PEPTIC ULCER COMPLICATIONS

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H. PYLORI INFECTION

- **It is a gram-negative bacterium**,cause peptic ulcer disease
- 2/3 of population are infected with **H. Pylori**, only 10-15% develop PUD & the majority are asymptomatic.

➢ CONDITIONS ASSOCIATED WITH H-PYLORI INFECTION

- **Acute and chronic gastritis**.
- **PUD**: 90% of DU, 75% of GU.
- Long standing chronic gastritis leads gastric atrophy & increased risk of metaplasia.
- Gastric adenocarcinoma.
- More than 90% of MALT lymphomas have H. Pylori & **low-grade tumors regress with H. Pylori eradication.**

DIAGNOSIS:

1) Noninvasive tests:

- **Serology test** (will remain positive in 50% after eradication, cannot differentiate between active infection and previous exposure).
- **Urea breath test** (**high sensitivity and specificity** but expensive, urea breath test is considered the test of choice for screening and for documentation of H. Pylori eradication).
- **Stool antigen test (cheap and specific 95%)**.

2)Invasive tests

- **Histology by biopsy (most accurate of all tests).**
- **Microbiological culture .**

➢ Treatment:

- **Triple therapy** (PPI + 2 antibiotics - amoxicillin 1g bid, clarithromycin 500mg bid) - for 14 days
- **Quadruple therapy** (PPI + metronidazole + tetracycline + bismuth) Used if there is a probability of clarithromycin resistance Used in case of penicillin allergy

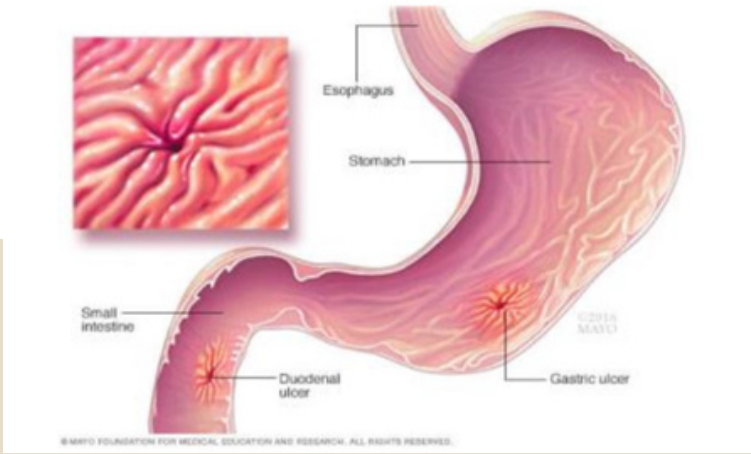
➢ Follow up:

- Test for the cure of H. Pylori after treatment with stool or breath tests (not serology test)
- Testing should be done 4 weeks after completion of the therapy
- Upper endoscopy is indicated if the patient still symptomatic after treatment or if the cause is uncertain.

❖ Peptic ulcer disease

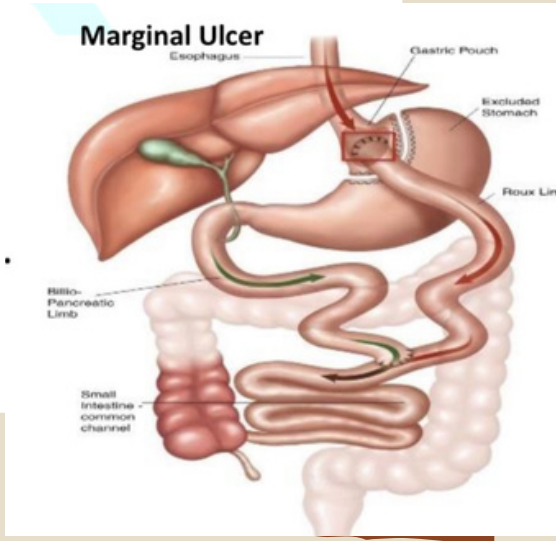
➢ **Pathophysiology:**

- Loss of normal balance between protective mechanisms and
acid secretion aggressive factors.



➢ Causes:

- H. Pylori (MCC in developing countries), (more common in duodenum than in stomach)
- NSAIDS: The 2nd MCC in developing countries. (Inhibit prostaglandins → decreased mucus)
- Stress-induced ulcer: any acute illness, RTA, Burn, sepsis.
- Cushing's ulcer: with neurologic trauma or tumor.
- Curling's ulcer: with burn injury.
- Zollinger Ellison syndrome (Hypergastrinemia).
- After gastric surgery (Marginal ulcer - at the margin anastomosis).
- Idiopathic



TYPES OF PEPTIC ULCER DISEASE :

	Duodenal ulcer	**Gastric ulcer**
Relieved by	Eating	Lying down or vomiting
Vomiting	Uncommon	Common to relieve the pain
Appetite	Good	Pt afraid to eat
Weight	Weight gain	Weight loss
At night	Pain awaken pt	Less night pain

➢ Clinical picture:

- **Dyspepsia is the most common symptom** (including belching, bloating, distention, and fatty food intolerance)
- **Recurrent episodes of epigastric pain** which is related to meal.Gastric ulcer aggravated by eating but Duodenal ulcers are relieved by eating
- **Heartburn**
- **Chest discomfort**
- **Hematemesis or melena** (PUD most common cause of UGIB)
- **Symptoms of complications:** perforation, gastric outlet obstruction , bleeding

- Physical examination: normal or minimal findings if uncomplicated (minimal epigastric tenderness).

✓ **Alarming symptoms:**

- Early satiety.

- Progressive dysphagia or odynophagia.

- Recurrent vomiting.

- Bleeding or anemia.

- Unexplained weight loss.

- Family history of gastrointestinal cancer.

■ **All need endoscopy to be performed.**

DIAGNOSIS

Test all patients for H. Pylori infection and treat if positive (test and treat strategy)

- Upper GI endoscopy (is the most accurate test) +biopsy for all suspected PUD especially:

•

If alarming symptoms present

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New onset/refractory symptoms

•

In >50 years old patients

-

Serum gastrin level if multiple (to R/O ZES)

TREATEMENT

-Stop smoking and alcohol.

- Identify and treat the cause (to prevent recurrence)

A

- **Medical treatment**:

  - H-Pylori eradication.
  - Stop NSAIDS, prophylactic PPI.

- **Surgical treatment** (rarely required m high success rate for medical therapy)

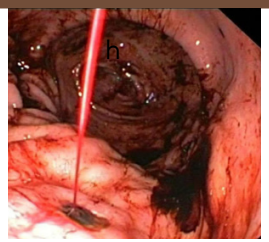
  - Gastric resection
  - Truncal vagotomy

✓ Indicated in:

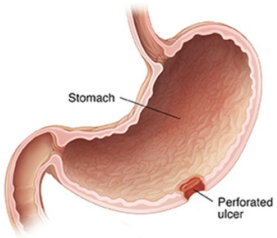
- Intractability (not responsive to medical treatment) - Complications (bleeding, perforation, Gastric outlet obstruction, malignancy.)

THE COMMOM COMPLICATIONS OF PEPTIC ULCER ARE

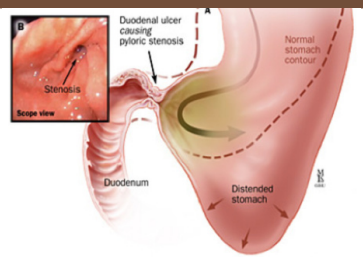
Bleeding



Perforation



obstruction

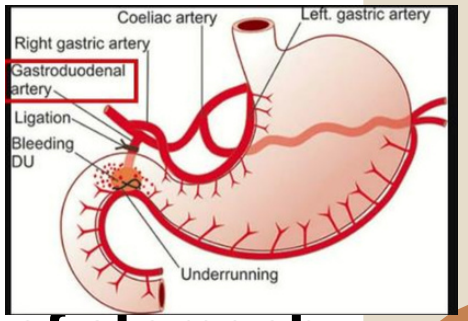


BLEEDING

The most frequent cause of upper GI bleeding (60% of all causes)

- Most common complication of PUD (10-15%)

- Sites of bleeding



a. More common with posterior duodenal ulcer (gastroduodenal A.)

b. Most common sites are the lesser curvature of stomach

CLINICAL PRESENTAION

-**Acute bleeding** (heavy) Hematemesis, Melena, Hematochezia.

- **Chronic bleeding** (slow) Coffee ground vomiting, Anemia (iron deficiency).

- Hypovolemic shock could be a complication of bleeding peptic ulcer.

DIAGNOSIS

- CBC
- KFT
- Cross match
- Coagulation profile (PT, PTT)
- LFT
- Upper endoscopy (%95>diagnosis rate)

✓ Emergency endoscopy: to visualize the bleeding ulcer and to exclude other causes of bleeding

MANAGEMENT

General management:

Supportive measures → Supportive measures include:

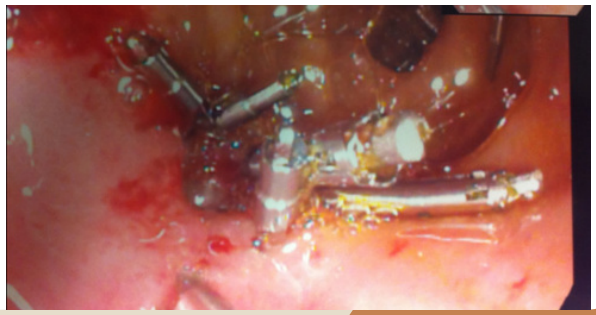
- **NPO**
- **Fluid resuscitation based on the hemodynamic status.**
- **Correction of associated electrolyte abnormalities.**
- **Blood transfusions in selected patients with gastrointestinal bleeding.**
- **PPI**
- **Evaluation for H. Pylori+ Eradication**

Bleeding:
depends on the severity of the bleeding.

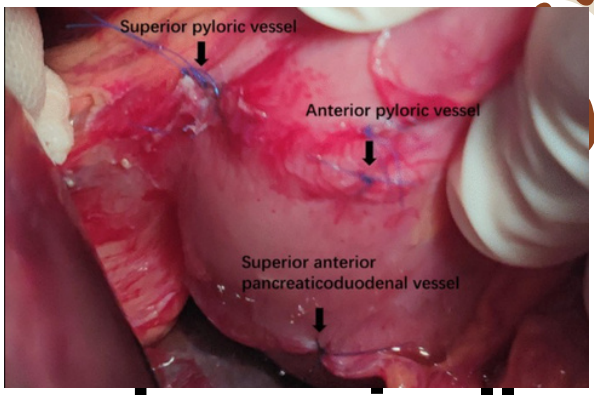
WRITE TO US **If the bleeding is mild, it may stop on its own or with supportive measures, such as intravenous fluids and blood transfusions**

WRITE TO US **If the bleeding is more severe**, endoscopic or surgical intervention may be necessary.

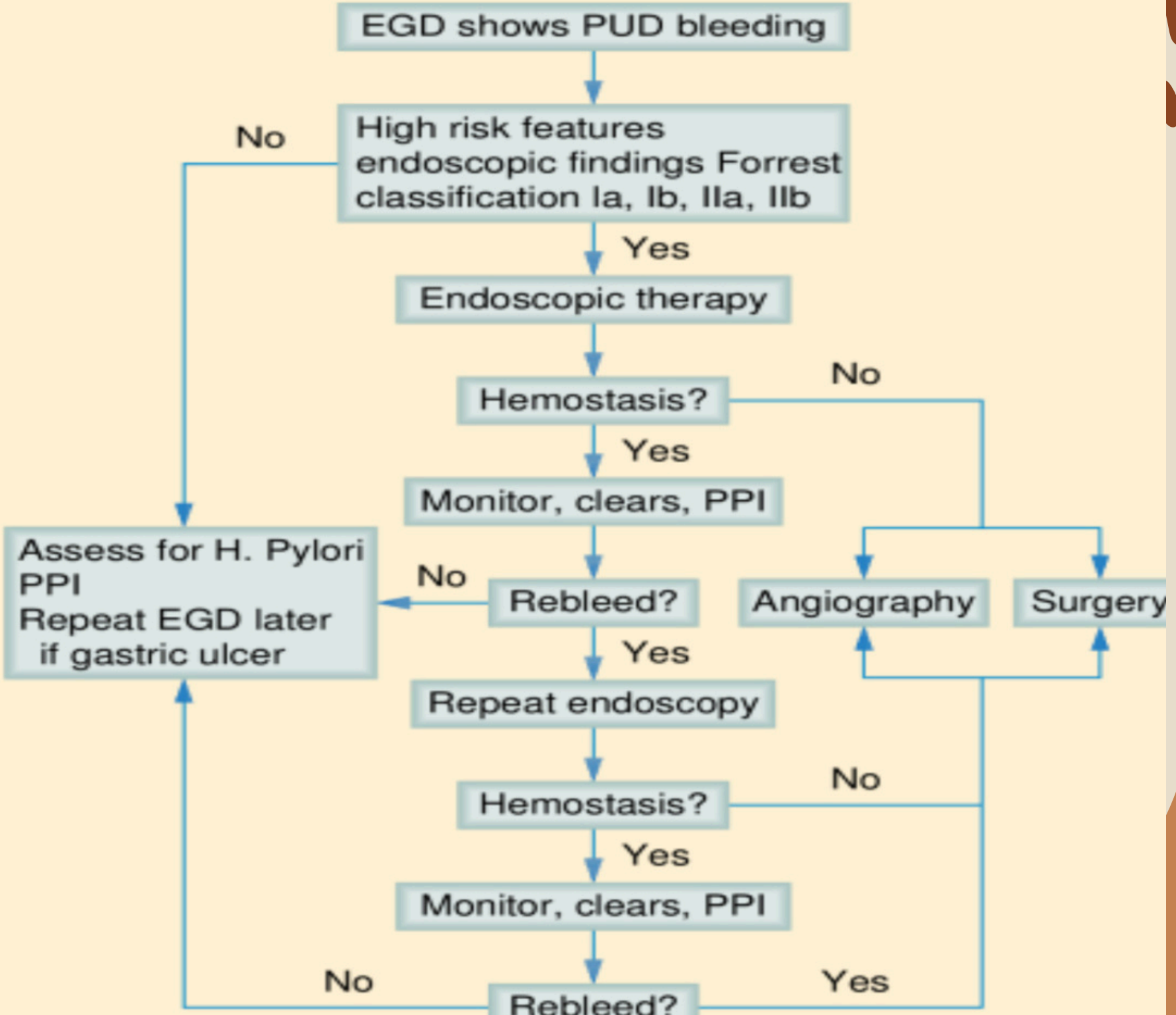
- **Upper endoscopy is the best initial diagnostic and therapeutic procedure in the management of bleeding peptic ulcers**.
- **Surgery and transcatheter arteriography/embolization are generally reserved for patients with failed therapeutic endoscopy.**
- **Resection, thermal coagulation, clipping, suturing or injection of a sclerosing agent.**



✓ Indications of surgery:



- **Failure to achieve hemostasis endoscopically**
- **Perforation**
- **Recurrent bleeding despite endoscopic attempts at achieving hemostasis**


EGD shows PUD bleeding
High risk features endoscopic findings Forrest classification Ia, Ib, IIa, IIb
No
Yes
Endoscopic therapy
Hemostasis?
No
Yes
Monitor, clears, PPI
Assess for H. Pylori
PPI
Repeat EGD later
if gastric ulcer
No
Rebleed?
Angiography
Surgery
Yes
Repeat endoscopy
Hemostasis?
No
Yes
Monitor, clears, PPI
No
Rebleed?
Yes

2. PERFORATION:

- **Perforation is the second most common complication of peptic ulcer**, but it represent themost frequent indication for emergency surgery for PUD.
- Where may perforation occur?
More common is perforation of **anterior duodenal ulcer.**

✓ STAGES OF PERFORATION:

1) **Stage 1: Chemical peritonitis** (contents are sterile)
- Symptoms (usually short and the patient not seen in it)(contents and sterile) Sudden severe epigastric pain which become generalized.

2) Stage 2: Dilutional peritonitis

- Reaction of peritoneum (Production of large amount of alkaline fluid and bringing antibody).

- symptoms → Pain decreases.

3) Stage 3: Septic peritonitis (bacterial peritonitis).

- Bacteria (normal flora) infection→ Pus formation→ Septic peritonitis.
- Pain increases with fever, anorexia, malaise.

➢ CLINICAL PICTURE:

- **Symptoms:**

- **Sudden severe epigastric pain** which become generalized.

- Pain increases with fever, anorexia, headache, malaise, repeated vomiting and distension

Signs:

- General: pallor, sweating, subnormal temperature, rapid weak pulse.
- **Abdomen: Generalized rigidity (board like rigidity)**, tenderness, progressive abdominal distention.

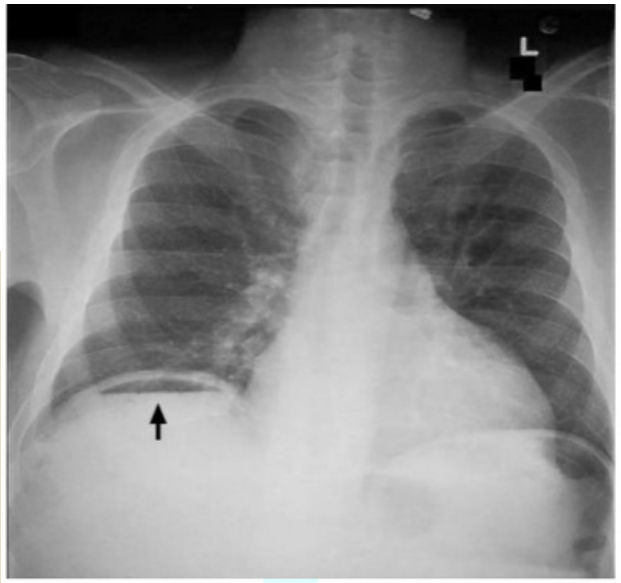
➢ Investigations:

- **CBC:** WBCs count
- **KFT**: Electrolyte imbalances, Elevated creatinine, urea and metabolic acidosis reflects systemic inflammatory response syndrome (**SIRS**) and prerenal injury.
- **Inflammatory markers:** C-reactive protein
- **Serum amylase**: to rule out differential diagnosis

Imaging:

1) Erect chest x-ray

- The erect chest x-ray is the most important initial plain film.
- If there is a perforated peptic ulcer, air under diaphragm.



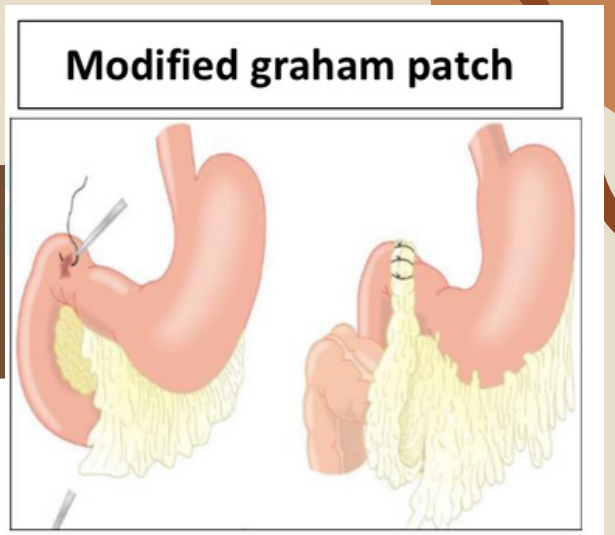
2. CT scan:

- **Patients without air under diaphragm** at admission on plain chest radiograph, should be evaluated further by computed tomography (CT) as it has a **diagnostic accuracy as high as 98%.**

➢ COMPLICATIONS OF PPU:

1. **Septic shock** with rising pulse rate and high fever
2. **Paralytic ileus** with severe abdominal distension & dead silent abdomen.
3. **Hypovolemic shock.**
4. **Neurogenic shock.**

➢ MANAGEMENT:



- General management
- Management of perforation:

• Many ulcer-related perforations of the stomach and duodenum require surgical repair (open or laparoscopic)

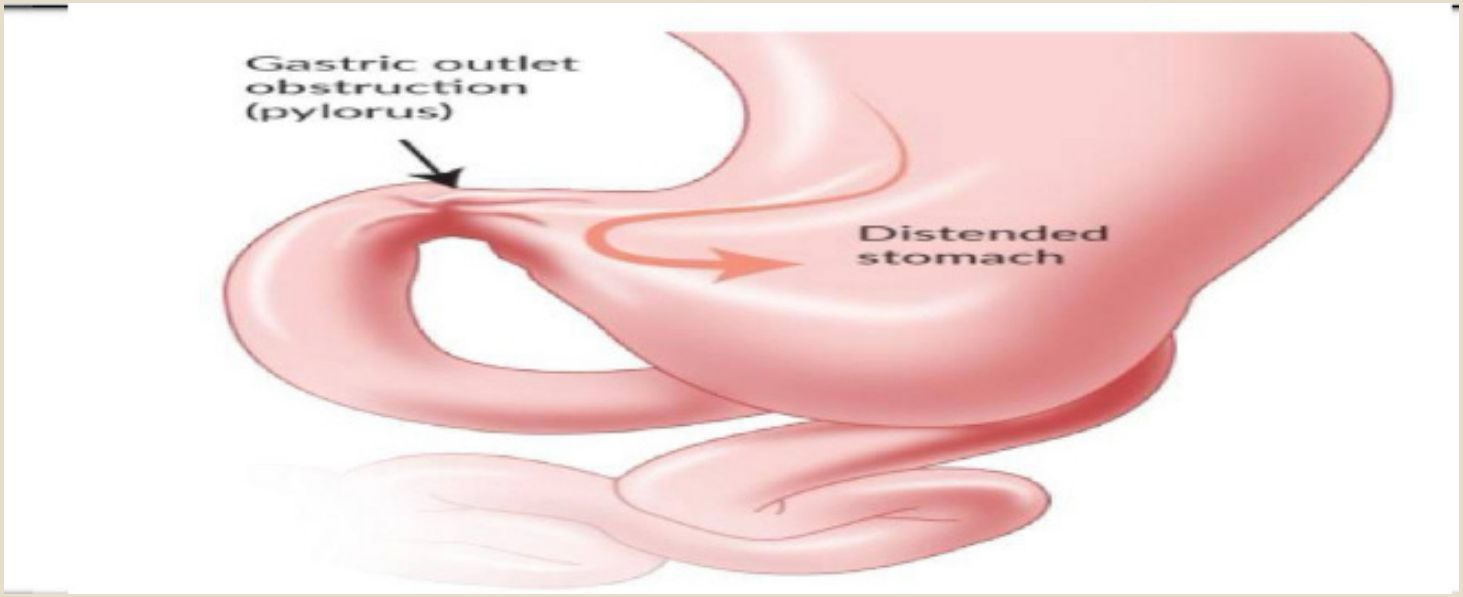
1)Simple closure.

2)Graham patch (omental patch).

3)Modified graham patch.

• However, nonoperative management may be used is selective patients (sealed perforation).

3-GASTRIC OUTLET OBSTRUCTION



GASTRIC OUTLET OBSTRUCTION

-Medical condition resulting from mechanical obstruction of gastric emptying.

-The two common causes of gastric outlet obstruction are gastric cancer,and pyloric stenosis secondary to peptic ulceration.

-However, in recent years, the most common cause of gastric outlet obstruction has been gastric cancer.

-So endoscopic biopsy is needed to determine the cause.

BENIGN.	MALEGNANT
• Peptic ulcer disease • Hypertrophic pyloric stenosis • Gastric polyps • Caustic ingestion • Crohns disease • Bouveret syndrome	• Adenocarcinoa • Lymphoma • Gastrointestinal stromal tumors • Pancreatic pseudocyst

HOW PEPTIC ULCER CAUSES GOO!

-The principal sites of involvement in cases of obstruction are the pyloric channel and the duodenal bulb (First part of duodenum).

-Both acute and chronic peptic ulcer disease can lead to GOO.

1-Acute peptic ulcers can cause obstruction via inflammation and edema

2-chronic peptic ulcer disease leads to scarring and tissue remodeling as part of the healing process.

Clinical Picture

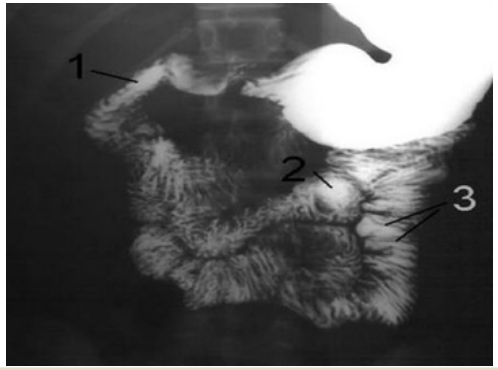
- History of PUD
- Anorexia, Nausea Vomiting→ it's the main prominent feature (Projectile, contains undigested food, nonbilious)
- Epigastric pain and fullness(early satiety)
- Weight loss and dehydration
- Electrolyte disturbances (hypochloremic hypokalemic metabolic alkalosis)
- Paradoxical acidiuria

Clinical Picture

- On Examination:
- Distended abdomen and a succussion splash may be audible on shaking the patient's abdomen.
- A dilated stomach may be appreciated as a tympanic mass in the epigastric area and or left upper quadrant.
- Visible gastric peristalsis may be elicited by asking the patient to drink a cup of water.

Investigations

- CBC
- KFT and Electrolyte panel
- A test for H pylori
- Imaging:
- Endoscopy: (most important investigation)
- Barium meal



MANAGEMENT

Conservative management:

1. Nasogastric suction by NG tube.
2. Acid suppression by PPI.
3. Fluid replacememnt.
4. Correct the electrolyte abnormalities.
5. Eradication therapy of H.pylori.

MANAGEMENT

The management of gastric outlet obstruction depends on the underlying cause.

If the obstruction is caused by PUD, it may be treated with medication,such as a PPI or H2 blocker.

If the obstruction is caused by scarring or a tumor, surgery may be necessary.

MANAGEMENT

1)Pyloromyotomy: This procedure involves cutting the muscle at the pylorus to widen the opening and relieve the obstruction.

2)Gastrojejunostomy: This procedure involves creating an opening between the stomach and the jejunum, bypassing the duodenum.

3)Vagotomy:This procedure involves cutting the vagus nerve,which reduces the amount of acid produced by the stomach.

THANK YOU