A 57-Year-Old Woman With a Cecal Mass

Diagnosis: Chronic hepatointestinal schistosomiasis.

Gross examination of the right colon revealed an exophytic polypoid mass extending from the cecum into the appendix (Figure 1). Histologic examination revealed a tubulovillous adenoma with a few areas of high-grade dysplasia. Also noted were numerous ovoid to round parasitic ova with well-defined outer walls, some of which were calcified. Ova were primarily located in the submucosa (Figures 2 and 3) and were present within small vascular profiles. Mild associated fibrosis was seen, but prominent associated inflammation was not a feature. The ova, which measured 40–60 µm across and lacked a spine or knob, were morphologically consistent with *Schistosoma mekongi*. An anterior liver capsule biopsy (Figure 4) showed a few *Schistosoma* ova, reactive fibrosis, and degenerative changes consistent with localized ischemic injury but without evidence of malignancy.
*Schistosoma mekongi* are intravascular trematodes that flourish wherever freshwater bodies create habitats for the snail intermediate host. When cercariae, in infested water, come in contact with mammals, the definitive hosts, they penetrate skin directly. *Schistosoma mekongi* ova are predominantly found in the intestinal tract as adult worms migrate against portal blood flow to the mesenteric venules of the small and large intestine. Ova penetrate through the vasculature into the intestinal lumen to be shed into feces [1]. Colon polyps arise due to granulomatous inflammation surrounding eggs embedded in the bowel wall, as in the present case.

Our patient emigrated from Pakse City, along the Mekong River in southern Laos, where she lived for 47 years. She recalled frequent travel to neighboring villages where she participated in rice planting. She denied a prior diagnosis of schistosomiasis. Direct fecal and urine examination were negative for ova or parasites. Serologic testing for antischistosomal antibody was negative as well.

Clinical presentations of hepatointestinal schistosomiasis range from asymptomatic to acute or chronic disease. In some patients, cercarial skin penetration causes a maculopapular dermatitis known as “swimmer’s itch.” Acute schistosomiasis or Katayama syndrome presents 4–8 weeks after exposure and tends to occur in nonimmune travelers, rather than the natives of endemic areas who are usually asymptomatic. It is a transient hypersensitivity reaction associated with migration and maturation of the *Schistosoma* larvae, ovipositioning, and release of egg antigens. Manifestations include fever, cough, fatigue, myalgias, arthralgias, urticaria, angioedema, headache, self-limited diarrhea, and abdominal pain [1–4].

Chronic disease can be asymptomatic, or cause severe morbidity and mortality as result of protein manifestations including periportal fibrosis leading to liver cirrhosis, portal hypertension, and resultant esophageal varices. In the lower gastrointestinal tract, colitis, ulceration, polyp formation, bowel strictures, and occult blood loss with resultant iron deficiency anemia can occur [4]. Colorectal schistosomiasis inciting chronic inflammation can be a precursor to dysplasia and cancer. Differences in expression of the DNA mismatch repair genes hMLH1 and hMSH2 have been implicated in *Schistosoma*-associated colorectal cancer compared with sporadic colorectal cancer [5]. Patients with *Schistosoma*-associated colorectal malignancy tend to have higher CA19-9 and CA-125 levels, and lower hemoglobin, compared to patients with non-*Schistosoma* colorectal cancer. [6]. Rare cerebral infection has been reported with *S. mekongi* and is believed to be secondary to worm migration via the vertebral venous plexus or the portosystemic circulation [7, 8].

Sensitivity of available diagnostic tests for hepatointestinal schistosomiasis depends on the stage of disease and the intensity of parasite burden. Direct parasitological examination of feces after concentration techniques may be useful when the worm burden is high. In travelers who have comparatively light infection and acute symptoms, this method may not be helpful. Ova can sometimes be detected by direct microscopy of rectal biopsies. Numerous serological tests exist to detect circulating antibody but are not species specific. Additionally, they do not distinguish active infection from past exposure, do not determine infection intensity, and sometimes take >3 months to become positive [1, 4]. Occasionally, in egg-excreting immigrants with long-standing infection, serum antibody tests may be negative [4]. Detection of *S. mekongi* circulating cathodic antigens and *S. mekongi* circulating anodic antigens in urine has been described but is awaiting wider-scale community testing to evaluate accuracy [1], as are polymerase chain reaction–based assays that detect parasite DNA [9]. Indirect diagnostic predictors of schistosomiasis such as eosinophilia and a raised immunoglobulin E level lack sensitivity to be useful as a marker of active infection but can be used to raise suspicion [4].

Effective treatment results have been obtained with a single dose of praziquantel 60 mg/kg divided 3 times a day, but retreatment in 4–6 weeks is necessitated due to a lack of larvicidal activity. Glucocorticoids are sometimes necessary to prevent the hypersensitivity reaction to schistosomal antigen release that occurs after ingestion of praziquantel in neuroschistosomiasis and for patients in the acute phase of infection who have an exacerbation of symptoms [3, 4, 10, 11].

In the case of our patient, after the hemicolecotomy with histology revealing the presence of *S. mekongi*, she was treated with praziquantel 60 mg/kg and was given a second dose 3 months later. She remains free of gastrointestinal symptoms and her anemia has resolved; however, her hepatic cirrhosis remains an ongoing problem.

**Note**

**Potential conflicts of interest.** All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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