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## Unusual causes of peptic ulcer disease

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## GRAPHICS

### Etiologies and disease associations for peptic ulcer

<b>Ulcers due to defined mechanisms</b>
Infection
Helicobacter pylori
HSV
CMV
Helicobacter heilmannii
Other rare infections: TB, syphilis, mucormycosis, etc
Drug exposure (all probably worse when combined with NSAIDs or in high risk subjects)
NSAIDs and aspirin including low dose aspirin
Bisphosphonates (probably when combined with NSAIDs)
Clopidogrel (when combined with NSAIDs or in high risk subjects)
Corticosteroids (when combined with NSAIDs)
Sirolimus
Spironolactone (probable, no data with NSAID cotherapy)
Mycophenolate mofetil
Potassium chloride
Chemotherapy (eg, hepatic infusion with 5-fluorouracil)
Hormonal or mediator-induced, including acid hypersecretory states
Gastrinoma (Zollinger-Ellison syndrome)
Systemic mastocytosis
Basophilia in myeloproliferative disease
Antral G cell hyperfunction (existence independent of H. pylori is debatable)
Post surgical
Antral exclusion
Post-gastric bypass
Vascular insufficiency including crack cocaine use
Mechanical: Duodenal obstruction (eg, annular pancreas)
Radiation therapy
Infiltrating disease
Sarcoidosis
Crohn disease
<b>Idiopathic peptic ulcer</b>
Non-Helicobacter pylori, non-NSAID peptic ulcer
<b>Comorbid ulcers associated with decompensated chronic disease or acute multisystem failure</b>
Stress intensive care unit ulcers
Cirrhosis
Organ transplantation
Renal failure
Chronic obstructive pulmonary disease (secondary to smoking)

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HSV: herpes simplex virus; CMV: cytomegalovirus; NSAID: nonsteroidal anti-inflammatory drug; TB: tuberculosis.

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*Courtesy of Andrew H Soll, MD.*

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## Clinical features associated with peptic ulcer disease in patients with gastrinoma

<b>Clinical presentation</b>
Esophageal reflux disease, especially when severe
Association with diarrhea, steatorrhea, or weight loss (due to the high rate of acid secretion and secondary disruption of digestion enzyme and absorptive function)
<b>Clinical findings</b>
Multiple ulcers
Peptic ulcers in <i>Helicobacter pylori</i> -negative, NSAID-negative subjects
Ulcers beyond the duodenal bulb
Increased gastric folds on upper GI series or endoscopy
Findings suggestive of multiple endocrine neoplasia type I (see Family history)
<b>Family history</b>
Extensive family history of ulcer disease
Family history or other findings suggestive of multiple endocrine neoplasia type I
Hypercalcemia or nephrolithiasis due to primary hyperparathyroidism
Hypoglycemia due to insulinoma
Functioning or nonfunctioning pituitary tumor
Diarrhea due to VIPoma
<b>Natural history and response to treatment</b>
Ulcers resistant to medical therapy
Frequent recurrences
Ulcer recurrences after surgical treatment

NSAID: nonsteroidal antiinflammatory drug; GI: gastrointestinal.

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