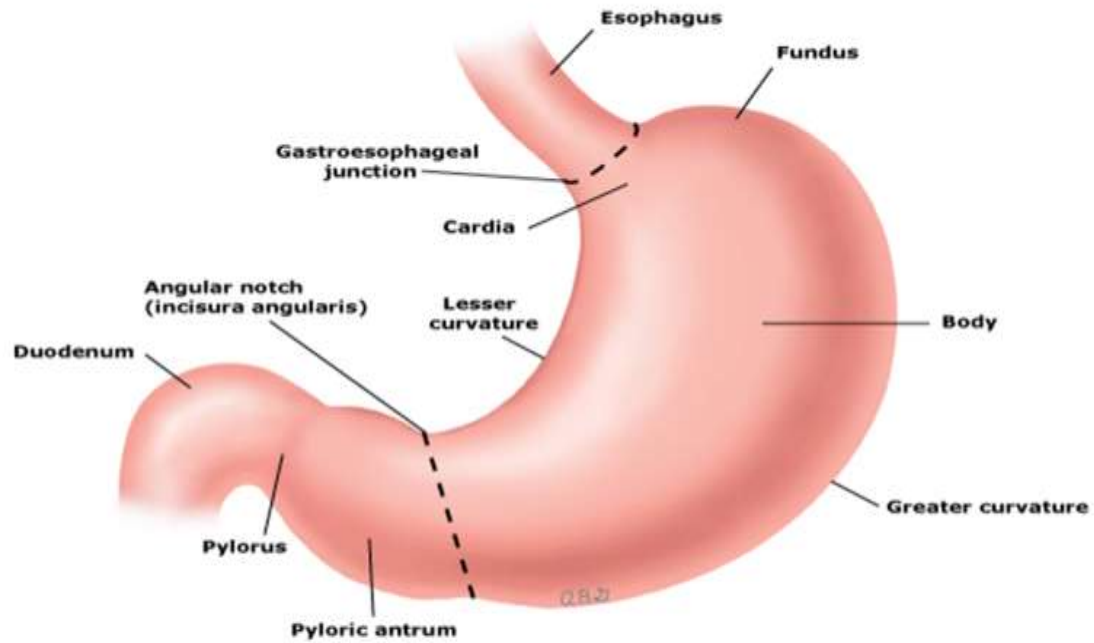
Gastric Cancer

Parts of the stomach



This drawing shows the parts of the anterior surface of the stomach. The body of the stomach is separated from the pyloric part by an oblique line that extends from the angular notch (incisura angularis) on the lesser curvature to the greater curvature.

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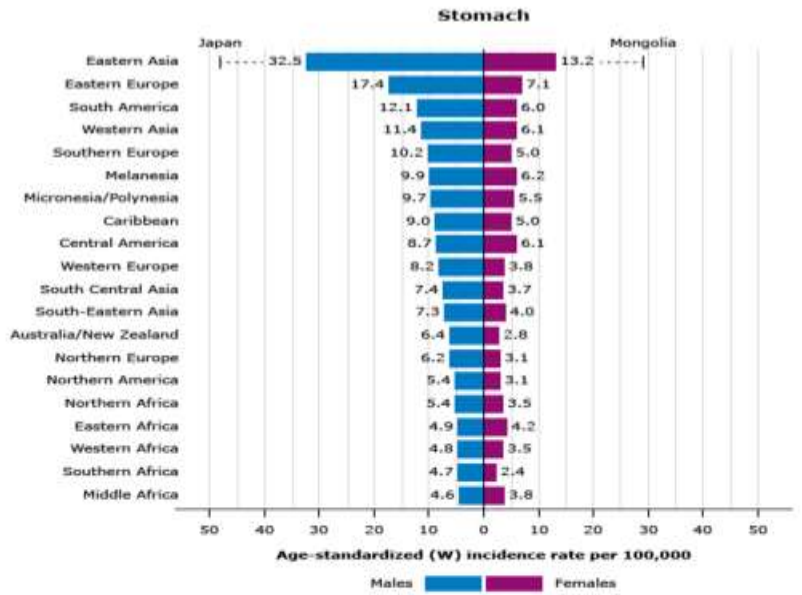
Epidemiology

Region-specific incidence of gastric cancer



Region-specific incidence age-standardized rates by sex for stomach cancer in 2020. Rates are shown in descending order of the world (W) age-standardized rate among males, and the highest national rates among males and females are superimposed.

- Decline in incidence.
- Regional variation.
- Male > female.
- Changes in histologic pattern.
- Rise in incidence in younger adults
- Fourth leading cause of cancer deaths worldwide

ETIOLOGY AND RISK FACTORS

- Helicobacter pylori
- Epstein-Barr virus
- Genetic predisposition and hereditary syndromes
- Other environmental factors implicated in the development of gastric cancer
- Autoimmune gastritis and gastric polyps

CLINICAL FEATURES

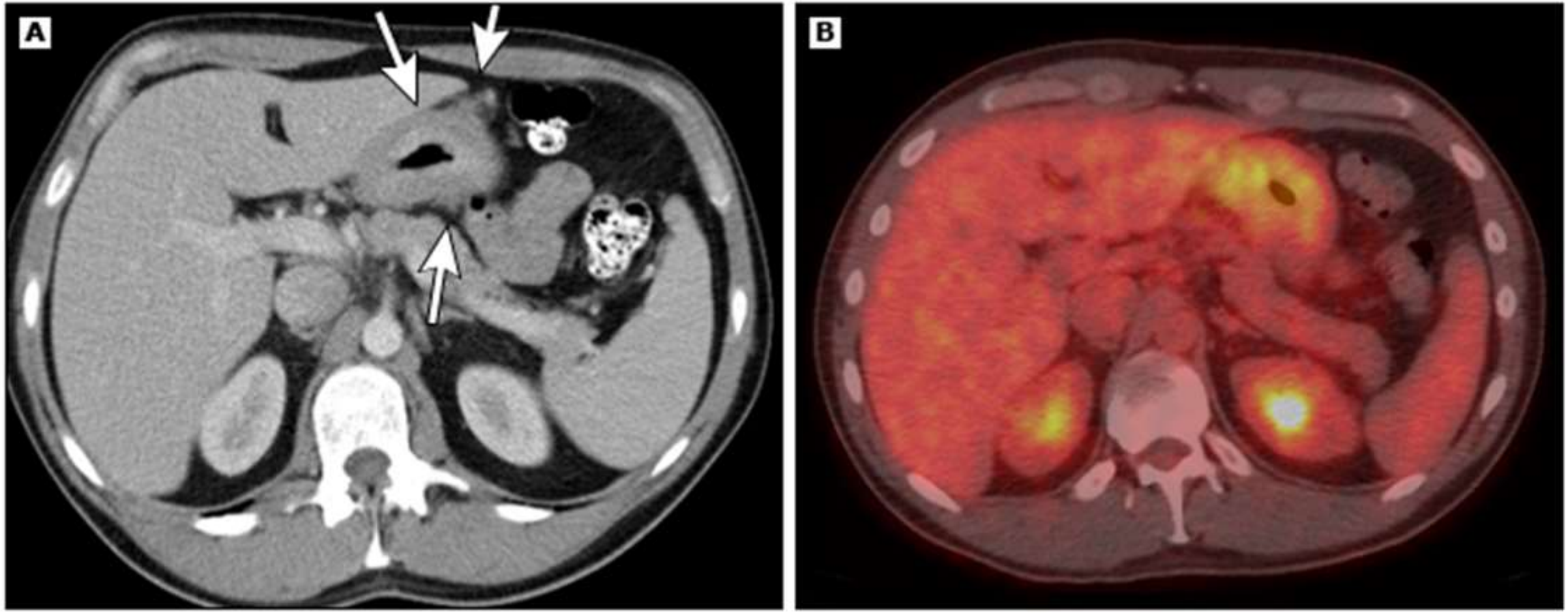
- **Signs and symptoms**

Presenting symptoms of gastric cancer in 18,363 patients

Symptom	Percent
Weight loss	62
Abdominal pain	52
Nausea	34
Dysphagia	26
Melena	20
Early satiety	18
Ulcer-type pain	17

Data from: Wanebo HJ, Kennedy BJ, Chmiel J, et al. Cancer of the stomach. A patient care study by the American College of Surgeons. Ann Surg 1993; 218:583.

CT and integrated FDG-PET/CT appearance of a gastric cancer with linitis plastica

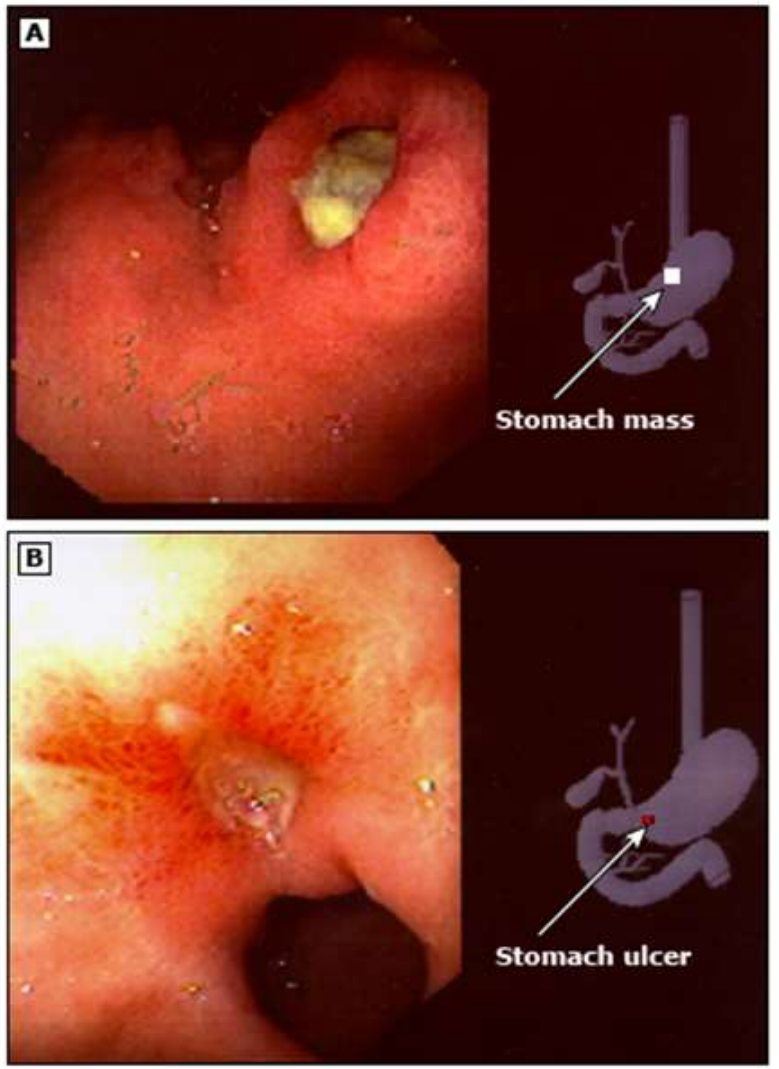


For patients with linitis plastica, the stomach wall is thickened on CT imaging. Even in the physiologically nondistended stomach, the wall should be no more than 8 mm thick. In this

DIAGNOSIS

- When to suspect the diagnosis
- Endoscopic appearance

Malignant and benign gastric ulcer: Endoscopic appearance

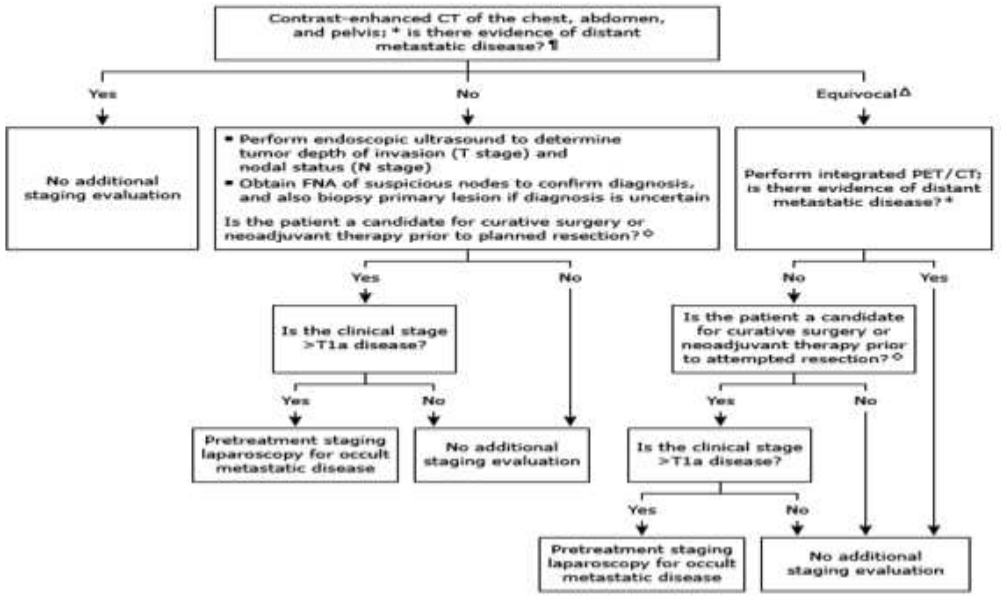


Endoscopy showing the differences between the endoscopic appearance of malignant and benign gastric ulcers.

Staging evaluation

TNM staging criteria

Suggested approach to staging evaluation in patients with gastric cancer



This algorithm is intended for use in conjunction with additional UpToDate content on gastric cancer.

CT: computed tomography; FNA: fine-needle aspiration; PET: positron emission tomography.

* The goal of the initial staging evaluation is to initially stratify patients into two clinical groups in order to guide initial management: those with locoregional, potentially resectable (stage I to III) disease and those with either locally advanced, unresectable or metastatic (stage IV) disease.

¶ Suspicious visceral or omental lesions or retroperitoneal nodes require biopsy confirmation. Paracentesis should be performed when ascites is detected, and the fluid should be sent for cytology and standard chemical analysis.

Δ Either the cross-sectional imaging studies are not definitive or the patient has clinical symptoms that raise suspicion for metastatic disease but there is no radiographic correlation on cross-sectional imaging.

◇ Assessment is typically based on general fitness and comorbidity. Nonsurgical candidates might be treated with palliative systemic chemotherapy, with or without local radiation therapy for symptom control. Refer to UpToDate topic on diagnosis and staging of gastric cancer in adults for additional details.

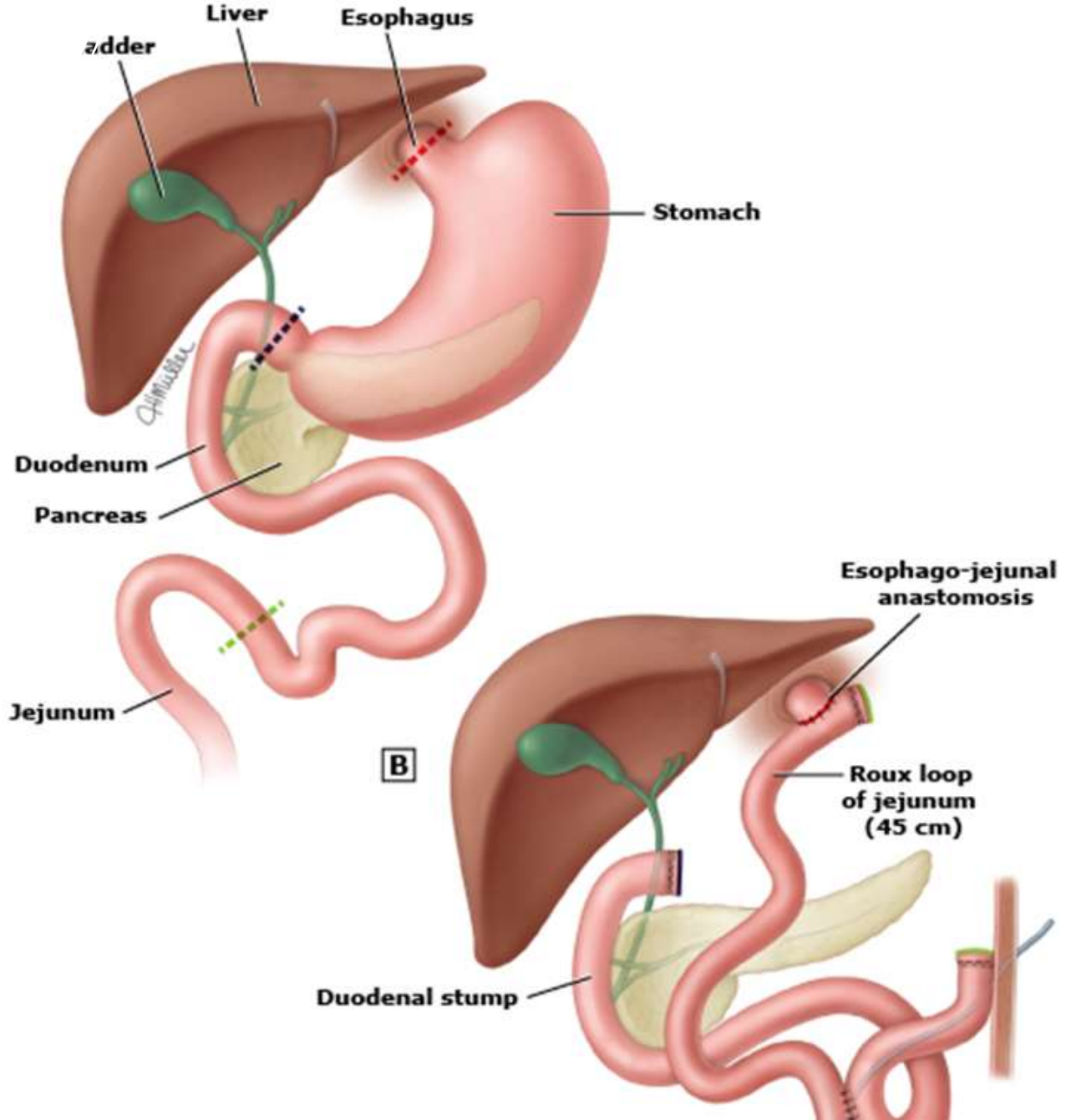
- REFERRAL FOR GENETIC TESTING

Adjuvant and neoadjuvant treatment of gastric cancer

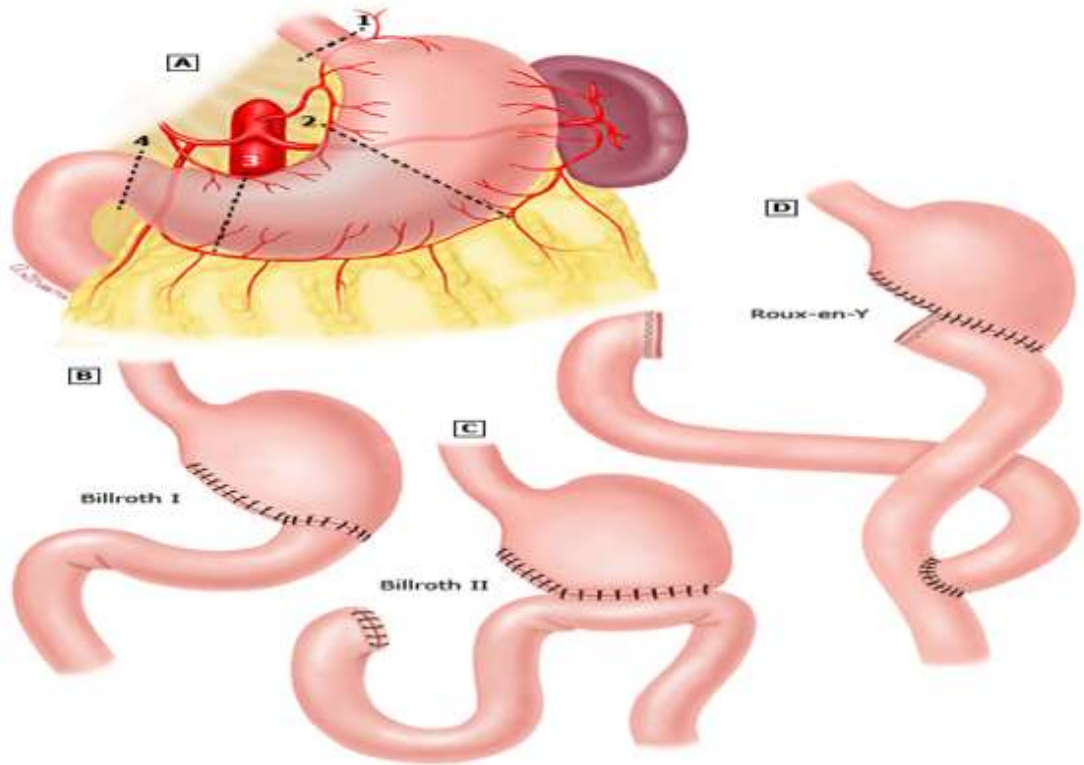
- For most patients with potentially resectable, histologically proven noncardia gastric adenocarcinoma with invasion beyond the submucosa (clinical stage T2N0 or higher on preoperative staging evaluation, it is recommended to administer combined modality therapy over surgery alone.

Surgical management of invasive gastric cancer

- Indicators of unresectability
- Total versus partial gastrectomy



Partial gastrectomy and reconstruction

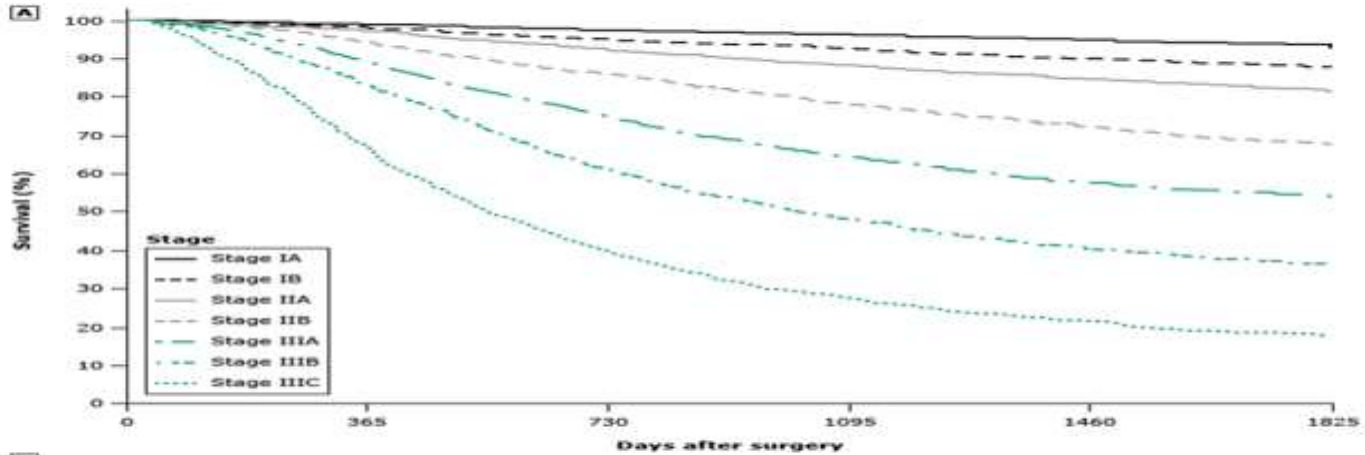


Distal (partial) gastrectomy is performed by removing the distal portion of the stomach (A, shaded region between line 2 and line 4). Gastrointestinal continuity can be restored using one of three techniques. The first (B), known as a Billroth I reconstruction, anastomoses the stomach to the duodenal remnant. The Billroth II reconstruction (C) brings up a loop of proximal jejunum to create an end-to-side gastrojejunostomy. Another option is a Roux-en-Y gastrojejunostomy (D), in which the more distal jejunum is anastomosed to the stomach in an end-to-side fashion.

Prognosis

Overall survival in gastric cancer patients who underwent surgical resection with adequate lymphadenectomy without prior chemotherapy or radiation therapy, stratified by pathological stage groupings (8th edition AJCC, 2017)

A



B

Pathological stage group	Patients (n)	1-year survival (%)	3-year survival (%)	5-year survival (%)	Median survival
IA	10,606	99.00	96.30	93.60	Not reached
IB	2606	98.00	92.80	88.00	Not reached
IIA	2291	97.40	88.30	81.80	Not reached
IIB	2481	94.30	78.20	68.00	Not reached
IIIA	3044	89.00	64.40	54.20	Not reached
IIIB	2218	83.10	48.20	36.20	32.8 months
IIIC	1350	66.80	27.70	17.90	18.5 months

(A) Pathological stage (pTNM) and overall survival in gastric cancer patients who underwent surgical resection with adequate lymphadenectomy (D2) without prior chemotherapy or radiation therapy, stratified by pathological stage groupings, based on IGCA data (2000 to 2004; only patients with complete 5-year follow-up were included, n = 25,411).

(B) Pathological stage and 1-, 3-, and 5-year and median overall survivals in patients with gastric cancer who received curative surgery, stratified by pathological stage groupings, based on IGCA data.

AJCC: American Joint Committee on Cancer; IGCA: International Gastric Cancer Association.