CLINICAL VIGNETTE

Atypical Presentation of Pernicious Anemia

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A 68-year-old female registered nurse presented with a 3-year history of epigastric abdominal pain. She described the abdominal pain as severe postprandial burning, occurring on a nearly daily basis, lasting up to several hours per episode, and partially relieved by self-induced vomiting. The pain became severe to the point of intermittently requiring oxycodone which partially reduced the pain. The patient also had significant anorexia with unintentional 30-pound weight loss. She denied any diarrhea, constipation, rectal bleeding, numbness, or paresthesia. She had a colonoscopy performed two years prior which showed diverticulosis.

The physical examination was unremarkable except for moderate discomfort at the epigastric area upon deep palpation. The patient underwent an abdominal computed tomography and ultrasound which revealed cholelithiasis with a positive sonographic Murphy's sign. The patient was evaluated by a general surgeon who recommended laparoscopic cholecystectomy but the patient deferred. The patient was then evaluated by gastroenterology. She underwent a barium swallow which showed normal appearing esophagus, stomach and proximal small bowel without radiographic evidence of mucosal lesion or mass, moderate to severe gastroesophageal reflux with Valsalva, and mild esophageal dysmotility. Her gastric emptying study was normal. The patient tried over-the-counter omeprazole without any significant improvement of her symptoms.

She underwent an upper endoscopy with biopsies which revealed a normal appearing esophagus and duodenum with atrophic gastric mucosal changes. Biopsies of the fundus showed severe oxyntic atrophy with extensive intestinal metaplasia, suspicious for autoimmune gastritis. No Helicobacter pylori (H. *pylori*) was detected. Subsequent laboratory testing for intrinsic factor blocking antibody was positive, and parietal cell antibody was normal Her complete blood counts have been normal with a normal mean corpuscular volume (MCV). Her vitamin B12 level was low at 94 pg/mL (69 pmol/L). Her methylmalonic acid was slightly elevated. The patient was started cyanocobalamin intramuscular injection therapy. Her gastrointestinal symptoms resolved shortly after initiation of vitamin B12 supplementation. She no longer had abdominal pain and gained back most of her weight within 4 months.

Pernicious anemia is the most common cause of vitamin B12 deficiency anemia in the world. It is an autoimmune disease characterized by autoimmune gastritis, megaloblastic anemia, the presence of antibodies to intrinsic factor (IFA) and parietal cell (PCA), and malabsorption of cobalamin in the terminal ileum related to intrinsic factor deficiency. Anti-parietal cell antibodies are found in 90% of patients with pernicious anemia, but have a low specificity since they are found in other autoimmune disorders.[1] In comparison, anti-intrinsic factor anti-bodies are found in only 60% of patients with pernicious anemia, but are considered highly specific for pernicious anemia.[1]

The clinical presentation of pernicious anemia is often insidious because patients typically get accustomed to the symptoms of anemia which is occurring gradually over time.[2] Our patient was diagnostically challenging because she did not present with the classic megaloblastic anemia. Carmel reported that anemia was absent in 19%, macrocytosis was absent in 33%, and both were absent in 14% of the patients with pernicious anemia.[3] Such absences were particularly common when vitamin B12 levels were only slightly or moderately low (74 to 184 pmol/L).[3] Normocytic anemia can result from a presence of a concomitant disease process associated with microcytosis, such as iron deficiency anemia or thalassemia.[3]

Pernicious anemia less commonly presents with neurological symptoms such as paresthesia, unsteady gait, clumsiness, spasticity.[4] Demyelination of white matter in the brain and spinal column leads to peripheral neuropathy, ataxia, bulbar dysfunction, and dementia.[5] Early diagnosis is crucial because the neurological lesions may not be reversible after prolonged periods.[4] The patient in this present case did not have any neurologic symptoms associated with vitamin B12 deficiency.

Lastly, our case is interesting in that the patient had predominantly gastrointestinal manifestations. Although the underlying etiology of pernicious anemia is atrophic body gastritis, it rarely presents with gastrointestinal tract symptoms.[2] Lahner et al. reported that only 3% of patients with pernicious anemia presented directly to a gastroenterologist for chronic dyspepsia.[2] Since upper gastrointestinal tract symptoms are often related to the excessive production of gastric acid, the lack of gastrointestinal symptoms may be explained by the association of pernicious anemia with hypochlorhydria.[2] One proposed mechanism for the upper gastrointestinal symptoms seen in pernicious anemia is that hypochlorhydria may lead to impaired gastric emptying with resultant dyspepsia, epigastric pain, postprandial bloating, and

early satiety.[2] Vitamin B12 deficiency results in several other abnormalities of the digestive tract. The tongue is usually smooth and beefy red because of atrophic glossitis. Involvement of small-bowel epithelium may result in malabsorption and diarrhea with weight loss.[6] Anorexia is an additional common complaint.[1] Recently Edward *et al.* reported a rare case of neurogenic dysphagia to solids and severe weight loss as sequelae from B12 deficiency resulting from pernicious anemia.[7]

Although our patient has other possible sources of abdominal pain, her rapid response and dramatic resolution of her long-standing symptoms to just vitamin b12 supplementation strongly support her symptomatology is directly related to cobalamin deficiency rather than a secondary etiology. The atypical combination of prominent gastrointestinal symptoms with the lack of the hematologic and neurological findings made the diagnosis of this particular case challenging.

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