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A 25-Year-Old Woman from Egypt With Severe Chronic Diarrhoea and Malabsorption

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Clinical Presentation

History

A 25-year-old woman from Bani Suwaif in Upper Egypt (115 km south of Cairo) presents to a hospital in Cairo complaining of severe diarrhoea for 2 months accompanied by weight loss of about 15 kg and amenorrhoea. The symptoms started with stomach rumbles and colicky abdominal pain; later on, she suffered anorexia and vomiting. The diarrhoea is voluminous, not related to meals, and occurs both during the day and at night (five to ten times in 24 hours).

She received various antibiotics, including metronidazole, as well as antidiarrhoeal drugs, without any improvement. During the last month she has developed lower limb swelling and severe prostration.

Clinical Findings

The patient appears generally unwell; she is pale and has angular stomatitis. She is afebrile, heart rate 100 bpm, blood pressure 100/60 mmHg, scaphoid abdomen with borborrygmi, pitting oedema of the lower limbs, and decreased skin turgor.

Laboratory Results

Laboratory results are summarized in Table 58.1. D-xylose test shows evidence of malabsorption. On stool microscopy, numerous helminth ova are detected (Fig. 58.1).

Questions

1. Which helminth is causing the patient's clinical problems and why is it able to cause such severe infections?
2. Where does this parasite occur and how is it transmitted?



• **Fig. 58.1** Helminth ova in a stool sample of a 25-year-old woman from Egypt with chronic diarrhoea.

TABLE 58.1 Laboratory Results on Admission

Parameter	Patient	Reference
Potassium (mmol/L)	2.8	3.5–5
Sodium (mmol/L)	127	136–145
Calcium, total (mmol/L)	2.1	2.25–2.63
Albumin (g/L)	23	35–55
Haemoglobin (g/dL)	10.8	11.5–15.5
WBC ($\times 10^9/L$)	6.6	3.8–11
Eosinophil count ($\times 10^9/L$)	0.53	<0.45
Platelets ($\times 10^9/L$)	350	150–350
Creatinine ($\mu\text{mol/L}$)	115	53–106

Discussion

A 25-year-old woman from Upper Egypt presents with severe chronic diarrhoea and colicky abdominal pain. She is afebrile but shows clinical signs of chronic malabsorption. Full blood count reveals mild eosinophilia, blood chemistry shows electrolyte derangement and hypoalbuminaemia. Stool samples yield peanut-shaped helminth eggs.

Answer to Question 1

Which Helminth is Causing the Patient's Clinical Problems and Why is it Able to Cause Such Severe Infections?

The peanut-shaped eggs spotted on stool microscopy are typical ova of *Capillaria philippinensis*. The patient's complaints are very compatible with intestinal capillariasis, and she resides in an endemic area. In contrast to most other intestinal helminths, *C. philippinensis* is able to multiply within the intestine of its final host causing long-lasting infection and severe clinical manifestations.

Answer to Question 2

Where Does this Parasite Occur and How is it Transmitted?

C. philippinensis is endemic in various East and South-east Asian countries such as The Philippines, Thailand, Laos, China, Korea, Japan and Taiwan. Furthermore, cases have been reported from Egypt, Iran and India. Sporadic cases may occur elsewhere. One indigenous case has been reported from Cuba and another patient acquired the infection most probably in Colombia. Capillariasis is transmitted through consumption of raw or undercooked fish.

The Case Continued...

The patient was admitted to hospital. Albendazole was initiated at a dose of 400mg bd and continued for 3 weeks. Oral and parenteral fluids and electrolytes were given for resuscitation, and she received a high protein diet and vitamins. During the first days of treatment, numerous adult helminths (length 3–5 mm) were found in more stool samples (Fig. 58.2). The patient's general condition improved significantly within the first week and vomiting stopped. Diarrhoea subsided after 2 weeks of treatment.

SUMMARY BOX

Intestinal Capillariasis

Intestinal capillariasis is a zoonotic disease caused by *C. philippinensis*, a tiny nematode usually infecting fish-eating birds, which



• Fig. 58.2 Adult *C. philippinensis* in the patient's stool sample during treatment with mebendazole.

recently has been transferred to the genus *Paracapillaria*. Humans are accidentally infected when eating raw or undercooked small fresh- or brackish-water fish harbouring infective larval stages of the parasite. Adult parasites invade the wall of the small intestine and live partially embedded in the mucosa of jejunum and ileum. The unique life cycle includes an alteration of oviparous and larviparous females. Oviparous females shed thick-shelled eggs, which exit the body with the stool and, after being eaten by small fish, develop into the infective larvae. Larviparous females contain thin-shelled eggs, which mainly hatch *in utero* and permit an internal autoinfection and multiplication cycle, i.e. larvae develop into adults within the intestinal mucosa without leaving the host. This leads to a gradual increase of both worm burden and severity of clinical manifestations. With its autoinfection cycle, the parasite is one of the few intestinal helminths causing chronic and life-threatening infections. Patients present with colicky abdominal pain and intermittent or chronic diarrhoea accompanied by anorexia, vomiting and dehydration. Without treatment, infection progresses to severe enteropathy with crypt atrophy and flattening of villi. Chronically infected patients suffer cachexia and pitting oedema of the lower limbs. Untreated, they may eventually die of severe protein loss, electrolyte imbalance and concomitant bacterial infections. Parasitological diagnosis relies on the demonstration of typical peanut-shaped eggs in stool samples, which have protruding polar plugs on both ends and measure 36 to 42 × 20 µm. Treatment is with mebendazole or albendazole for 20 or 10 days, respectively.

Further Reading

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3. Attia RAH, Tolba MEM, Yones DA, et al. *Capillaria philippinensis* in Upper Egypt: has it become endemic? *Am J Trop Med Hyg* 2012;86(1):126–33.
4. Cross JH. Intestinal capillariasis. *Clin Microbiol Rev* 1992;5(2):120–9.