KEY CONCEPTS

Gastritis

- **Gastritis** is a mucosal inflammatory process. When inflammatory cells are absent or rare, the term **gastropathy** can be applied.
- The spectrum of **acute gastritis** ranges from asymptomatic disease to mild epigastric pain, nausea, and vomiting. Causative factors include any agent or disease that interferes with gastric mucosal protective mechanisms.
- Severe acute gastritis can result in **acute gastric ulceration**.
- The most common cause of chronic gastritis is ***H. pylori* infection**. Other agents include NSAIDs and alcohol.
- ***H. pylori* gastritis** typically affects the antrum and is associated with increased gastric acid production. In later disease, the body can be involved and the resulting glandular atrophy can lead to mildly reduced acid production. Host immune responses and bacterial characteristics determine whether the infection remains antral or progresses to **pangastritis**.
- ***H. pylori* gastritis induces mucosa-associated lymphoid tissue (MALT)** that can give rise to B cell lymphomas (MALTomas).
- **Autoimmune gastritis** is the most frequent etiology of noninfectious chronic gastritis. It results in atrophy of the gastric body oxyntic glands, which leads to decreased gastric acid production, antral G cell hyperplasia, achlorhydria, and vitamin B_{12} deficiency. Anti-parietal cell and anti-intrinsic factor antibodies are typically present.
- **Intestinal metaplasia** develops in both forms of chronic gastritis and is a risk factor for gastric adenocarcinoma.
- **Peptic ulcer disease** is usually secondary to *H. pylori* chronic gastritis and the resulting hyperchlorhydria. Ulcers can develop in the stomach or duodenum, and usually heal after suppression of gastric acid production and eradication of *H. pylori*.

Mucosal Atrophy and Intestinal Metaplasia

Long-standing chronic gastritis that involves the body and fundus may ultimately lead to significant loss of parietal cell mass. This oxyntic atrophy may be associated with intestinal metaplasia, recognized by the presence of goblet cells, and is strongly associated with increased risk of gastric adenocarcinoma. The risk of adenocarcinoma is greatest in autoimmune gastritis. This may be because achlorhydria of gastric mucosal atrophy permits overgrowth of bacteria that produce carcinogenic nitrosamines. Intestinal metaplasia also occurs in chronic *H. pylori* gastritis and may regress after clearance of the organism.

Dysplasia

Chronic gastritis exposes the epithelium to inflammation-related free radical damage and proliferative stimuli. Over time this combination of stressors can lead to the accumulation of genetic alterations that result in carcinoma. Preinvasive in situ lesions can be recognized histologically as dysplasia. The morphologic hallmarks of dysplasia are variations in epithelial size, shape, and orientation along with coarse chromatin texture, hyperchromasia, and nuclear enlargement. The distinction between dysplasia and regenerative epithelial changes induced by active inflammation can be a challenge for the pathologist, since increased epithelial proliferation and mitotic figures may be prominent in both. However, reactive epithelial cells mature as they reach the mucosal surface, while dysplastic lesions remain cytologically immature.

Gastritis Cystica

Gastritis cystica is an exuberant reactive epithelial proliferation associated with entrapment of epithelial-lined cysts. These may be found within the submucosa (gastritis cystica polyposa) or deeper layers of the gastric wall (gastritis cystica profunda). Because of the association with chronic gastritis and partial gastrectomy, it is presumed that gastritis cystica is trauma-induced, but the reasons for the development of epithelial cysts within deeper portions of the gastric wall are not clear. Regenerative epithelial changes can be prominent in the entrapped epithelium, and gastritis cystica can therefore mimic invasive adenocarcinoma.

Hypertrophic Gastropathies

Hypertrophic gastropathies are uncommon diseases characterized by giant "cerebriform" enlargement of the rugal folds due to epithelial hyperplasia without inflammation. As might be expected, the hypertrophic gastropathies are linked to excessive growth factor release. Two well-defined examples are Ménétrier disease and Zollinger-Ellison syndrome, the morphologic features of which are compared with other gastric proliferations in Table 17-5.

Ménétrier Disease

Ménétrier disease is a rare disorder associated with excessive secretion of transforming growth factor α (TGF-α). It is characterized by diffuse hyperplasia of the foveolar epithelium of the body and fundus and hypoproteinemia due to protein-losing enteropathy. Secondary symptoms, such as weight loss, diarrhea, and peripheral edema, are commonly present. Symptoms and pathologic features of Ménétrier disease in children are similar to those in adults, but pediatric disease is usually self-limited and often follows a respiratory infection. Risk of gastric adenocarcinoma is increased in adults with Ménétrier disease.

MORPHOLOGY

Ménétrier disease is characterized by irregular enlargement of the gastric rugae. Some areas may appear polypoid. Enlarged rugae are present in the body and fundus (Fig. 17-15*A*), but the antrum is generally spared. Histologically, the most characteristic feature is hyperplasia of foveolar mucous cells. The glands are elongated with a corkscrew-like appearance and cystic dilation is common (Fig. 17-15*B*). Inflammation is usually modest, although some cases show marked intraepithelial lymphocytosis. Diffuse or patchy glandular atrophy, evident as hypoplasia of parietal and chief cells, is typical.