به نام خداوند جان و خرد کزین برتر اندیشه برنگذرد

خداوند نام و خداوند جای خداوند روزی ده رهنمای

خداوند کیهان و گردون سپهر فروزندهٔ ماه و ناهید و مهر

TABLE 20-3 DIFFERENTIAL DIAGNOSES OF ABDOMINAL PAIN BY LOCATION

Right Upper Quadrant	Epigastric	Left Upper Quadrant
Cholecystitis	Peptic ulcer disease	Splenic infarct
Cholangitis	Gastritis	Splenic rupture
Pancreatitis	GERD	Splenic abscess
Pneumonia/empyema	Pancreatitis	Gastritis
Pleurisy/pleurodynia	Myocardial infarction	Gastric ulcer
Subdiaphragmatic abscess	Pericarditis	Pancreatitis
Hepatitis	Ruptured aortic aneurysm	Subdiaphragmatic abscess
Budd-Chiari syndrome	Esophagitis	
Right Lower Quadrant	**Periumbilical**	**Left Lower Quadrant**
Appendicitis	Early appendicitis	Diverticulitis
Salpingitis	Gastroenteritis	Salpingitis
Inguinal hernia	Bowel obstruction	Inguinal hernia
Ectopic pregnancy	Ruptured aortic aneurysm	Ectopic pregnancy
Nephrolithiasis		Nephrolithiasis
Inflammatory bowel disease		Irritable bowel syndrome
Mesenteric lymphadenitis		Inflammatory bowel disease
Typhlitis		
Diffuse Nonlocalized Pain		
Gastroenteritis	Malaria	
Mesenteric ischemia	Familial Mediterranean fever	
Bowel obstruction	Metabolic diseases	
Irritable bowel syndrome	Psychiatric disease	
Peritonitis		
Diabetes		

Abbreviation: GERD, gastroesophageal reflux disease.

Peptic ulcer disease

Peptic ulcer disease

- Peptic ulcers are defects in the gastrointestinal mucosa that extend through the muscularis mucosae .
- Peptic ulcer disease (PUD) is an important cause of morbidity and health care costs; estimates of expenditures related to work loss, hospitalization, and outpatient care.

Peptic ulcer disease

- Incidence — Estimates of the annual incidence of peptic ulcer disease range from 0.1 to 0.3 percent. Ulcer incidence increases with age for both DUs and GUs, but DUs emerge two decades earlier than GUs, particularly in males .
- Prevalence —The lifetime prevalence is also higher in *H. pylori* -positive subjects (approximately 10 to 20 percent compared to 5 to 10 percent in the general population)

PU

- ETIOLOGY — Peptic ulcer disease is associated with two major factors:
  - *Helicobacter pylori* infection
  - the consumption of nonsteroidal antiinflammatory drugs (NSAIDs)

NSAIDs Related PU-Risk factors

- the most important of which is a prior history of clinical ulcer disease or ulcer complications.
- Other risk factors are the dose;
  - duration of action
  - duration of therapy of the NSAIDs
  - advanced age of the patient (generally above 75 years)
  - co-therapy with drugs that enhance toxicity
  - Comorbidity especially with cardiovascular disease.

NSAIDs Related PU

- Interactions of NSAIDs with other drugs are critical factors influencing the risk from NSAIDs.
- Co-therapy of NSAIDs with steroids, anticoagulants, other NSAIDs, low dose aspirin , selective serotonin reuptake inhibitors (SSRI), and alendronate dramatically increase the risk of ulcer complications

H.Pylori

- Multiple strains of *H. pylori* exist and are characterized by their ability to express several of these factors (Cag A, Vac A, etc.).

- developing parts of the world, 80% of the population may be infected by the age of 20, whereas the prevalence is 20–50% in industrialized countries.

- The overall prevalence of *H. pylori* in the United States is ~30%

HP

- *H. pylori* infection is virtually always associated with a chronic active gastritis, but only 10–15% of infected individuals develop frank peptic ulceration.

- *H. pylori* is present in 30–60% of individuals with GUs and 50–70% of patients with DUs.

Non-NSAID, non-H. pylori ulcers

- Drugs other than NSAIDs
- Gastrinoma
- Systemic mastocytosis
- Carcinoid syndrome
- Inflammatory and infiltrating disease
- Other infections, viral infections

Stress ulcers in hospitalized patients

- Superficial mucosal lesions are present in a majority of seriously ill patients within 18 hours of admission to the ICU.
- This finding has been called stress-related mucosal damage. However, although stress-related mucosal damage can cause low-grade gastrointestinal (GI) bleeding, it rarely causes clinically significant bleeding in the absence of severe coagulopathy.

CLINICAL MANIFESTATIONS

- Ulcer-like or acid dyspepsia (burning pain; epigastric hunger-like pain; relief with food, antacids, and/or antisecretory agents)
- Food-provoked dyspepsia or indigestion (postprandial epigastric discomfort and fullness, belching, early satiety, nausea, and occasional vomiting)
- Reflux-like dyspepsia

Ulcer-like dyspepsia

- Upper abdominal pain or discomfort is the most prominent symptom in patients with peptic ulcers; approximately 80 percent of patients with endoscopically diagnosed ulcers have epigastric pain.
- The "classic" pain of duodenal ulcers (DU) occurs when acid is secreted in the absence of a food buffer

Food-provoked dyspepsia

- Peptic ulcers can also be associated with food-provoked symptoms, such as epigastric pain that worsens with eating, postprandial belching and epigastric fullness, early satiety, fatty food intolerance, nausea, and occasional vomiting

Silent ulcers

- Frequently, peptic ulcers are asymptomatic. Between 43 and 87 percent of patients with bleeding peptic ulcers present without antecedent dyspepsia or other heralding GI symptoms
- "silent" presentation may be more frequent in elderly patients .

Alarm symptom- Gastric carcinoma

- Unintended weight loss
- Bleeding
- Anemia
- Dysphagia
- Odynophagia
- Hematemesis
- A palpable abdominal mass or lymphadenopathy
- Persistent vomiting
- Unexplained iron deficiency anemia
- Family history of upper gastrointestinal cancer
- Previous gastric surgery
- Jaundice

Diagnosis of peptic ulcer disease

- There are no established blood tests that can reliably predict the presence of PUD.
- Endoscopy is the most accurate diagnostic test for peptic ulcer disease (PUD

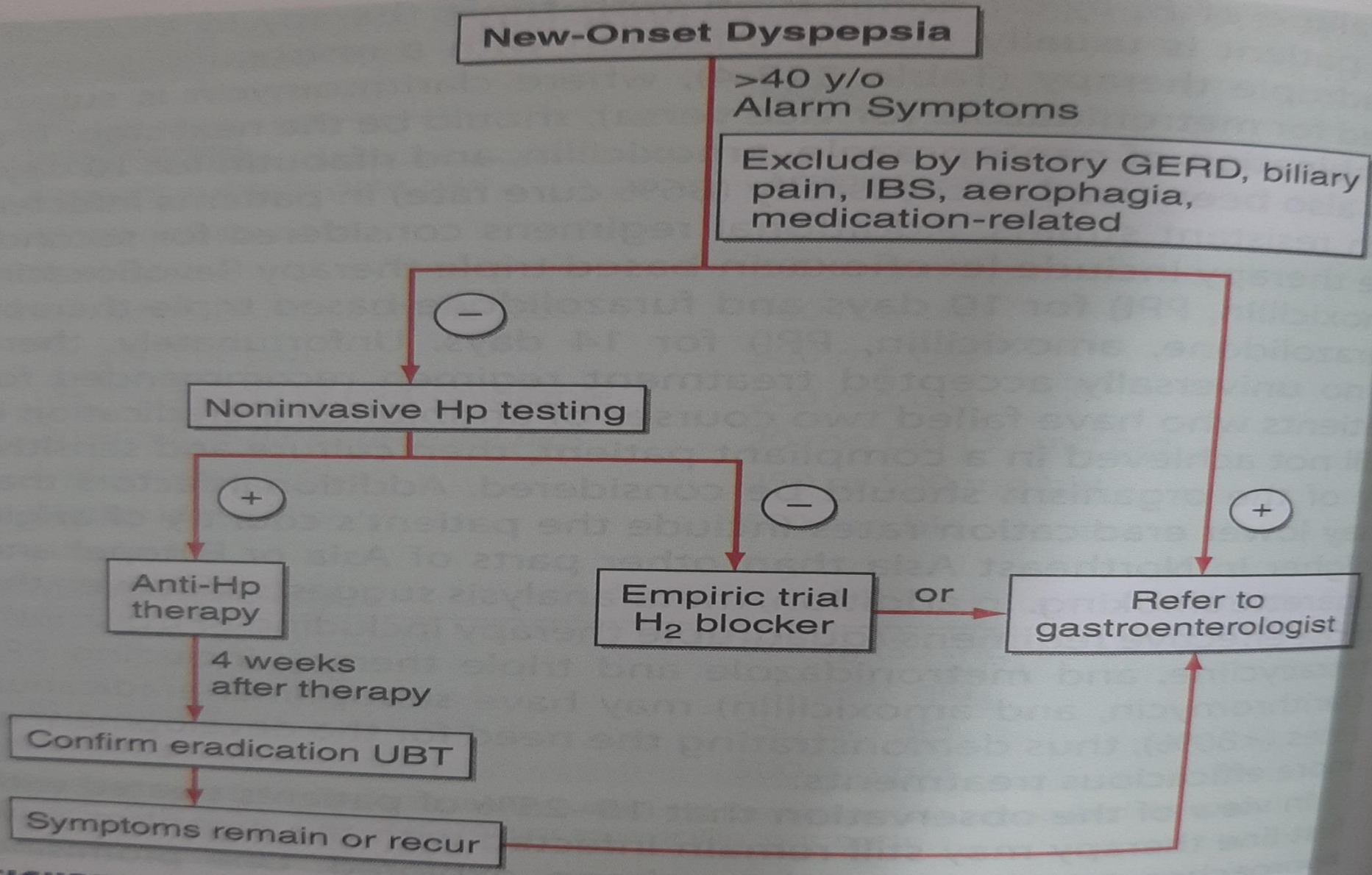
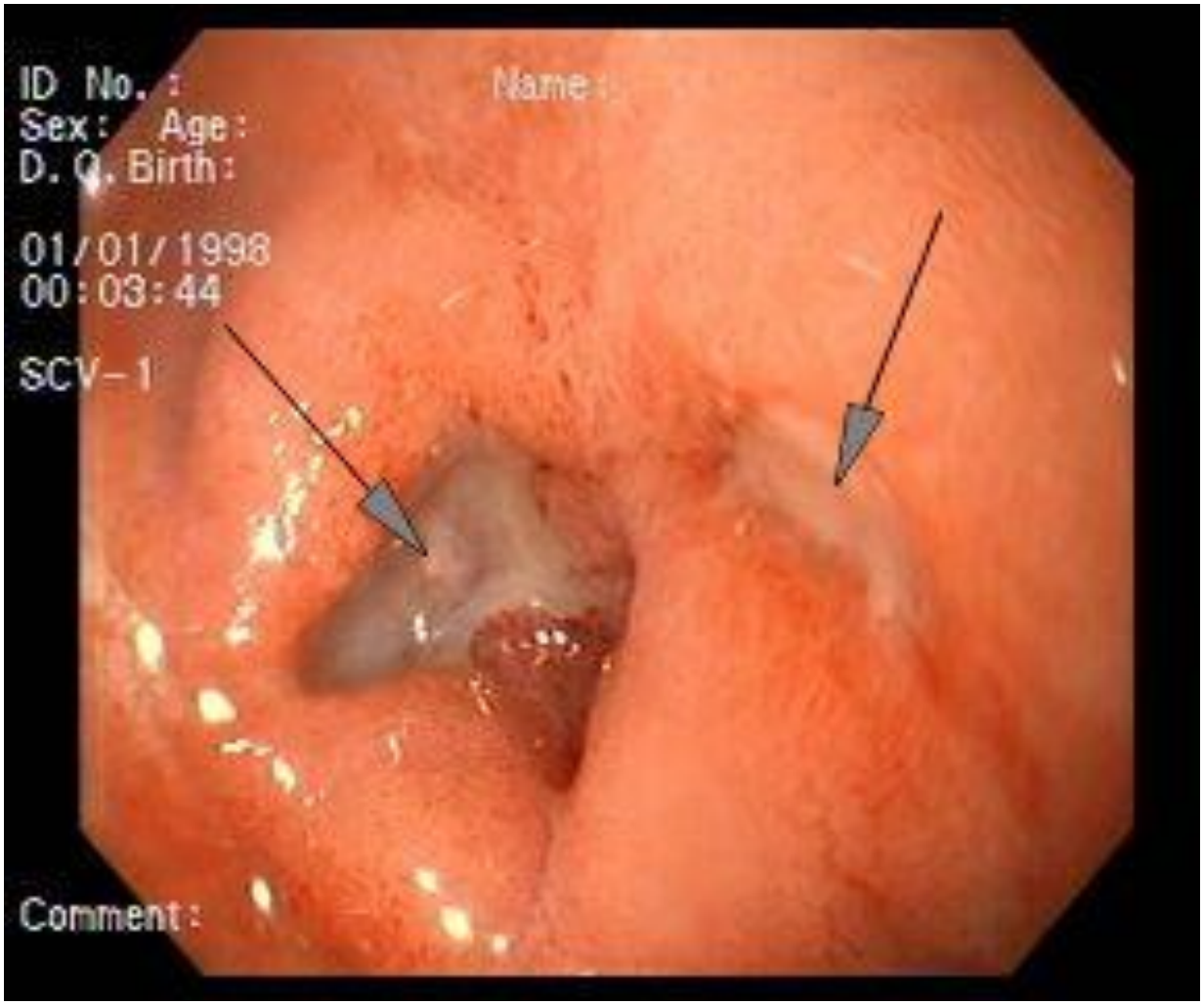


FIGURE 348-12 Overview of new-onset dyspepsia. GERD, gastroesophageal reflux disease; Hp, *Helicobacter pylori*; IBS, irritable bowel syndrome; UBT, urea breath test. *(Adapted from BS Anand and DY Graham: Endoscopy 31:215, 1999.)*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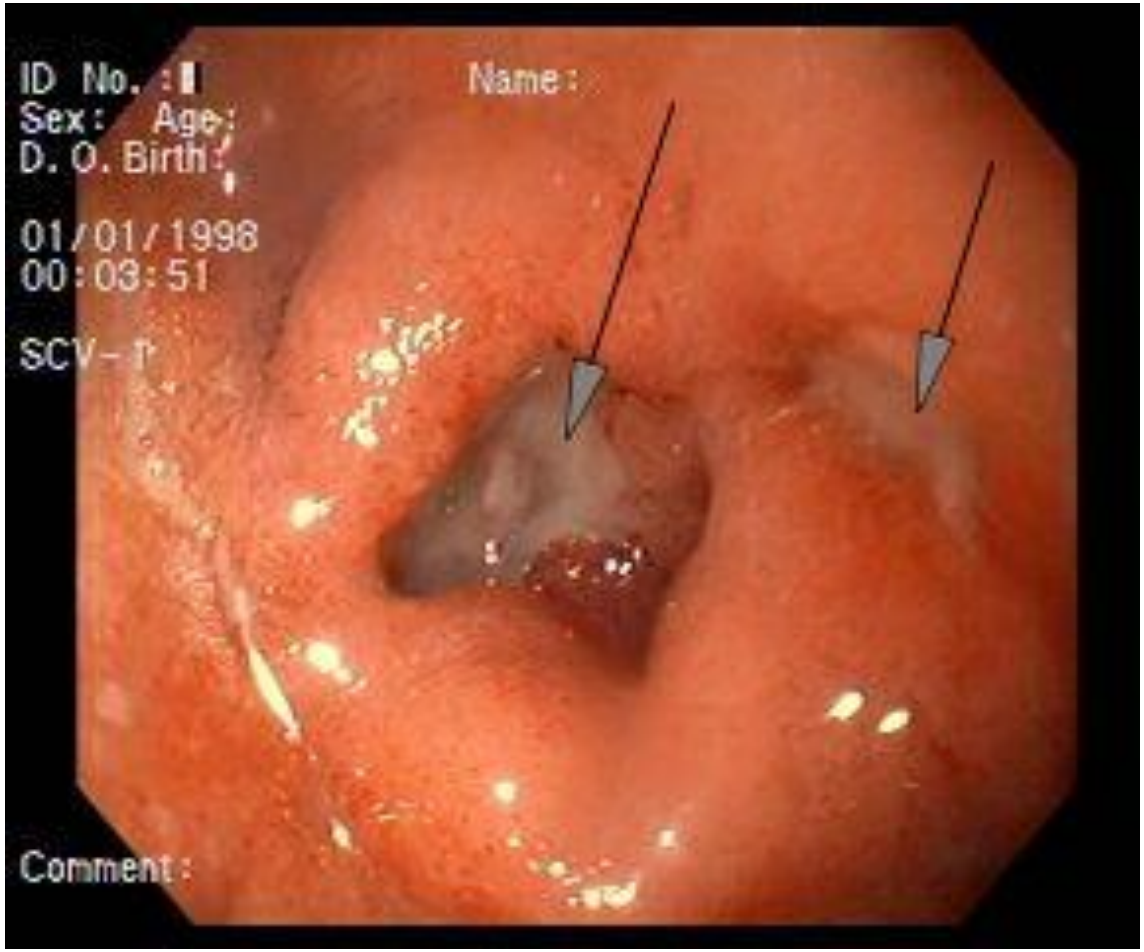
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Follow-up endoscopy to exclude malignant GU

- The rationale behind endoscopic follow-up of a patient with a GU is that the absence of symptoms does not reliably exclude malignancy and surveillance endoscopy may identify patients with gastric cancer at an early stage.

H. pylori testing with a known ulce

- When an ulcer is discovered by endoscopy or radiography, it is important to determine if H. pylori is present before treating with antibiotics.
- At endoscopy, a biopsy for urease testing will be highly accurate and inexpensive.
- If the patient has a DU, it is initially necessary only to establish H. pylori status

DIAGNOSTIC APPROACH WITH ESTABLISHED ULCERS

- Biopsy of the DU is only indicated for refractory ulcers or lesions that are suggestive of malignancy.
- By contrast, all GUs warrant thorough biopsy at the first endoscopy.
- The necessity of follow-up endoscopy and biopsy for GU to ensure healing and to exclude malignancy is a clinical decision that rests on the adequacy of the initial biopsies and the patient's risk for gastric malignancy

TABLE 348-4 REGIMENS RECOMMENDED FOR ERADICATION OF *H. PYLORI* INFECTION

Drug	Dose
Triple Therapy	
1. Bismuth subsalicylate *plus*	2 tablets qid
Metronidazole *plus*	250 mg qid
Tetracycline[a]	500 mg qid
2. Ranitidine bismuth citrate *plus*	400 mg bid
Tetracycline *plus*	500 mg bid
Clarithromycin or metronidazole	500 mg bid
3. Omeprazole (lansoprazole) *plus*	20 mg bid (30 mg bid)
Clarithromycin *plus*	250 or 500 mg bid
Metronidazole[b] *or*	500 mg bid
Amoxicillin[c]	1 g bid
Quadruple Therapy	
Omeprazole (lansoprazole)	20 mg (30 mg) daily
Bismuth subsalicylate	2 tablets qid
Metronidazole	250 mg qid
Tetracycline	500 mg qid

[a]Alternative: use prepacked Helidac (see text). [b]Alternative: use prepacked Prevpac (see text). [c]Use either metronidazole or amoxicillin, not both.

Prevention and treatment

- Maintenance therapy is indicated to prevent recurrence in high-risk subgroups, defined by a history of complications, frequent recurrences, or refractory, giant, or severely fibrosed ulcers.
- In patients in the high risk subgroup who are infected with H. pylori, maintenance therapy should be continued at least until cure of the infection and healing of the ulcer have been confirmed.
- Maintenance therapy is also indicated in high-risk patients who fail H. pylori eradication or who have recurrent H. pylori-negative ulcers.

Overview of the complications of peptic ulcer disease

- Complications of peptic ulcer disease (PUD) include
  - Bleeding
  - Perforation
  - Penetration
  - gastric outlet obstruction

bleeding

- Hemorrhage was the most common complication of PUD.
- upper gastrointestinal bleeding secondary to peptic ulcer disease (PUD) is a common medical condition that results in high morbidity and medical care costs. Patients often present with hematemesis, melena, or both.
- Most patients with bleeding ulcers can be managed acutely with fluid resuscitation, blood transfusions, proton pump inhibitor (PPI) therapy, and endoscopic intervention, as appropriate.

Ulcer perforation

- Ulcer perforation should be suspected in patients who suddenly develop severe, diffuse abdominal pain.
- Perforations complicate 2 to 10 percent of peptic ulcers [
- Duodenal, antral, and gastric body ulcers account for 60, 20, and 20 percent of perforations due to peptic ulcer disease (PUD), respectively.

Ulcer perforation

- Once the diagnosis of an ulcer perforation has been made, initial management includes insertion of a nasogastric tube, intravenous volume replacement, treatment with an intravenous PPI, and appropriate antibiotics.
- The presence of free air is highly suggestive of perforated duodenal ulcer (DU) although about 10 to 20 percent of patients with a perforated DU will not have free air

Penetration

- Ulcer penetration refers to penetration of the ulcer through the bowel wall without free perforation and leakage of luminal contents into the peritoneal cavity.
- Gastrocolic fistulae are seen with greater curvature gastric ulcers, particularly marginal ulcers.


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