Colonic obstruction and perforation related to heavy *Trichuris trichiura* infestation

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Abstract

Heavy *Trichuris trichiura* infestation is rare in developed countries, and complications requiring surgical intervention have been described rarely in human trichuriasis. A case of colonic obstruction and perforation related to heavy whipworm infection is described in an 84 year old woman. The woman was admitted to hospital because of a chest infection. Two days after admission she suffered nausea and vomiting followed a day later by bowel stoppage. Laparotomy indicated intestinal obstruction by a tumour. A partial right sided ileocelectomy was performed. Pathological examination of the resected bowel revealed heavy infestation with *T trichiura* causing a pseudotumour following a proliferative inflammatory response.

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Keywords: *Trichuris trichiura* infestation; colonic obstruction

An 84 year old woman was admitted to a medical ward following bronchus infection. On admission, she was in poor condition, with cough, purulent expectoration, and profound dehydration. Abdominal examination revealed meteorism, without guarding and bowel stoppage. There was no abdominal pain.

Laboratory investigations revealed extra-renal azotaemia, iron deficiency, normocyte anaemia, and normal total leucocyte concentration without eosinophilia.

The patient had no relevant medical history, except diabetes controlled by diet, phlebitis, and arteritis of the lower limbs. She had suffered portal hypertension syndrome during a hospital stay one year earlier. Abdominal

echography did not show any detectable lesions except an atrophic gall bladder.

Two days after admission the patient suffered nausea and vomiting, and bowel stoppage one day later. Abdominal x ray revealed numerous air–fluid levels on the jejunum, suggesting an ileocaecal obstruction. The patient was transferred to the surgical ward and was operated on two days later. A laparotomy was performed, confirming the intestinal obstruction by a tumour, with effusion and pseudo-membranous exudate. A mass resembling a neoplasm of the ascending colon, with abscess and perforation, was discovered. A partial right sided ileocelectomy was performed. No mesenteric lymph nodes were found. Postoperative recovery was uneventful.

Pathology

GROSS

Forty centimetres of the right bowel were excised with 19 cm of small bowel. The lesion was located in the caecum, which showed an irregular thickening of the wall. A fissural perforation was discovered with an abscess near the appendix, without evident tumour. The distal part of the appendix was normal. The mesothelium was covered with membranous exudate around the perforated area.

On the surface of the mucosae we discovered numerous white thin formations about 35 mm long with a thin anterior part. Some of them seemed to be partly stuck in the mucosae (fig 1). None was found in the small bowel.

MICROSCOPIC

Samples were taken from the perforated area. The external side of the perforation was covered with fibrin and purulent exudate. Deep in the wall there was an inflammatory cell infiltrate consisting on histiocytes, giant cells, plasma cells, lymphocytes, neutrophils and some eosinophils, and an extensive fibrosis in the peritoneal layer. The white thin formations discovered macroscopically were worms, some of which were partially embedded in superficial mucosal chorion (fig 2). Some amorphous debris was found inside granulomas. A few inflammatory lymph nodes were also found.

Numerous worm sections were examined. The size and the morphological features of the worms (body wall, presence of a stichosome, typical intrauterine eggs) were consistent with the genus *Trichuris*. Twenty mature intrauterine eggs were measured; their lengths ranged from 50–54 µm (mean 52 µm) and their widths from 22–25 µm (mean 24 µm). These values are within the lower limits for eggs of the

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Figure 1 Numerous white thin formations on the surface of the mucosae (whipworms).

Figure 2 Transverse section of anterior portion of *Trichuris trichiura* embedded in superficial colonic mucosae. (Haematoxylin and eosin; original magnification $\times 400$).

human worm *Trichuris trichiura*, excluding any zoonotic infestation (from *T suis* or *T vulpis*).¹

Epidemiological data

A short retrospective epidemiological study was done to explain this unusual heavy *T trichiura* infestation. The patient was living in very bad conditions. She did not like cooking or washing, and she regularly ate a lot of raw vegetables, which she bought mainly from the local market. Her daughter and her son-in-law sometimes gave her vegetables from their garden, and stool examinations for them were negative; therefore, the origin of the infestation could not be determined.

Discussion

Trichuriasis is now sporadic in France; ova of *T trichiura* are found in about 1% of the stool specimens examined because of diarrhoea in northern France, similar to the prevalence in the USA.²⁻³ Most patients harbour a low worm burden, and heavy infestations are now rarely seen in France. Heavy *T trichiura* infections are often associated with a colitis termed the trichuris dysentery syndrome (TDS).⁴ It occurs mainly in tropical countries in children who pass bloody stools and may present with rectal prolapse and growth retardation.⁴⁻⁵ Usually, histopathological studies of the caecal mucosa of children with TDS show only minor changes but, in some cases, the mucosa may bleed and be damaged or ulcerated, particularly in the immediate vicinity of the worms.⁴⁻⁵

Apart from a debated relation with some cases of appendicitis, complications requiring surgical intervention are rare in trichuriasis.⁵ Two cases of acute ileocolic or caecocolic intussusception have been related to heavy *T trichiura* infestation.⁶⁻⁷ Trichuriasis has been associated with a granulomatous tumour of the colon⁸⁻⁹ and with intestinal lymphangiectasia.¹⁰ One case of perforated acute appendicitis in human trichuriasis has been reported,¹¹ as well as a case of perforation of the caecum because of obstruction of the ileocaecal valve.¹² It is difficult to ascertain how the heavy *T trichiura* infestation led to those complications, and we cannot exclude coincidence. Therefore, such cases have to be reported to question the potential of heavy *T trichiura* infestation to cause in few patients (maybe with decreased local immunological defences) intense local irritation with pseudotumoral formation, spasm of the intestinal wall or deep ulcerations. The pseudotumour in the present case resulted from a proliferative inflammatory response following intense parasitic infestation.

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