Cancer of stomach

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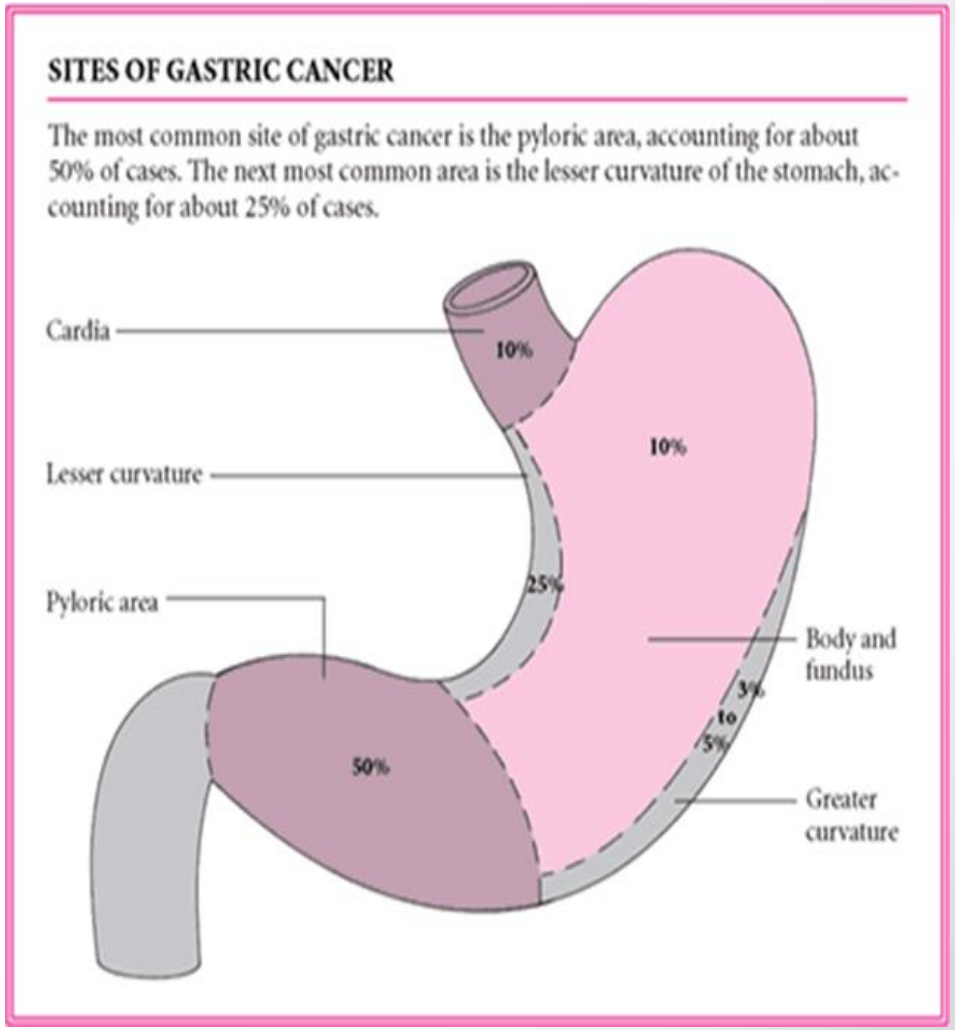
Introduction

- Gastric cancer is a significant problem worldwide. The high mortality associated with this malignancy is due to late stage of disease at presentation and lack of effective adjuvant therapies.
- Early diagnosis of gastric ca without lymph node metastasis is highly curable, whereas advanced stage gastric ca is associated with a poor prognosis.

Definition

- Stomach (gastric) ca is an adenocarcinoma of the stomach wall.



Causes/ Risk Factors

- *Age*. Stomach cancer is most common around the age of 60. It's rare under the age of 40.
- *Gender*. Men are around twice as likely to develop stomach cancer as women.
- *Helicobacter pylori infection*. These bacteria live in the stomach lining of many people, and don't usually cause any symptoms. However, the infection sometimes causes inflammation of the stomach lining (gastritis), indigestion and stomach ulcers. It is known to increase the risk of stomach cancer.
- *Diet*. A diet high in salt and foods that are smoked or cured (preservatives) may increase the risk of stomach cancer. In particular, certain food preservative chemicals known as nitrosamines, which are found cured meats such as bacon and ham, may increase chance of developing stomach cancer.

Causes/ Risk Factors

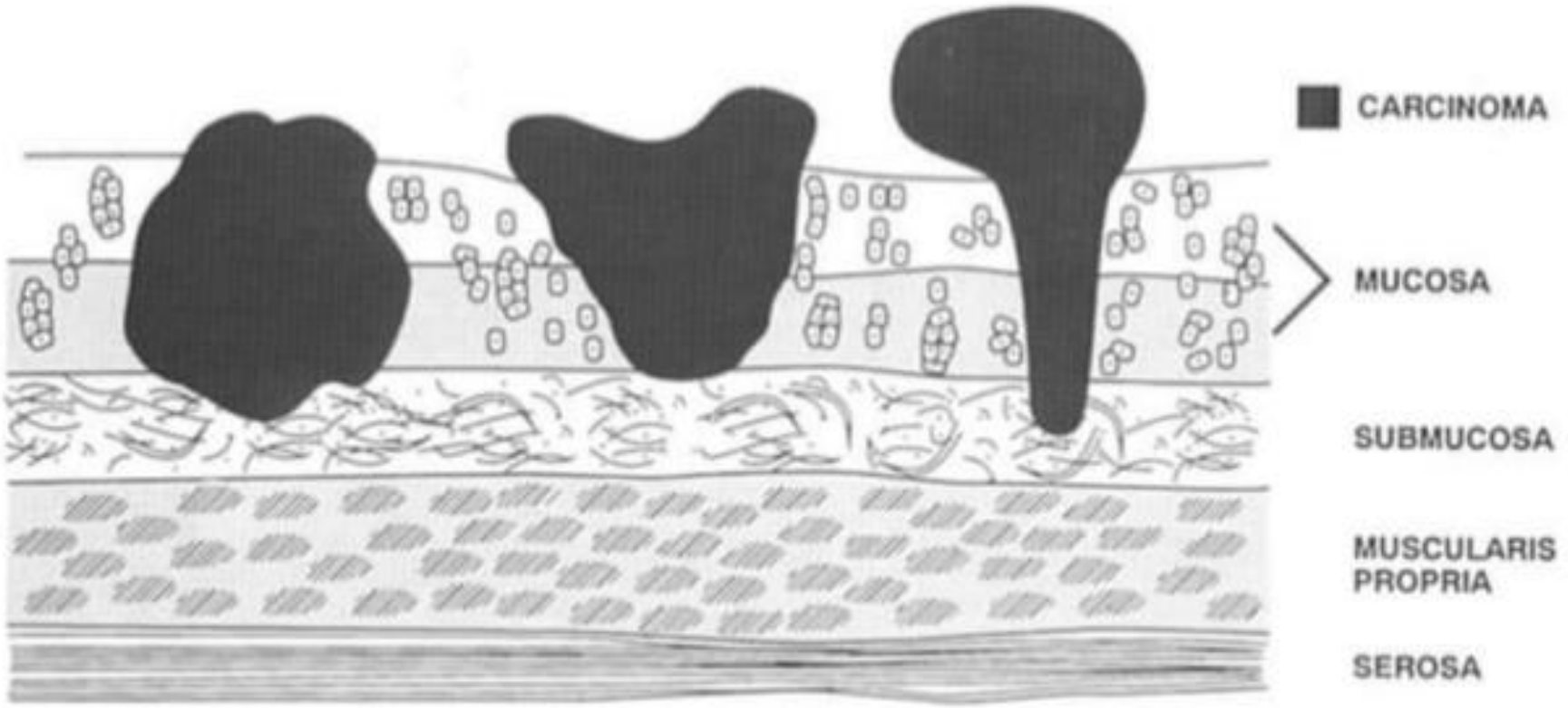
- *Family history*. Some people inherit an increased risk of developing stomach cancer.
- *Type A blood group*. Some research indicates that people who have type A blood are at higher risk of developing stomach cancer.
- *Smoking*. When you smoke, you swallow small amounts of tobacco smoke, which increases your risk of getting stomach cancer.
- *Atrophic gastritis*. This condition causes the lining of the stomach to waste away. It has also been linked with an increased risk of stomach cancer.
- *Pernicious anaemia*. This is type of anaemia raises your risk of stomach cancer.

The four most common primary malignant gastric neoplasms are:

- **Adenocarcinoma** (95%) : Cancer that begins in the glandular cells.
- **Lymphoma** (4%) : Cancer that begins in immune system cells .
- **Carcinoid cancer**(3%) : Cancer that begins in hormone-producing cell.
- **Gastrointestinal stromal tumor (GIST)** (1%) : Cancer that begins in nervous system tissues of stomach .

EARLY GASTRIC CANCER

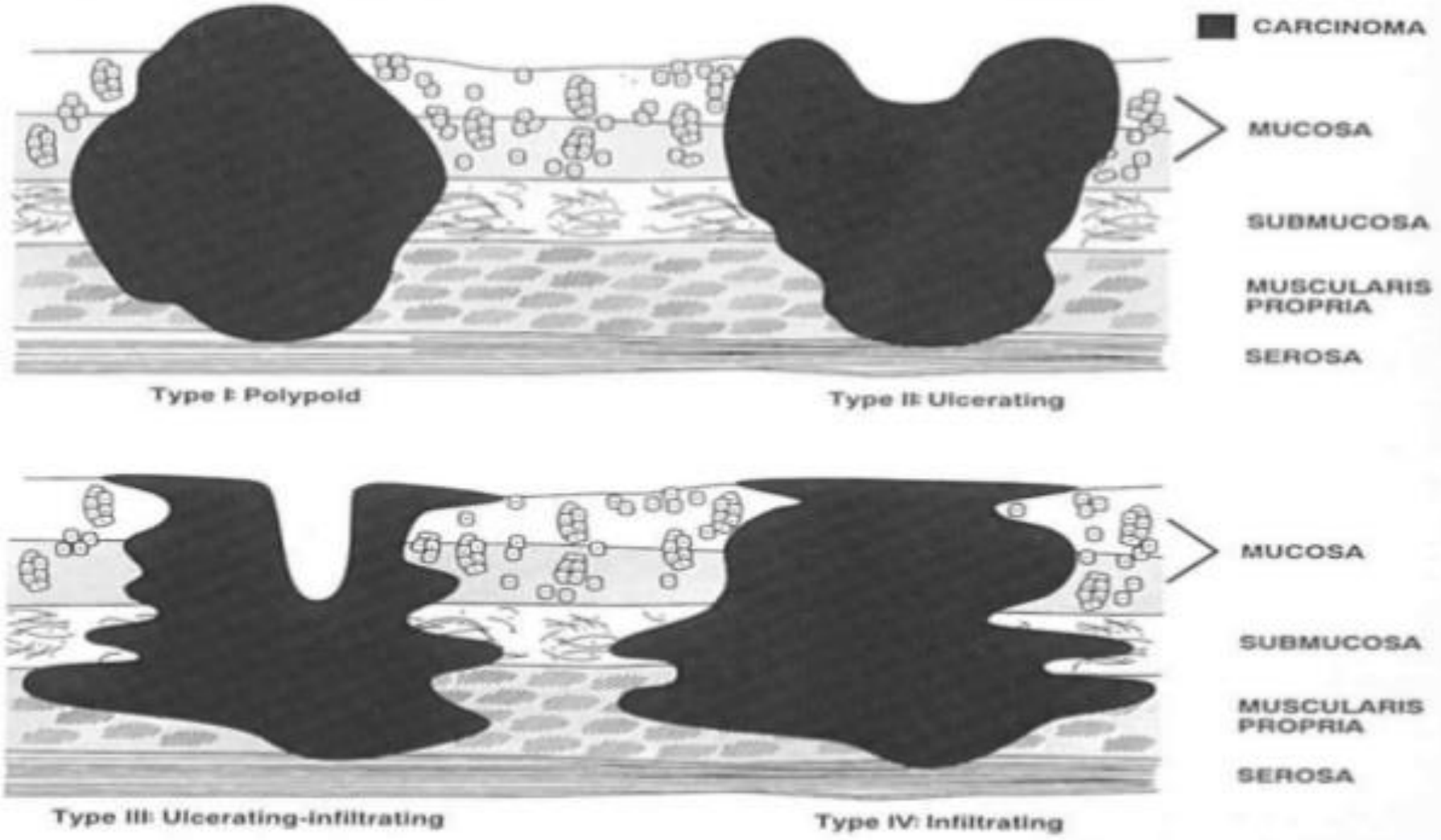
- Defined as a tumor confined to the mucosal or sub-mucosal layer, with or without lymph node metastasis



Type I: Polypoid

ADVANCED GASTRIC CANCER

- invasion depth beyond sub-mucosal layer



TNM

T: Primary tumor	
Tis	Carcinoma in situ; intraepithelial tumor without invasion of lamina propria
T1	Tumor invades lamina propria or submucosa
T2	Tumor invades muscularis propria or subserosa
T3	Tumor penetrates serosa (visceral peritoneum) without invasion of adjacent structures
T4 Clinical Manifestations	Tumor invades adjacent structures
N: Regional lymph node	
N0	No regional lymph node metastasis
N1	Metastasis in 1 to 6 regional lymph nodes
N2	Metastasis in 7 to 15 lymph nodes
N3	Metastasis in more than 15 regional lymph nodes
M: Distant metastasis	
M0	No distant metastasis
M1	Distant metastasis

STAGES OF GASTRIC CANCER

- **Stage I.** At this stage, the tumor is limited to the layer of tissue that lines the inside of the stomach. Cancer cells may also have spread to a limited number of nearby lymph nodes.
- **Stage II.** The cancer at this stage has spread deeper, growing into the muscle layer of the stomach wall. Cancer may also have spread to more of the lymph nodes.
- **Stage III.** At this stage, the cancer may have grown through all the layers of the stomach and spread to nearby structures. Or it may be a smaller cancer that has spread more extensively to the lymph nodes.
- **Stage IV.** This stage indicates that the cancer has spread to distant areas of the body.

SPREAD PATTERNS

- Direct invasion
- Lymph node dissemination
- Blood spread
- Intraperitoneal colonization

SIGNS AND SYMOTOMS

Early Gastric Cancer

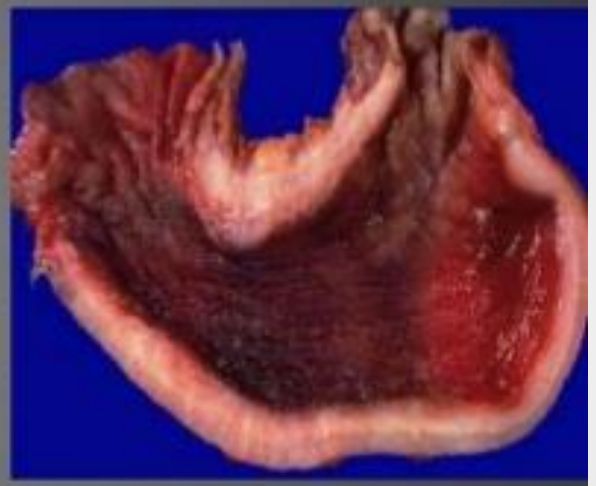
- Asymptomatic or silent 80%
- Peptic ulcer symptoms 10%
- Nausea or vomiting 8%
- Anorexia 8%
- Early satiety 5%
- Abdominal pain 2%
- Gastrointestinal blood loss <2%
- Weight loss <2%
- Dysphagia <1%

Advanced Gastric Cancer

- Weight loss 60%
- Abdominal pain 50%
- Nausea or vomiting 30%
- Anorexia 30%
- Dysphagia 25%
- Gastrointestinal blood loss 20%
- Early satiety 20%
- Peptic ulcer symptoms 20%
- Abdominal mass or fullness 5%
- Asymptomatic or silent <5%

SPECIAL SIGNS

- Linitis plastica:
  --- diffusely infiltrating with a rigid stomach
- Virchow's node:
  --- left supraclavicular lymph node
- Sister Mary Joseph's node:
  --- umbilical lymph node
- prerectal pouch mass (Blumer shelf)
  --- seeding metastasis



Virchow's node

SISTER MARY JOSEPH'S NODE

COMPLICATIONS

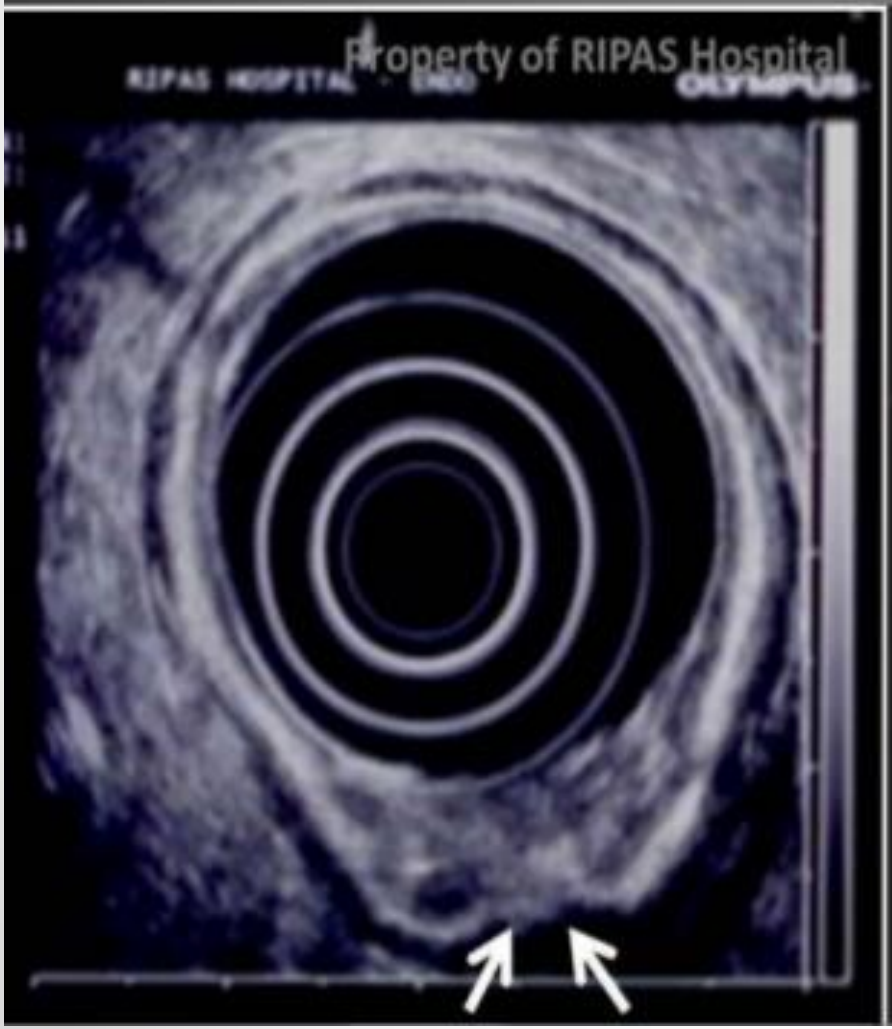
- ✓ Peritoneal and pleural effusion
- ✓ Obstruction of gastric outlet or small bowel
- ✓ Bleeding
- ✓ Intrahepatc jaundice by hepatomegaly

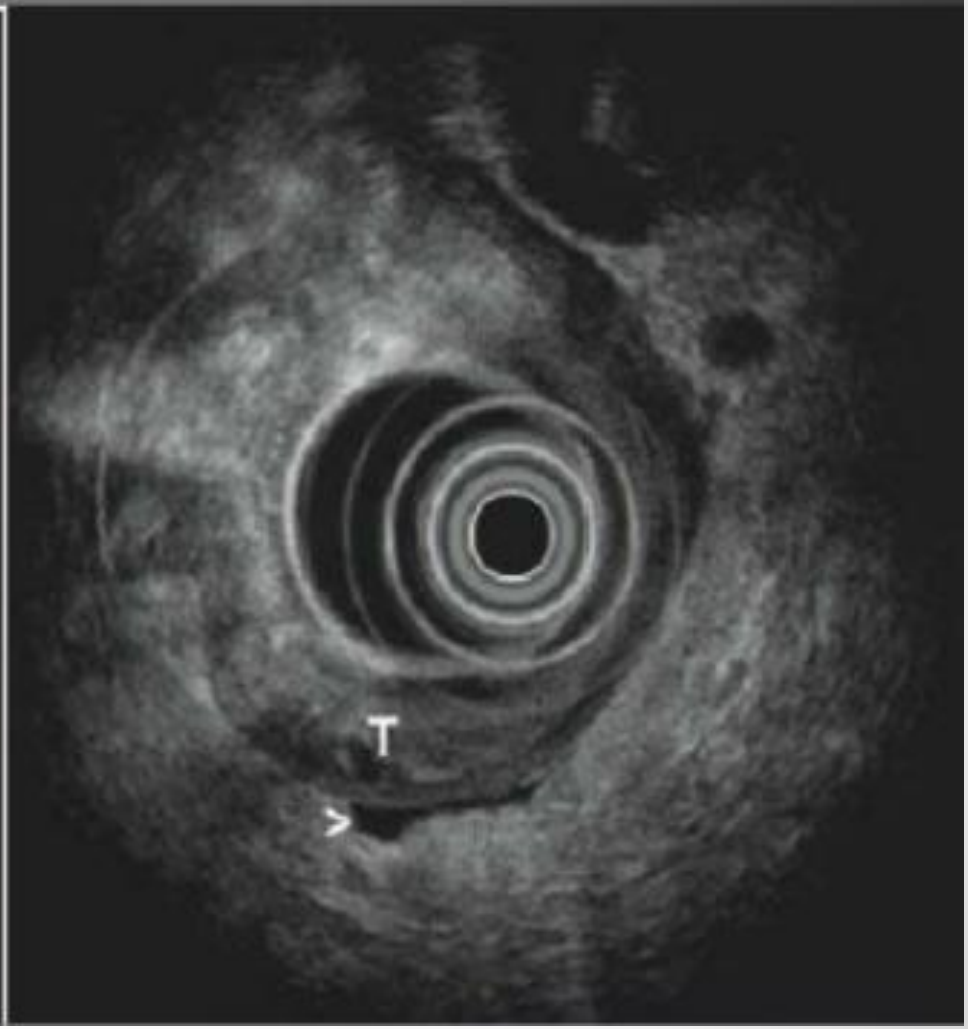
Physical examination

LABORATORY TESTS

- blood test
  - check for anemia(may be caused by bleeding, liver dysfunction, or poor nutrition.
  - test for the presence of H. pylori bacteria.
- Fecal occult blood test (FOBT)
- Tumor markers
  - CEA:carcino-embryonic antigen
  - CA19-9:carbohydrate antigen
  - CA724:carbohydrate antigen

- The best way to stage the tumor locally is via endoscopic ultrasound , it gives (80%) information about the depth of tumor penetration into the gastric wall, and can usually show enlarged (>5 mm) perigastric and celiac lymph nodes.



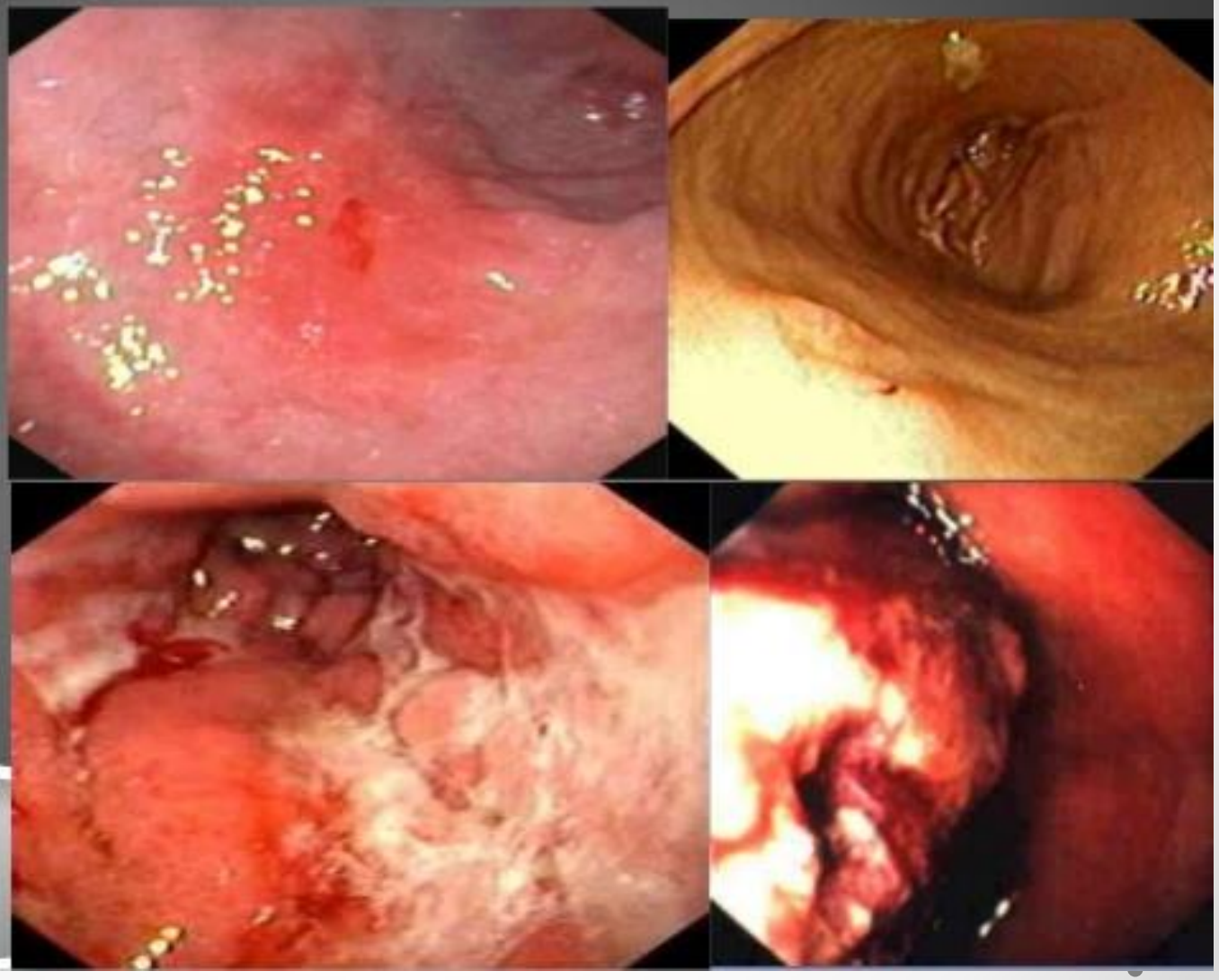


ENDOSCOPIC MUCOSAL RESECTION

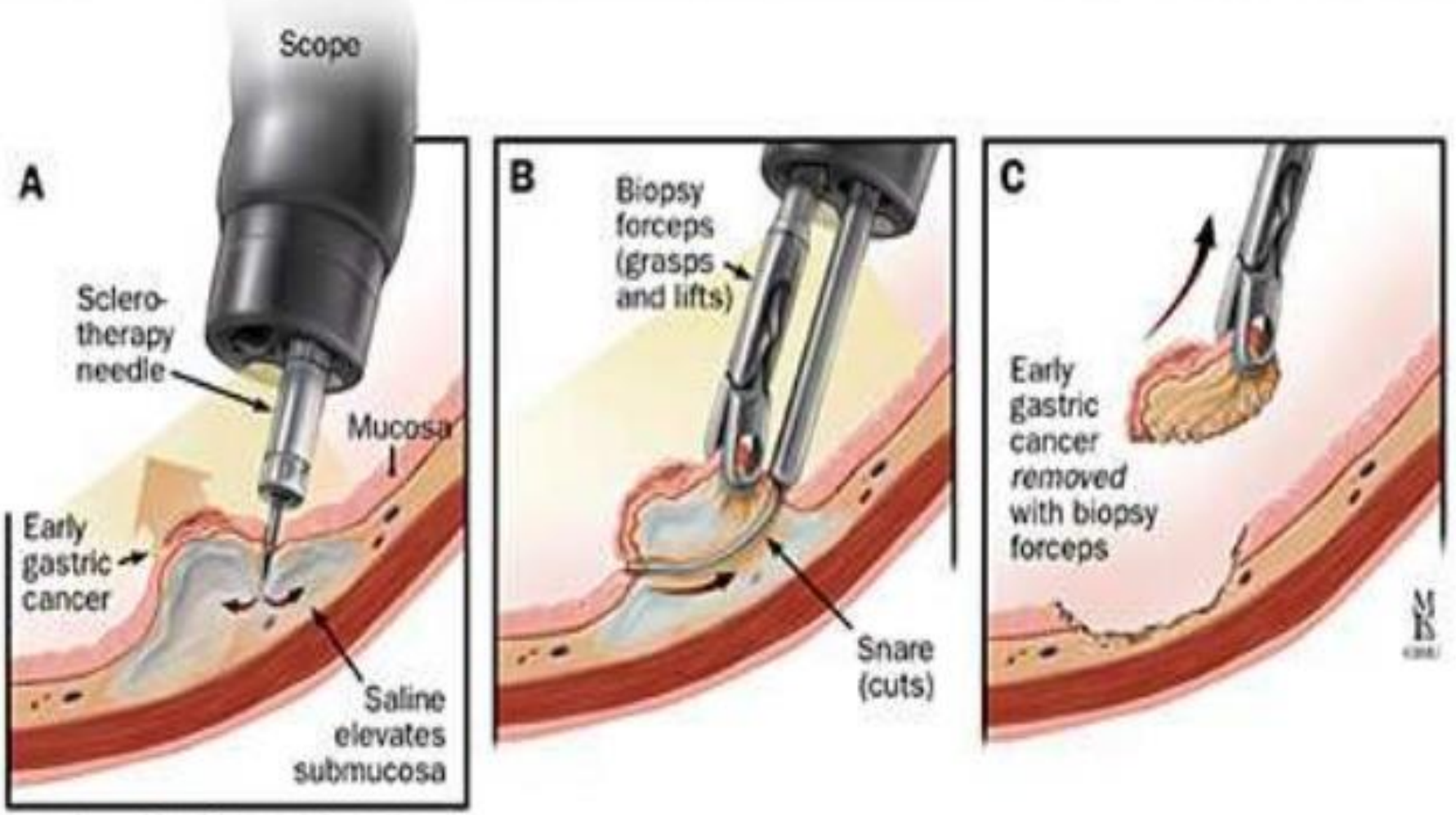
- Gastric cancer lesion confined to mucosa layer
- Endoscopic ultrasound (EUS) is helpful in staging GC

ENDOSCOPIC FEATURES OF GASTRIC CANCER

Esophagogastroduodenoscopy (EGD) endoscopy has become the gold standard for the diagnosis of gastric malignancy.



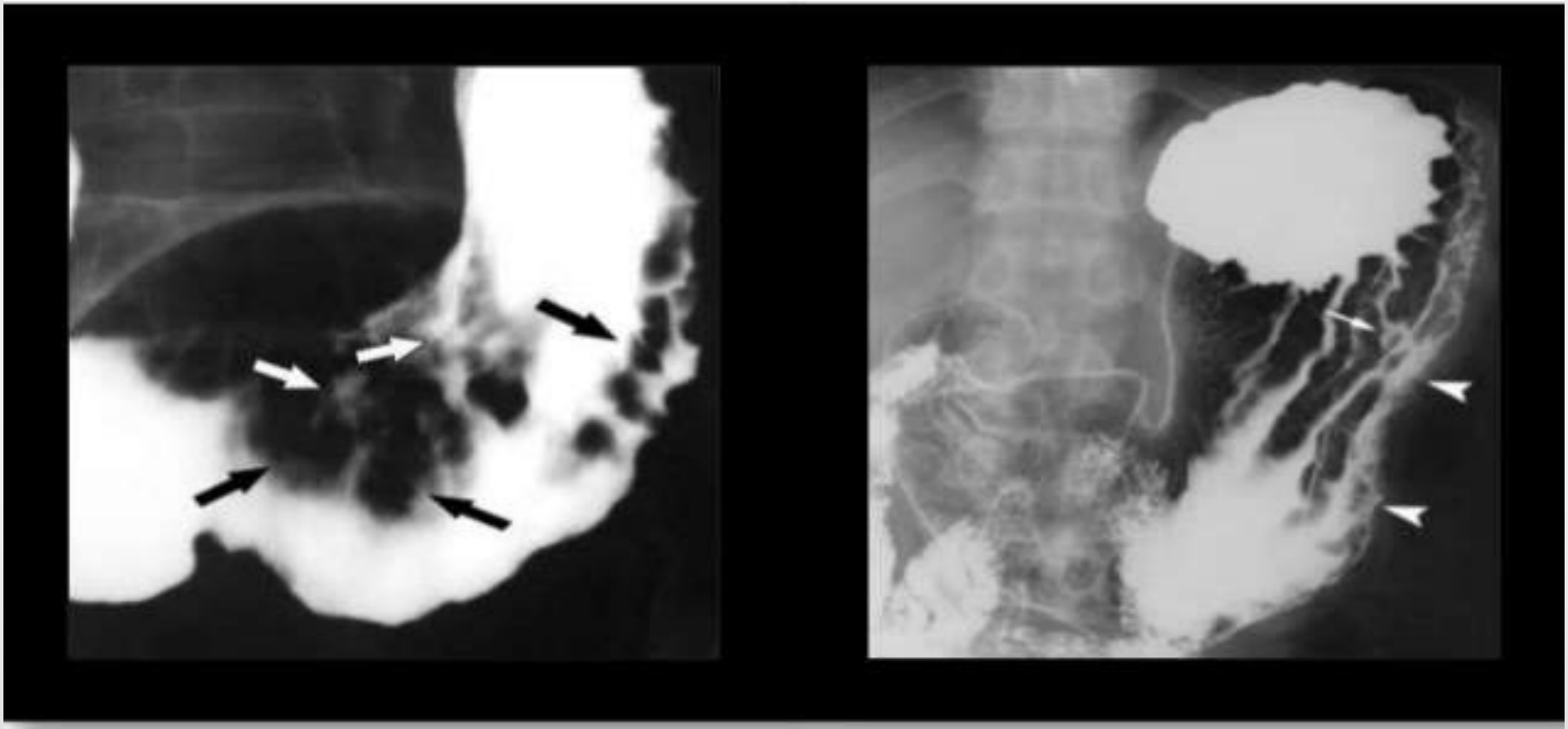
- **Biopsy** . taking a small piece of tissue from the stomach to look at under a microscope for signs of cancer cells. It might done during an endoscopy.



RADIOLOGIC DIAGNOSIS

Distal GC **Proximal GC** **Linitis plastica**

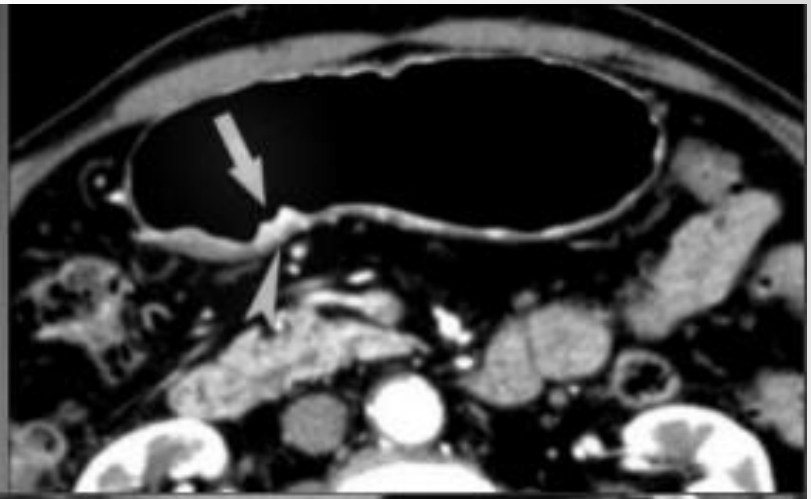
X-ray test. with barium. The fluid coats the stomach and makes it show up more clearly on X-rays.

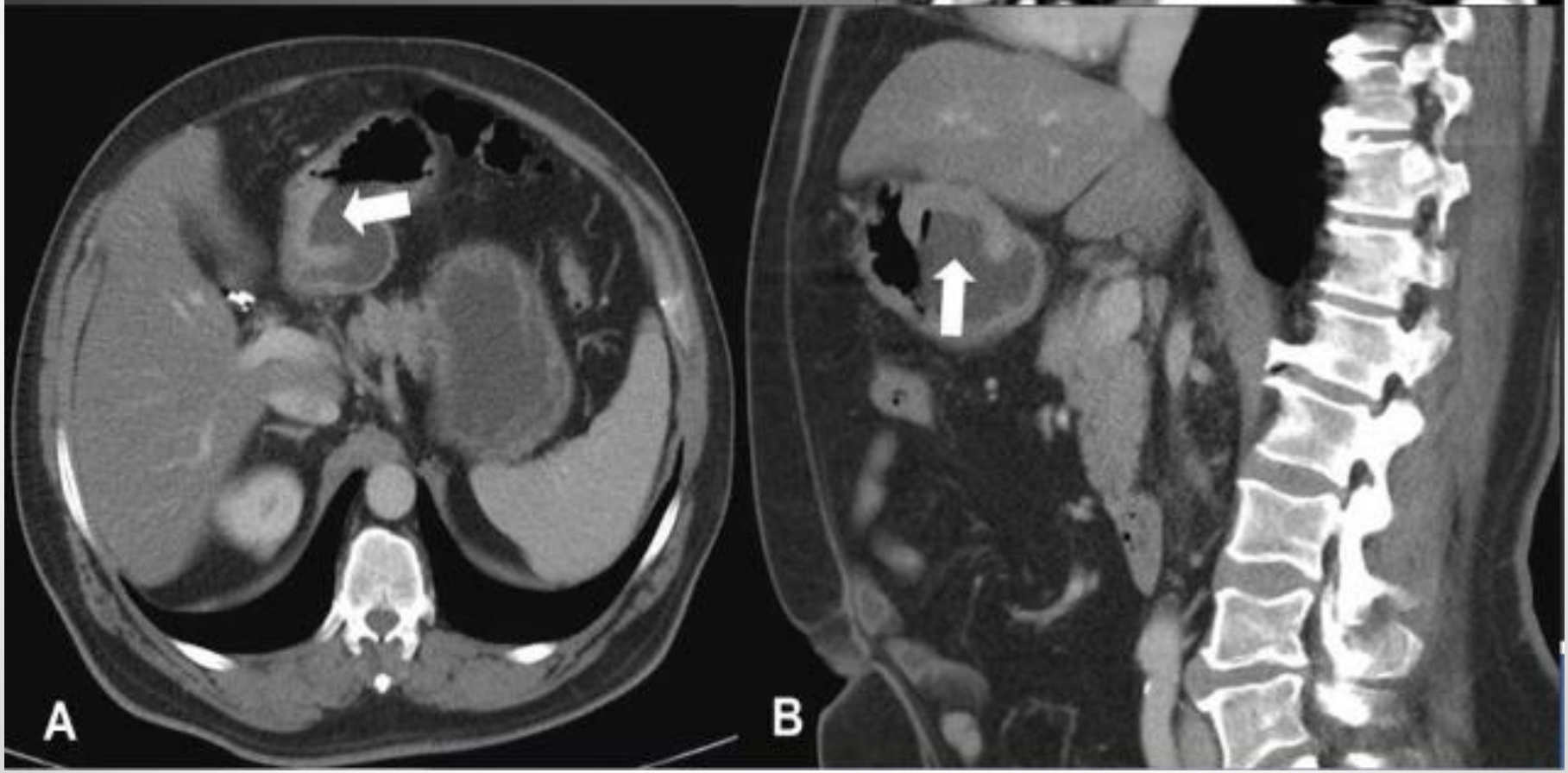


Gastric Carcinoma of the body and proximal antrum
(Multiple small ulcerations)

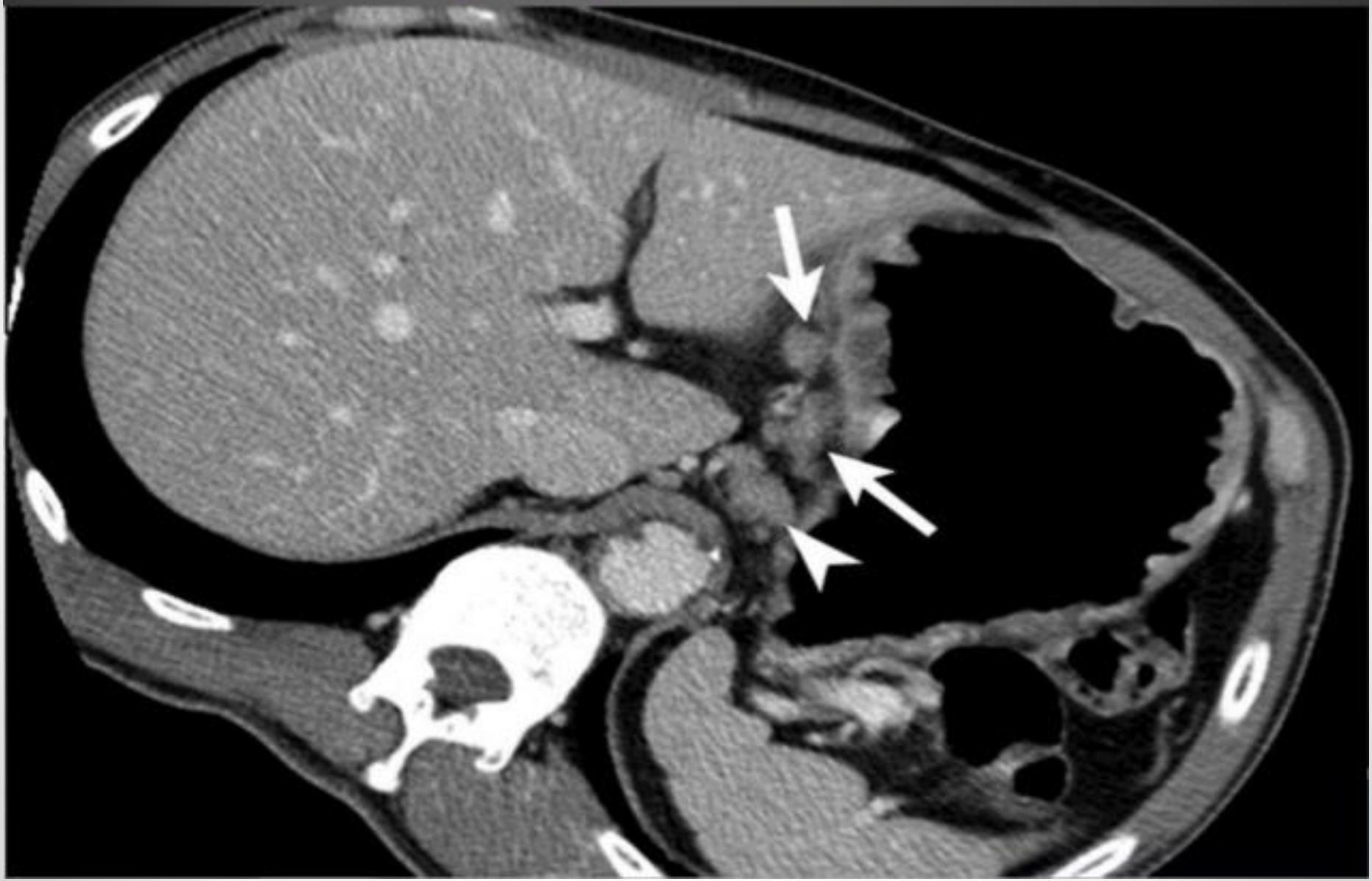
Carcinoma along the greater curvature
(Ulcerative lesion with filling defect)

CT SCAN TEST





MRI : benign regional lymph nodes



DETECTION OF EARLY GASTRIC CANCER

- Endoscopic screening
  general population or high risk persons
- Careful observation
- Japan is the only country that had conducted large nationwide mass population screening of asymptomatic
  individuals for gastric malignancy

Treatment

Surgical resection is the only curative treatment for gastric cancer.

Obvious exceptions include patients who cannot tolerate an abdominal operation, and patients with overwhelming metastatic disease.

The goal of curative surgical treatment is resection of all tumor. Thus, all margins (proximal, distal, and radial) should be negative and an adequate lymphadenectomy performed.

Treatment

Generally, the surgeon strives for a grossly negative margin of at least 5 cm. Some gastric tumors, particularly the diffuse variety, are quite infiltrative and tumor cells can extend well beyond the tumor mass; thus, gross margins beyond 5 cm may be desirable.

More than 15 resected lymph nodes are required for adequate staging.

The primary tumor may be resected en bloc with adjacent involved organs (e.g., distal pancreas, transverse colon, or spleen) during the course of curative gastrectomy.

Palliative gastrectomy may be indicated in some patients with obviously incurable disease, but most patients presenting with stage IV gastric cancer can be managed without major operation.

Extent of Gastrectomy

The standard operation for gastric cancer is radical subtotal gastrectomy.

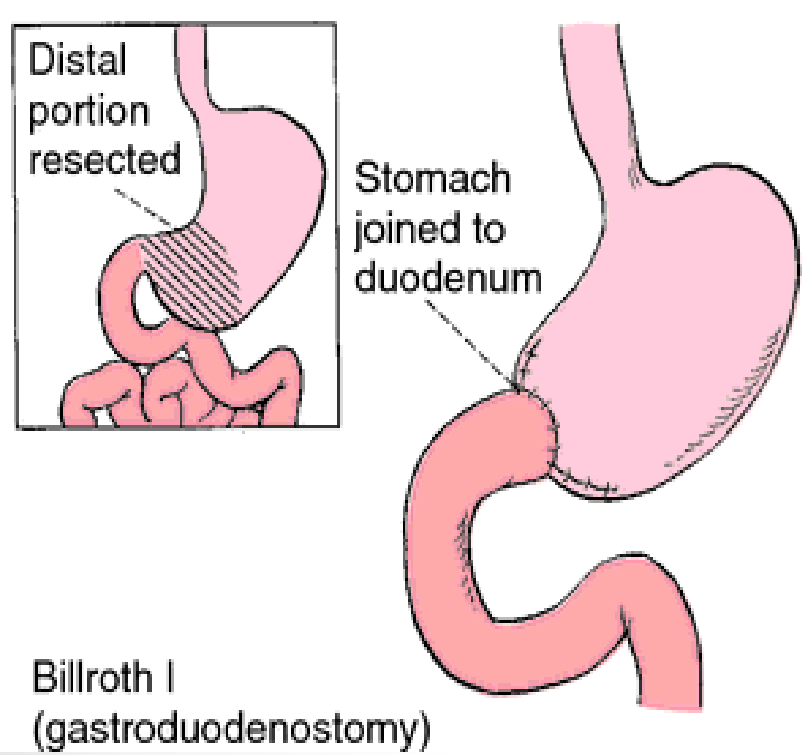
Subtotal gastric resection typically entails ligation of the left and right gastric and gastroepiploic arteries at the origin, as well as the en bloc removal of the distal 75% of the stomach, including the pylorus and 2 cm of duodenum, the greater and lesser omentum, and all associated lymphatic tissue.

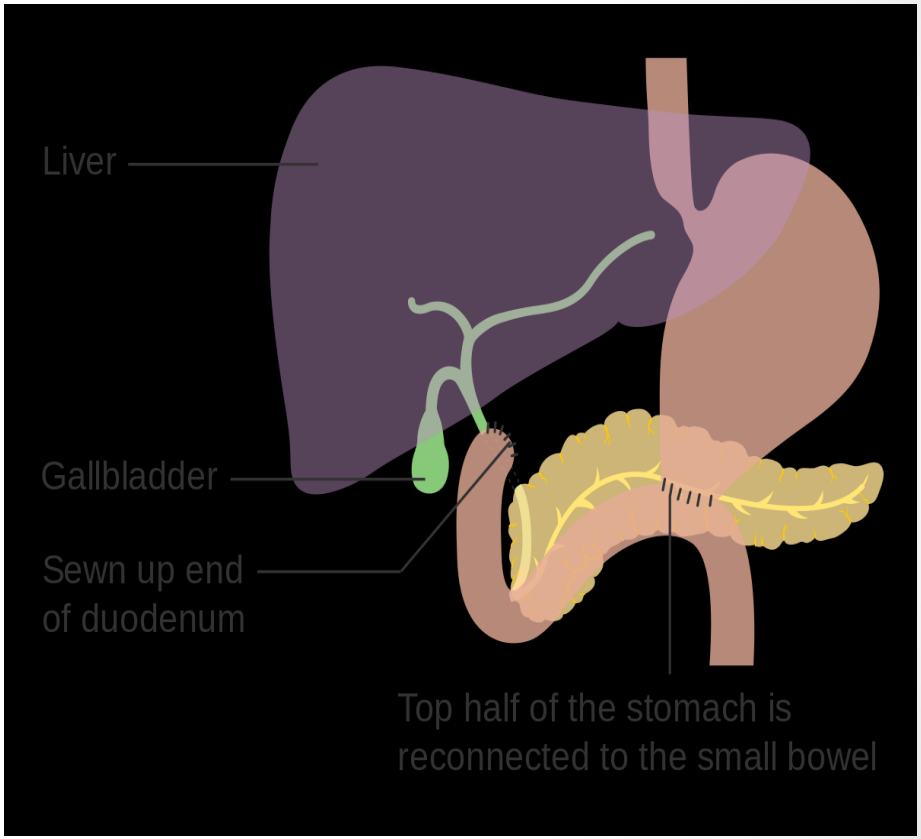
Reconstruction is usually by Billroth II gastrojejunostomy, but if a small gastric remnant is left (<20%), a Roux-en-Y reconstruction is considered.

The operative mortality is around 2 to 5%. Radical subtotal gastrectomy is generally deemed to be an adequate cancer operation in most Western countries, provided that the contingencies stated result in tumor-free margins, >15 lymph nodes, and the resection of all gross tumor.

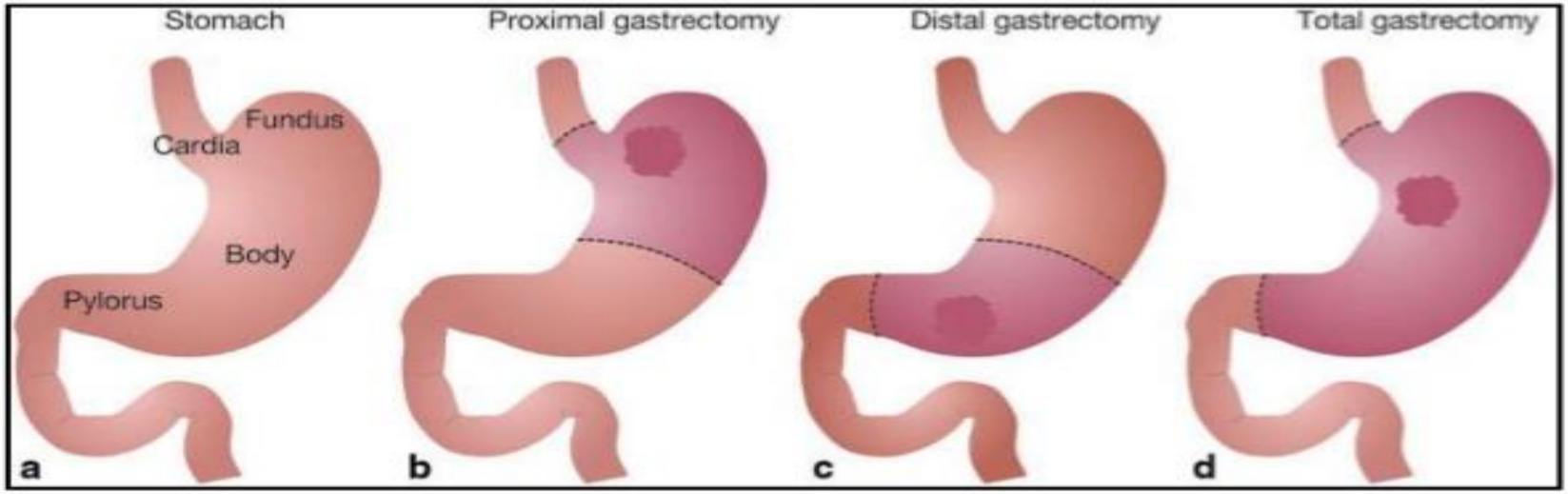
In the absence of involvement by direct extension, the spleen and pancreatic tail are not removed.

Subtotal gastrectomy





Total gastrectomy



Extent of Lymphadenectomy

The standard operation for gastric cancer in Asia and specialized U.S. centers is the D2 gastrectomy, which involves a more extensive lymphadenectomy (removal of the D1 and D2 nodes).

In addition to the tissue removed in a D1 resection, the standard D2 gastrectomy removes the peritoneal layer over the anterior mesocolon and selectively over the pancreas, along with nodes along the hepatic and splenic arteries, and the crural nodes.

Chemotherapy and Radiation for Gastric Cancer

In general, the actuarial 5-year survival for resected gastric adenocarcinoma stages 1, 2, and 3 is about 75%, 50%, and 25%, respectively.

Because most surgical patients have stage 2 disease or greater, it is common to refer gastric cancer patients postoperatively to a medical and/or radiation oncologist.

Adjuvant treatment with chemotherapy (5-fluorouracil and leucovorin) and radiation (4500 cGy) has demonstrated a survival benefit in resected patients with stage II and III adenocarcinoma of the stomach.

Chemotherapy and Radiation for Gastric Cancer

- Adequacy of lymphadenectomy has clearly been shown to impact survival, particularly in patients with stage III gastric cancer it has been suggested that the benefits of adjuvant chemoradiation shown in this study would be vitiated by an adequate operation.
- A recently published study from the Japan Clinical Oncology Group showed a 69% overall 5-year survival rate in patients with clinically curable T2b, T3, and T4 gastric cancer, treated with D2 gastrectomy alone (no chemotherapy)
- There was no incremental benefit from para-aortic lymph node dissection. There is no indication for the routine use of radiation alone in the adjuvant setting, but in certain patients, it can be effective palliation for bleeding or pain. In patients with gross unresectable, metastatic, or recurrent disease, palliative chemotherapy has not been demonstrated to conclusively prolong survival, but occasionally, a patient has a dramatic response. These patients should be considered for clinical trials. Agents that have shown activity against gastric cancer include 5-fluorouracil, cisplatin, doxorubicin, and methotrexate. Neoadjuvant treatment of gastric adenocarcinoma is being evaluated, particularly in patients with clinical T3 or N1 disease.

Endoscopic Resection

- It has been demonstrated initially at numerous East Asian centers that some patients with early gastric cancer can be adequately treated by an EMR.
- Small tumors (<3 cm) confined to the mucosa have an extremely low chance of lymph node metastasis (3%), which approaches the operative mortality rate for gastrectomy.
- If the resected specimen demonstrates no ulceration, no penetration of the muscularis mucosae, no lymphatic invasion, and size <3 cm, then the risk of lymph node metastases is less than 1%.
- Thus, some patients with early gastric cancer might be better treated with the endoscopic technique.
- Currently, this should be limited to patients with tumors <2 cm in size that are node negative and confined to the mucosa on EUS, in the absence of other gastric lesions.

Nursing Management

- Pain (acute) related to gastric erosion

Nursing Intervention

- Monitor nutritional intake and weigh patient regularly.
- Monitor CBC and serum vitamin B12 levels to detect anemia, and monitor albumin and prealbumin levels to determine if protein supplementation is needed.
- Provide comfort measures and administer analgesics as ordered.
- Frequently turn the patient and encourage deep breathing to prevent pulmonary complications, to protect skin, and to promote comfort.

Nursing Intervention

- Maintain nasogastric suction to remove fluids and gas in the stomach and prevent painful distention.
- Provide oral care to prevent dryness and ulceration.
- Keep the patient nothing by mouth as directed to promote gastric wound healing. Administer parenteral nutrition, if ordered.
- When nasogastric drainage has decreased and bowel sounds have returned, begin oral fluids and progress slowly.

Nursing Intervention

- Avoid giving the patient high-carbohydrate foods and fluids with meals, which may trigger dumping syndrome because of excessively rapid emptying of gastric contents.
- Administer protein and vitamin supplements to foster wound repair and tissue building.
- Eat small, frequent meals rather than three large meals.
- Reduce fluids with meals, but take them between meals.

Nursing Intervention

- Stress the importance of long term vitamin B12 injections after gastrectomy to prevent surgically induced pernicious anemia.
- Encourage follow-up visits with the health care provider and routine blood studies and other testing to detect complications or recurrence.

Discharge and Home Healthcare Guidelines

- Teach the patient the importance of compliance with palliative and follow-up care. Be sure the patient understands all medications, including the dosage, route, action, and adverse effects.
- Teach the patient the signs and symptoms of infection and how to care for the incision. Instruct the patient to notify the physician if signs of infection occur.

Discharge and Home Healthcare Guidelines

- Encourage the patient to seek psychosocial support through local support groups (e.g.,I Can Cope),clergy,or counseling services. If appropriate,suggest hospice services.
- Teach the patient methods to enhance nutritional intake to maintain ideal body weight. Several small meals a day may be tolerated better than three meals a day. Take liquid supplements and vitamins as prescribed. Refer the patient to the dietitian for a consultation. Teach family members and friends prevention strategies.

Discharge and Home Healthcare GuidelineS

- Strategies include increasing the intake of fresh fruits and vegetables that are high in vitamin C; maintaining adequate protein intake; and decreasing intake of salty, starchy, smoked, and nitrite- preserved foods.

Reference

- https://nurseslabs.com/cancer-nursing-care-plans/


Thank you!