Gastrointestinal manifestations and management of anisakiasis

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Anisakiasis is a parasitic disease of the gastrointestinal tract acquired by ingestion of raw fish containing stage 3 larvae. In the present report, we describe a patient who frequently ate raw fish who presented with acute onset of epigastric abdominal pain and a peripheral blood eosinophilia. His symptoms resolved with endoscopic removal of the nematode. Given the increasing consumption of raw fish in Western cultures, anisakiasis should be considered in patients with abdominal pain and a history of raw fish consumption.

CASE PRESENTATION

A 61-year-old, previously healthy man presented to the emergency department with a one-day history of severe constant, burning epigastric pain associated with nausea and vomiting. A dietary history revealed that he frequently consumed raw fish including salmon, trout, sushi and sashimi. His most recent ingestion was two weeks before presentation when he ate raw frozen salmon. On physical examination, he exhibited mild tenderness in his epigastrium.

Significant laboratory results demonstrated a white blood cell count of $11.3 \times 10^9/L$ with 13.3% eosinophils. An infused abdominal computed tomography scan showed mild small bowel dilation and circumferential wall thickening of the mid small bowel over a distance of 8.5 cm, and some thickening of the antral wall of the stomach.

Upper endoscopy revealed a serpiginous helminth 2.0 cm long with one end burrowed into the mucosal layer of the antrum (Figure 1). The surrounding mucosa was edematous and erythematous. Movement of the tail of this helminth was observed at endoscopy. The nematode was grasped gently with a biopsy forceps and freed from the mucosa (Figure 2). It was retrieved and sent to the parasitology laboratory, where it was definitively identified as *Anisakis simplex*, a gastrointestinal nematode. The endoscopy also revealed gastric erosions that had the appearance of having been infiltrated by a helminth (Figure 1).

The patient's epigastric pain resolved the day following the procedure. He received one dose of albendazole 400 mg orally for treatment of probable small bowel anisakiasis. His symptoms resolved completely. A follow-up computed tomography scan six weeks later demonstrated complete resolution of the previously apparent small bowel and gastric findings.

DISCUSSION

Anisakiasis is a human parasitic disease caused by eating undercooked or raw fish infected with stage 3 larvae of the nematode *Anisakis simplex* (1). It has been most frequently reported from areas where raw fish is consumed (eg, Japan) (2); however, given the increasing consumption of raw fish globally, has also been recognized in other parts of the world (3).

Gastric anisakiasis usually presents between 1 h and 12 h after ingestion of infected fish with the abrupt onset of nausea, vomiting, epigastric pain and low-grade fever (4). As was evident from our case, anisakis larvae may also invade the intestine and patients can present with small bowel obstruction or wall thickening on imaging (5); peripheral eosinophilia is common. Invasion of other gastrointestinal structures (colon, esophagus) is uncommon (6), as is intraperitoneal and pulmonary involvement. Endoscopic findings also include erythema, erosions, ulcerations, submucosal lesions and tumour-like mass (7). Definitive treatment includes removal of any larvae. Albendazole may be particularly effective in the setting of small bowel involvement (8). Prevention is the most important part of management and is achieved by proper cooking to 70°C or adequate freezing to -20°C for a minimum of 72 h (1).

A recent history of eating raw seafood followed by abrupt onset of abdominal pain, nausea, or vomiting and peripheral eosinophilia should raise the suspicion of anisakiasis. Definitive treatment is achieved by removing the parasite endoscopically.

Figure 1) Endoscopic image of stomach demonstrating *Anisakis simplex* (long arrow) erosion from *Anisakis simplex* (short arrow)

Figure 2) Endoscopic image of stomach demonstrating biopsy forceps removing *Anisakis simplex* (arrow)

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