CASE OF THE MONTH

An unusual case of abdominal pain

G ANANTHAKRISHNAN, MRCS, FRCR and J FLINN, FRCP, FRCR

Clinical Radiology, Perth Royal Infirmary, Taymount Terrace, Perth PH1 1NX, Scotland, UK

Received 7 December 2009
Accepted 26 January 2010

DOI: 10.1259/bjr/22587841

© 2010 The British Institute of
Radiology

A 50-year-old Caucasian woman presented with sudden-onset lower abdominal pain with associated nausea and vomiting. There was a history of hysterectomy and treated breast cancer. Of note, the patient was a vegetarian and a keen traveller.

Plain radiography of the abdomen, blood tests and an ultrasound examination were unremarkable.

As the patient was still symptomatic, a contrast-enhanced CT of the abdomen was performed after administration of oral contrast (Figure 1). This showed a long tubular intraluminal lesion in the distal small bowel, which was outlined by oral contrast. Segments of this lesion were noted to be air-filled. No other significant abnormality was identified.

What is the abnormality and what is the diagnosis? What are complications associated with this condition?

Diagnosis

Tubular intraluminal lesion consistent with *Ascaris lumbricoides* infestation of the small bowel was diagnosed.

Small bowel obstruction is one of the commonest complications. Others include cholecystitis, cholangitis, pancreatitis, appendicitis and respiratory symptoms.

Discussion

It is estimated that 25% of the world's population is infected with *Ascaris lumbricoides* (intestinal roundworm), mostly people in developing countries [1, 2]. The clinical and radiological manifestations of *Ascariasis* are variable as the organism travels through many organ systems during its life cycle.

Respiratory symptoms are usually the first and occur after the larvae penetrate the intestinal mucosa, traverse the portal and hepatic veins, and finally settle in the

pulmonary alveoli [1]. Following this, the larvae migrate to the larynx and are swallowed. Larval maturation occurs in the small bowel and patients can present with abdominal symptoms.

Although many patients are symptom free during the intestinal phase of the disease, others can present with a variety of symptoms including nausea, vague abdominal discomfort, colicky pain, diarrhoea or obstruction. Migration of the worms into ducts may result in cholangitis, cholecystitis or pancreatitis [1, 3]. Blockage of the lumen of the appendix may lead to appendicitis.

CT diagnosis of *Ascariasis* was first described in 1994 [4], with few subsequent case reports. Reported findings describe a long tubular filling defect with a thin line of contrast occasionally seen in the gut of the worm [4, 5]. If

Figure 1. Coronal oblique CT image shows a partly gas filled intraluminal filling defect in the terminal small bowel, outlined by oral contrast.

Address correspondence to: Dr G Ananthakrishnan, Specialist registrar, Clinical Radiology, Perth Royal Infirmary, Taymount Terrace, Perth PH1 1NX, Scotland, UK. E-mail: ganapathy.ananthakrishnan@nhs.net

Figure 2. Axial CT of lower abdomen at the same level showing multiple rounded intraluminal filling defects, one of which is air-filled.

the worm is visualised perpendicular to the imaging plane, a “bull’s eye” appearance is seen [6]. Reports have also previously indicated that some of these worms can appear partly air-filled [7] (Figure 2). Diagnostic laparoscopy in our patient was normal.

Radiologists must be cautious about dismissing the finding as an artefact or a feeding tube without proper consideration. Although it is not common in developed countries, it should be suspected in patients with a history of travelling.

References

1. Reeder M, Palmer P. Infections and infestations. In: Freeny PC, Stevenson GW, editors. *Margulis and Burhenne’s alimentary tract radiology*. St. Louis: Mosby, 1994: 926–30.
2. Walsh JA, Warren KS. Selective primary care: An interim strategy for disease control in developing countries. *N Eng J Med* 1979;301:967.
3. Price J, Leung JW. Ultrasound diagnosis of ascariasis lumbricoides in the pancreatic duct: the “four-lines” sign. *Br J Radiol* 1988;61:411–13.
4. Hommeyer SC, Hamill GS, Johnson JA. CT diagnosis of intestinal ascariasis. *Abdom Imaging* 1995;20:315–16.
5. Beitia AO, Haller JO, Kantor A. CT findings in pediatric gastrointestinal ascariasis. *Comput Med Imaging Graph* 1997;21:47–9.
6. Lal A, Sood BP, Saxena A, Suri S. Intestinal ascariasis: a new CT sign. *Indian J Gastroenterol* 2002;21:88.
7. Rodriguez EJ, Gama MA, Ornstein SM, Anderson WD. Ascariasis causing small bowel volvulus. *Radiographics* 2003;23:1291–3.