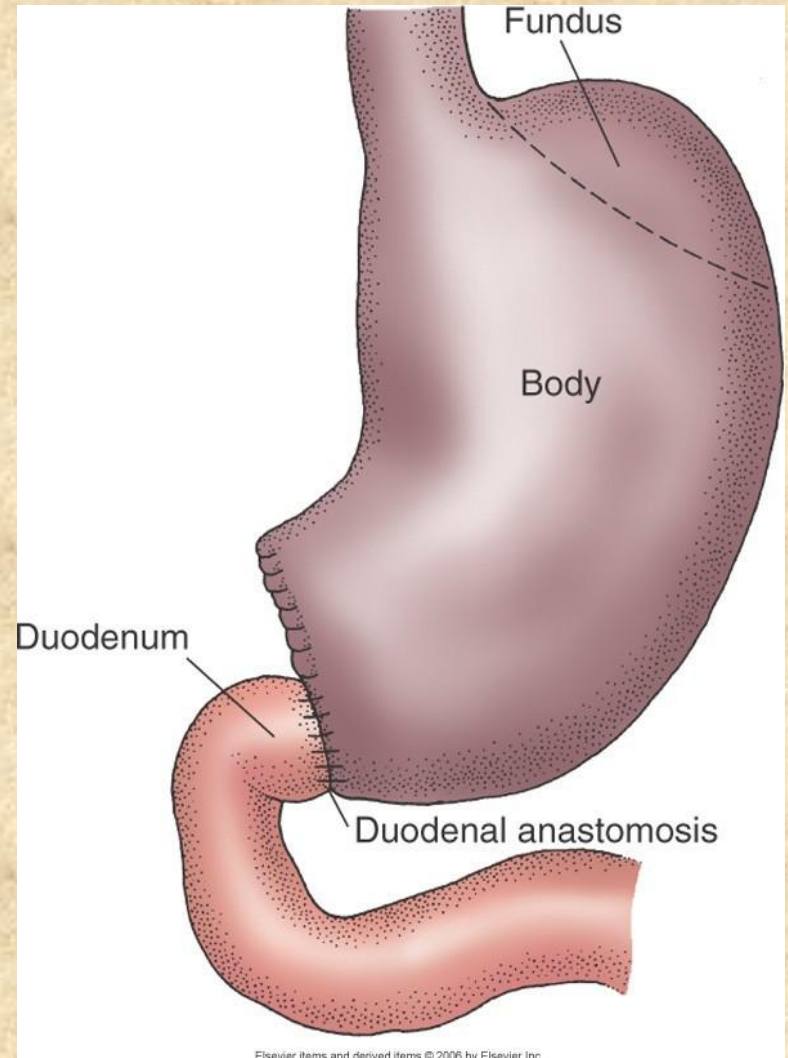


# Types of Surgical Procedures

- **ANTRECTOMY/ SUBTOTAL GASTRECTOMY**
  - Lower half of stomach (antrum) makes most of the acid
  - Removing this portion (antrectomy) decreases acid production
- **SUBTOTAL GASTRECTOMY**
  - Removes  $\frac{1}{2}$  to  $\frac{2}{3}$  of stomach
- Remainder must be reattached to the rest of the bowel
  - Billroth I
  - Billroth II

# Billroth I

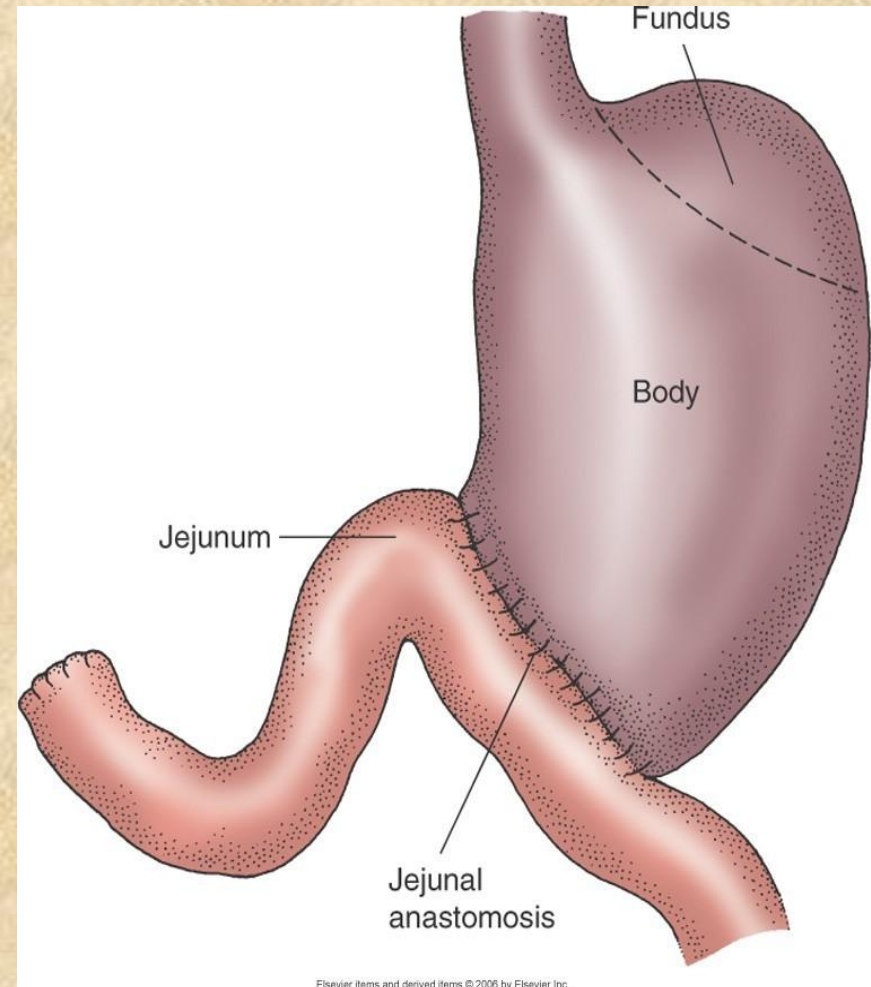
- Distal portion of the stomach is removed
- The remainder is anastomosed to the duodenum





# Billroth II

- The lower portion of the stomach is removed and the remainder is anastomosed to the jejunum



# Postoperative Care

- NG tube – care and management
- Monitor for post-operative complications



**THANK**

**YOU !**

