AUTOIMMUNE ATROPHIC GASTRITIS

Leading the Way to Pernicious Anemia

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Autoimmune atrophic gastritis is characterized by chronic inflammation and eventual destruction of the stomach lining, which causes nutrient deficiencies and worse.

Atrophic Gastritis

Atrophic gastritis is a condition of chronic inflammation and atrophy (tissue destruction) affecting the stomach's mucosal lining. Over time, atrophic gastritis leads to a loss of the gastric glandular and chief cells, a subsequent breakdown of the mucosal lining, and an eventual replacement of the mucosa by intestinal and fibrous tissue.

Atrophic gastritis has two causes: 1) an autoimmune process targeting parietal cells or intrinsic factor and 2) environmental causes such as persistent infection with Helicobacter pylori bacteria or dietary factors. Recent evidence suggests that Helicobacter pylori can trigger the development of autoimmune atrophic gastritis through a process of molecular mimicry in which the bacterial organisms take on the appearance of parietal cells.

However, these two types of gastritis are distinct, with each disorder causing different tissue changes when biopsy samples are examined. In autoimmune gastritis tissue destruction is restricted to the gastric corpus and fundus, whereas infectious gastritis is a multifocal process with more extensive involvement of the strictures related to the gastric corpus and fundus. Atrophic gastritis associated with Helicobacter pylori is also less likely to cause symptoms and more likely to lead to the development of stomach cancer.

In autoimmune atrophic gastritis, autoantibodies cause destruction of the parietal cell mass that makes up the gastric mucosa. The autoimmune response causes an infiltration of white blood cells and the release of chemical cytokines that accelerate the disease process. Ultimately, the autoimmune response impairs the mucosal cells' ability to produce hydrochloric acid, digestive enzymes such as pepsin, and intrinsic factor, a substance needed for the absorption of vitamin B12.

Signs and Symptoms

Deficiencies of intrinsic factor lead to vitamin B12 deficiency and a condition of pernicious anemia. Deficiencies of hydrochloric acid (hypochlorhydria) induce the production of G (Gastrin producing) cells. Increased proliferation of G cells causes excess gastrin production, which in turn increases the risk for development of gastric polyps and gastric adenocarcinoma (stomach cancer).
Early in the course of the disease, symptoms rarely occur although mild symptoms of indigestion may be present. Autoimmune atrophic gastritis is the most frequent cause of pernicious anemia in temperate climates. The risk of gastric adenocarcinoma is reported to be at least 2.9 times higher in patients with pernicious anemia than in the general population. Patients with pernicious anemia are also at increased risk for esophageal squamous-cell carcinomas.

Autoimmune atrophic gastritis typically causes symptoms related to vitamin B12 (cobalmin) deficiency, including anemia, gastrointestinal symptoms, and neurologic symptoms including dementia. Megaloblastic anemia may develop, and rarely platelet deficiency (thrombocytopenia) may occur. Symptoms of anemia include weakness, light-headedness, vertigo, tinnitus, palpitations, angina and symptoms of congestive heart failure. Other symptoms include sore tongue, weight loss, irritability, mild jaundice, and heart enlargement.

**Diagnosis and Treatment**

Patients with autoimmune atrophic gastritis have high levels of antiparietal and antintrinsic factor antibodies (types 1 and 2 antibodies to intrinsic factor). These antibodies result in low levels of intrinsic factor and deficiencies of vitamin B12. Treatment of atrophic gastritis focuses on reducing inflammation and avoiding environmental triggers such as spicy foods and increasing levels of vitamin B12 and folic acid. Treatment for pernicious anemia, which is described in this link, ultimately reduces the symptoms caused by nutrient deficiencies.

**Incidence**

The frequency of atrophic gastritis is not known because chronic gastritis does not usually cause symptoms. Females are at higher risk for autoimmune atrophic gastritis with three times as many women affected as men. Patients with other autoimmune disorders, especially autoimmune thyroid disorders, are more likely to develop atrophic gastritis. Atrophic gastritis is the most common autoimmune disease to develop in patients with Graves' disease who have been treated with radioiodine.

Autoimmune atrophic gastritis is more frequent in individuals of northern European descent and in African Americans. It is much less common in people of southern European descent and in Asians. Atrophic gastritis is not usually detected until the 6th decade of life when symptoms of pernicious anemia develop. However, pernicious anemia has been detected in people of all ages.

**Resources:**

Antonia Sepulveda, Gastritis, Atrophic, eMedicine, March 22, 2006,  
http://www.emedicine.com/med/topic 851.htm

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