Acute intestinal obstruction from small-bowel anisakiasis

A 57-year-old male patient with increasing abdominal pain accompanied by vomiting.

Imaging Findings:

A 57-year-old male patient presented to emergency with increasing abdominal pain within the last few days, accompanied in the last hours by vomiting. Abdominal examination revealed peristaltic sounds and diffuse tenderness. The WBC was 18, 14 x 10^9/L without eosinophilia and serum C-reactive protein was 53.4 mg/L. Contrast-enhanced CT showed small bowel obstruction with asymmetric and heterogeneous thickened walls in an ileal segment in the centre of the abdomen with intraperitoneal fluid (Fig. 1a, b). Laparotomy revealed ileal stenosis for the length of 10 cm, 15 - 20 cm from the ileocaecal valve, characterised by ulcerations of the serosal surface which excised. The postoperative course was uneventful. Histology showed inflammatory infiltration of the intestinal wall, with transmural extension. There was a mixture of lymphocytes, plasmacells, histiocytes and prevalence of eosinophils, suggesting parasitic disease. The final diagnosis was made by observing an oval-shaped complex “structure”, which was outside of the wall (Fig. 2).

Discussion:

The unexpected finding at the pathologic examination was an Anisakis larva; the patient was asked about his eating habits in more detail, and a history of a recent meal of raw fish was elicited. Anisakiasis is a parasitic disease caused by ingestion of larvae of the nematode “Anisakis simplex”. It is relatively common in eastern countries, where it is included in the differential diagnosis for acute, non-specific abdominal pain. When the disease is suspected, diagnosis confirmation can be obtained by an anti-anisakide antibody test. [1] The most frequent sites of parasitic intestinal involvement are the gastric wall and the small bowel; rarely colonic involvement has been reported. [2] In patients with gastric disease, endoscopy can be both diagnostic and therapeutic. [2] Small bowel involvement can be demonstrated by ultrasonography [3] and Computed Tomography (CT) showing concentric thickening and edema of the involved wall. [4] Conservative therapy can be curative for small bowel anisakiasis; surgery is rarely needed. [1] Pathologic changes induced by anisakis are: allergic reaction which ranges from isolated urticaria to life-threatening...
anaphylaxis shock and direct tissue damage with invasion of the gut wall and development of eosinophilic granulomas, ulcers or perforation. [2] Intestinal obstruction occurs only if there is involvement of the muscular layers. Gastric localised disease develops symptoms within 6-8 hours after ingestion of the larvae, while small bowel localisation develops symptoms after 48 hours. [1, 2]

Small bowel anisakiasis may be difficult to diagnose; many cases are considered undetected or misdiagnosed since symptoms are non-specific [5]; furthermore, given the time lapse between the meal and the pain onset, patients may not report raw fish ingestion. [1]

CT findings demonstrate thickening of the involved small bowel loop; typically the wall has a “target sign” appearance, due to a concentric oedema, with conservation of their multilayered structure [4, 6]; less frequently, CT findings can be non-specific, with prominent enhancement of the involved loops and lack of target appearance. [6] Globalisation of eating habits has increased the risk of anisakiasis worldwide. In low-prevalence countries doctors may not consider such a condition and patients may undergo surgery; Furthermore, in our case, the CT findings there were a non-specific submucosal oedema, with asymmetric thickening.

In conclusion, the most important and useful “tool” in the diagnosis of intestinal anisakiasis is awareness of its possible occurrence by both the emergency physician, who has to question the patient about ingestion of raw seafood, and the radiologist, who has to include it in the differential diagnosis list.

**Differential Diagnosis List:** Acute intestinal obstruction from small-bowel anisakiasis, Intestinal obstruction caused by foreign body, Small bowel inflammatory disease, Intestinal ischaemia

**Final Diagnosis:** Acute intestinal obstruction from small-bowel anisakiasis

**References:**


Description: Pathology showed inflammation of the whole small bowel wall, with serositis and submucosal oedema. The majority of inflammatory elements are eosinophils, pathognomonic for parasitic infestations. A larva is visible outside of the wall (arrow). Origin: Radiology Section, Department of Health Sciences (DISSAL), University of Genoa, Emergency Radiology, policlinico San Martino, Genoa, Italy
**Figure 2**

**Description:** Axial view: severe, submucosal oedema of the small intestine (arrow) with a small quantity of free peritoneal fluid, the proximal small bowel is dilated. **Origin:** Radiology Section, Department of Health Sciences (DISSAL), University of Genoa, Emergency Radiology, Policlinico San Martino, Genoa, Italy.
Description: The coronal reconstruction shows wall thickening of an ileal segment in the centre of the abdomen (arrow) with small bowel distension of the proximal intestinal loops. Origin: Radiology Section, Department of Health Sciences (DISSAL), University of Genoa, Emergency Radiology, policlinico San Martino, Genoa, Italy.