Strongyloidiasis Presenting as Yellowish Nodules in Colonoscopy of an Immunocompetent Patient

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CASE REPORT

An 84-year-old man presented to our hospital for an upper endoscopy due to dyspepsia. Esophagogastroduodenoscopy (EGD) detected erythematous gastric mucosa with an irregular margin, and biopsy revealed early gastric cancer. He therefore underwent endoscopic submucosal dissection (ESD). Approximately 6 months later, with no symptoms, he...
attended the hospital again for a follow-up and also requested a colonoscopy because he had no colonoscopy experience. His physical examination was normal except mild conjunctive anemia. No abdominal pain (direct or rebound tenderness) was detected.

The results of peripheral blood tests were as follows: hemoglobin 10.0 g/dL, hematocrit 33.2%, and white blood cell count 9,530/mm³ (neutrophils 41.2%, lymphocytes 26.3%, and eosinophils 25.4%). The total eosinophil count was 2,420.62/mm³ (normal range of total eosinophil 40–500/mm³ [1%–6%]), and the platelet count was 261,000/mm³. Other data were as follows: blood urea nitrogen 29.9 mg/dL, creatinine 1.0 mg/dL, total protein 6.9 g/dL, albumin 4.0 g/dL, total bilirubin 0.7 mg/dL, aspartate aminotransferase 18 IU/L, alanine aminotransferase 10 IU/L, sodium 138 mEq/L, potassium 4.4 mEq/L, calcium 8.9 mg/dL, prothrombin time 12.0 s, and activated partial thrombin time 33.1 s. Urinalysis was normal. He had no history of receiving glucocorticoid therapy and was negative for HIV. There was no evidence of recurrence at the ESD site, and no metastasis to lymph nodes or other organs was detected in an abdominal computed tomography scan.

Fig. 1. Colonoscopic findings showing (A) multiple yellowish nodules and polyps in the ascending colon, and (B) yellowish nodules were found on the top of a polyp (before treatment). (C) The nodules disappeared after treatment.

Fig. 2. Histological findings. Numerous cross-sectioned filariform larvae (arrow) with distortion of crypts and diffuse eosinophilic infiltration are visible in the lamina propria of the colon (hematoxylin and eosin, ×200).

Diffuse atrophic gastritis was observed during the EGD, and an ESD scar was seen at the lesser curvature side of the lower body; the duodenum was normal. Edema of the right colon (especially the ascending colon) wall with multiple 10–20 mm polyps and 0.5–1 mm diffuse yellowish-white nodules were seen during the colonoscopy in the ascending colon. Twenty-four colonic polyp specimens were removed by endoscopic mucosal resection or polypectomy through the ascending colon (Fig. 1). Yellowish nodules were found on the top of the polyps, and polypectomy was performed. A pathological examination revealed filariform larvae and eosinophilic infiltration in the mucosal layer of the ascending colon (Fig. 2). After taking 400 mg albendazole for 3 days, the S. stercoralis larvae and yellowish nodules were not seen at a year follow-up colonoscopic random biopsy, and his eosinophil count returned to the normal range as 661.8/mm³ (6%).

DISCUSSION

Strongyloidiasis can have many colonoscopic features, such as loss of the vascular pattern, erythema, and mild edema to ulcers, erosions, and yellowish-white nodules. If S. stercoralis infects the colonic mucosa, eosinophils will collect and form granulation tissue on the mucosal surface. Dense eosinophilic infiltrations may appear macroscopically as yellowish-white nodules. These nodules are a strong indicator of strongyloidiasis colonic involvement compared to other nonspecific characteristics. At a single center on an endemic island of Japan, a study found that colonoscopic findings, such as yellowish-white nodules, and biopsies could be useful to diagnose asymptomatic strongyloidiasis. To the best of our knowledge, this is the first case report of yellowish-white nodules during a colonoscopy in a case of strongyloidiasis in Korea.

S. stercoralis can infect both immunocompromised and immunocompetent hosts. Most cases of strongyloidiasis have
mild symptoms or are asymptomatic (30%), but hyperinfec-
tion can be very severe and results in death in 60% of cases.10
This infection involves different organs in the host. For exam-
ple, S. stercoralis present in the gastrointestinal tract can cause
vomiting, diarrhea with abdominal pain, and hyponatremia,
even in young men.11 It can produce mild upper respiratory
symptoms, cough, sputum or diffuse alveolar hemorrhage,
and severe hypoxemia after infecting the lung.12 Chronic ane-
mia can also result from strongyloidiasis-related disease in
hepatic cirrhosis patients with severe alcoholism.6

Diagnosis of S. stercoralis hyperinfection can be difficult to
confirm. In a previous study, the Kato-Katz technique, stool
microscopy, the Baermann technique, and Koga agar plate
cultures were used to detect S. stercoralis infection; howev-
er, these methods are inadequate because of low sensitivity.
Serological testing has higher sensitivity and is useful for
follow-up diagnosis.13 The luciferase immunoprecipitation
system technique and enzyme-linked immunosorbent assay
(ELISA) coproantigen detection tests are promising assays
with 100% specificity, but they require further evaluation to
confirm their efficacy in predicting infection.14 Only 2% of
S. stercoralis infections are detected by an EGD.15 Eggs and
adult worms have been seen in the duodenum, and larvae
have been observed in the small intestine.6 Capsule endoscopy
may be useful to detect larvae in the small intestine, but it
is expensive. In the present case, a stool examination and ELISA
were not used for the initial diagnosis; the patient showed
no symptoms, so parasitic infection was not suspected at that
time. Statistically, 25% of infected patients produce a negative
result for these tests.16 We found S. stercoralis filariform larvae in
histological sections from a colonoscopic biopsy (Fig. 2).
A previous case report detailed S. stercoralis infection in an
immunocompromised host with a risk factor of high-dose
steroids, which was diagnosed by colonoscopic biopsy of mul-
tiple polyps in diffuse pancolitis.17 A case of pancolitis with
strongyloidiasis has been reported in an immunocompetent patient.7
Strongyloidiasis has also been diagnosed by capsule
endoscopy in an immunocompetent host. However, in those
cases, both patients had abdominal pain and severe diarrhea,
whereas our patient was asymptomatic.5

The strongyloidiasis treatment of choice has been thiaben-
dazole 25 mg/kg/12 h for 3 consecutive days; however, a single
dose of 15 mg ivermectin is currently being used because of
better tolerability and similar efficacy.18 Our patient received
400 mg albendazole orally for 3 days and was cured without
complications.

In conclusion, we report a case of S. stercoralis infection
involving the ascending colon in an immunocompetent host,
with specific yellowish-white nodules. If a patient has yel-
lowish nodules in the colon, a biopsy should be performed to
detect strongyloidiasis and prevent a hyperinfection.

Conflicts of Interest

The authors have no financial conflicts of interest.

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