

CASE REPORT**SCHISTOSOMA MANSONI COLITIS PRESENTING WITH PRECANCEROUS LESION: A CASE REPORT FROM ETHIOPIA**Hailemichael Desalegn MD^{1*}, Tufa Gemechu MD²**ABSTRACT**

Chronic colitis is one of the chronic manifestations of Schistosoma. The association between schistosomiasis and colorectal pre-malignant adenomatous polyps and cancer is well established for Schistosoma japonicum but not for Schistosoma mansoni. Here we report a patient presenting with chronic diarrhea who has no established diagnosis with routine tests for 3 years. The colonoscopy image also masquerade other inflammatory and infectious colitis and the diagnosis was possible with collaboration of the pathologist and evaluation of the samples. He was identified to have colonic schistosomiasis coexisting with adenomatous polyp. This association strengthens the importance of collaboration with pathologist. It also stimulates further discussion on one of the neglected tropical disease and discussion on the possible role of infections in the development of cancer.

Key words : Schistosomiasis, Colitis, Ethiopia

INTRODUCTION

Schistosomiasis is a parasitic disease that leads to chronic infection. The disease is prevalent in 75 countries of the world (1). Globally 200 million people are infected with schistosomiasis; 85% of the cases are found in Africa, with over 700 million people living under conditions favoring transmission (2). In Ethiopia and Eritrea, the population living under the risk of infection, the prevalence of *Schistosoma mansoni* was estimated to be 19 million (3). There are three major species; *S. mansoni* endemic in Africa, *Schistosoma Japonicum* in Southeast Asia and *Schistosoma haematobium* in Africa and the Middle East. *S. haematobium* infection has been implicated as a cause of bladder cancer, however, pre-malignant conditions and colorectal cancer in association with schistosomiasis lacks sufficient evidence in the literatures. Moreover, the links are from *S. japonicum* and very few reports from *S. mansoni* (4).

We present a patient presenting with chronic diarrhea which was not diagnosed in routine laboratory tests and with a colonoscopy picture that mimics inflammatory bowel disease / non specific infectious colitis and later diagnosed with histology to be colonic schistosomiasis in association with adenomatous

polyp. Adenomatous polyp presenting in association with colonic schistosomiasis is generally rare globally and to the author's knowledge no case has been reported in Ethiopia. Hence, we present the case description followed by discussion of the literatures.

CASE REPORT

A 20-yearold gentleman presented to Yerer Hospital-gastrointestinal (GI) unit after referred for specialist consultation with undiagnosed chronic diarrhea of three years duration. He has diffuse colicky abdominal pain with bloating and bowel habit changes. This was exacerbated by food intake and relieved by defecation and flatus emission. Symptoms were associated with several bouts of nausea and vomiting. He also reported constipation alternating with several episodes of mucous in stool, and since a month has noticed episodes of rectal bleeding. He complains tenesmus and anal pain. He denied fever, anorexia but complains to have unquantified 'moderate weight loss. .He has no family history of similar illness and no known colorectal cancer in the family. For the above complaints, he visited different health institutions where he was treated multiple times with oral antibiotics-ciprofloxacin and metronidazole and anti helmenthics. On physical examination, generally he is chronically sick looking, vital signs are within

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normal limits. His BMI is 18 kg/m² showing sign of under-nutrition. He was investigated with blood tests, stool exam, urine analysis, imaging and then subjected to endoscopy procedures and biopsy. He had borderline iron deficiency anemia (with Hgb/HCT result of 11.3/33.7 and MCV of 79 fL); the results of his urine and stools tests were normal. Serology for retroviral infection (HIV test) was non-reactive.

Abdominal ultrasound had revealed no abnormalities. Colonoscopy evaluation showed hyperemic patches of mucosa with areas of multiple small ulcers that start from the rectum with scattered distribution to other segments of the colon. There was also pedunculated polyp at the distal part of the left / descending/ colon which was biopsied and sent for histologic examination. The ileum was unremarkable (Fig. 1a and 1b.). Multiple biopsies were taken from different segments of the colon, rectum and terminal ileum and sent for histology diagnosis.

The histologic diagnosis was unexpected for the gastroenterologist, as it was showing adenomatous polyp in the colon associated with heavy infestation with *S. mansoni* (Fig. 1-2). At this time in response to further question on his personal history, he said that, he used to live in Gonder and during his childhood he had a river water contact as he used to swim in river and uses the river to wash his clothes and for bathing.

The patient was then treated with a dose of praziquantel, iron supplementation and nutritional support. The polyp was removed with snare and patient scheduled for surveillance colonoscopy. When he was evaluated on follow-up, he has marked improvement with no abdominal discomfort and has improved appetite, bowel habits and strength.



Fig. 1.a. Hyperemic patches of mucosa with areas of multiple small ulcers



Fig. 1.b. Colonic pedunculated polyp

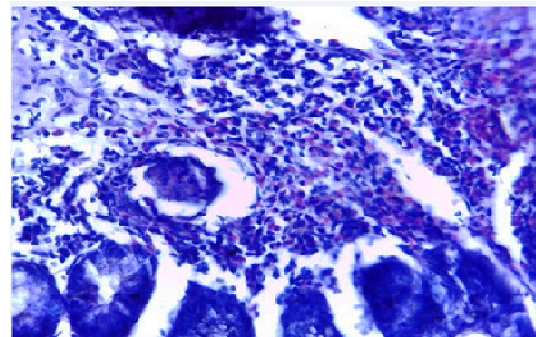


Fig. 2.a

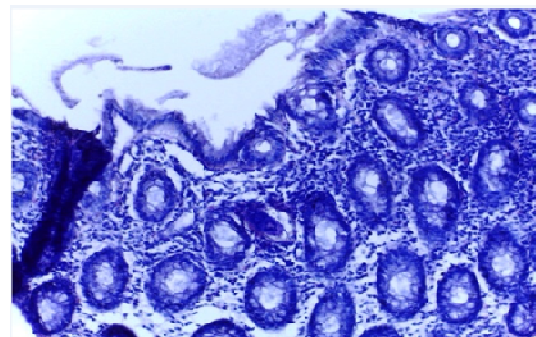


Fig. 2.b

Fig. 2. and 2.b. shows Colonic mucosa showing irregular luminal border. Crypts are focally increased in number and exhibit morphologic features of adenomatous polyp with low grade dysplasia. Abundant eosinophilic epithelioid granuloma around calcified *S. mansoni* ova in the mucosa.

Conclusion: Adenomatous polyp and *S. mansoni* infection (heavy infestation).

DISCUSSION

Schistosomiasis is one of the neglected diseases which are prevalent in developing countries. Studies in Ethiopia at different cities in school children have shown increased magnitude of the disease that could reach up to 90 %. These show the importance of periodic deworming in high risk areas. (4-8).

In endemic areas, children carry the largest burden of the disease and characteristics of acute schistosomiasis are rarely seen; however, the adult population carries the chronic form of the disease characterized by periportal fibrosis, hepatomegaly, splenomegaly, portal hypertension with upper gastrointestinal bleeding due to varices (9).

Ethiopian studies led by Abebe et al. have identified hepato-splenic schistosomiasis as one of the common chronic manifestation of the disease (8). Most transmission sites for *S. mansoni* infections are in agricultural communities along streams between 1300 and 2000 m altitude infested with *Biomphalaria pfeifferi*, the major snail intermediate host. *S. mansoni* transmission above 2200 m and below 800 m is precluded in many parts of Ethiopia by low and high water temperatures, respectively. Water resources development, resettlement programs, refugee migration and other population movements may result in the spread of endemic *S. mansoni* (10).

The severity and manifestation of schistosomiasis is dependent on the duration and intensity of infection, the location of egg deposition and concurrent infection. In individuals from endemic areas, initial infection goes unnoticed. The eggs cause damage to the liver, intestinal tract and other complications as a result of chronic inflammation caused by cellular reaction to the eggs in the tissue. Host reaction to eggs lodged in the intestinal mucosa leads to the formation of granulomata, ulceration, and thickening of the bowel wall. Large granulomata cause colonic and rectal polyps (9). The colonic involvement can occupy all segments. Sandy patches develop when the submucosa becomes densely thickened by fibrous tissue containing immense numbers of calcified eggs; overlying mucosa becomes atrophic and acquires a granular dirty yellowish appearance. The overlying mucosa is either denuded forming small superficial ulcers or undergoes hyperplastic changes. Schistosoma colonic polyposis mainly affects adult males and patients present with wide range of manifesta-

tions including tenesmus, blood and mucus in stool, abdominal discomfort, weight loss and iron deficiency anemia (9). The diagnosis of schistosomiasis is made with stool exam and in difficult cases where there is high density of eggs; rectal snip can help in diagnosis, Kato smears, serology, and biopsy from colo-rectal lesions.

Helminth related colonic malignancy including due to schistosomiasis is related to chronic inflammation that can generate nitrogen species and free radicals. These can damage and oxidize DNA and lead to genetic instabilities and may evolve into ova polyps, proliferative polyps, atypical epithelial hyperplasia and neoplastic transformation. (11) In a study that compares histopathologic and genetic changes between schistosoma associated colitis induced colorectal carcinoma (SCC) with non-schistosomal related colon cancer, an association between schistosomiasis and alterations in P53 activation was found as an inciting event in cancer development. Furthermore, schistosomal colitis were more commonly associated with earlier onset, multicentric colorectal cancer, higher percentage of mucinous adenocarcinoma and presents with advanced stage (12)

The case presented in this report has both clinical features of ulceration and nodularities. He has the clinical symptoms since the last three years leading to anemia and malnutrition. The diagnosis was not confirmed for the periods due to inappropriate methods used. The presence of rectal bleeding also warrants endoscopic evaluation.

Diagnosing colonic schistosomiasis may not be easy with simple non-invasive tests. This is why a good collaboration between a clinician and a pathologist is of importance. The presence of adenomatous polyp which is a premalignant condition in association with *S. mansoni* is rare. The presence of inflammatory changes with polyp has been usually considered as inflammatory. In a study done in Jiangsu province, China; prevalence of infestation with *Schistosoma japonicum* was highly correlated with colorectal cancer (13). In the Far East, considerable evidence supports an etiologic link between *S. japonicum* and colorectal cancer. However, the available data regarding the role of *Schistosoma mansoni* in colorectal carcinogenesis are conflicting (14). From 638 patients with abnormal colonoscopy in Riyadh Armed force general hospital, sixty eight had adenomatous polyps and 32 had rectal or colonic malignancy, in two of which *Schistosoma mansoni* ova was also seen in their colonic biopsies (15).

In a hospital based study in Uganda and Zimbabwe, Waku and colleagues compared 950 cases of infective gastrointestinal disease from which colorectal cancer was found in 34 patients; nearly all of them had chronic schistosomiasis or amebiasis, whereas no colorectal cancer case was detected in other patients or control groups. Hence, they have concluded that large bowel cancer is strongly associated with chronic infectious gastrointestinal diseases (16).

Since the transmission of schistosomiasis is linked to the intermediate snail hosts, we recommend to strengthen the prevention programs including avoiding contact with fresh water, improving hygienic measures and snail control using chemicals used to eliminate snails with emphasis on "Endod" (17) In recent report by WHO, at least 258 million people required preventive treatment. WHO estimates that there are about 20 000 deaths due to schistosomiasis globally each year. It recommends that the control should focus through periodic, large-scale population based treatment with praziquantel, comprehensive approach including potable water, adequate sanitation and snail control.(18)

In our country, Colo-rectal cancer is the 6th most prevalent cancer seen in radio-therapy unit of black lion hospital, (19) and recent anecdotal reports have shown that colo-rectal cancer is the third most com-

mon cancer. We have observed increased cases of colo-rectal cancer mainly left sided and in the rectum in early age group, even though it needs further multi-center prospective study for confirmation. Such kinds of presentations are usually thought to be related to infectious colitis. Previous studies in Ethiopia have also shown that contrary to developed countries, 61.4% of colorectal carcinomas occur below 50 years. of age (20). We recommend further prospective studies data to confirm the association between the different infectious causes and pre-malignant/malignant colonic lesions.

Conclusion: Chronic Schistosomal colonic disease can present with chronic diarrhea mimicking other causes of infectious colitis or inflammatory bowel disease. Routine stool examinations could be non-revealing in these patients. The colonoscopic appearance also mimics inflammatory bowel disease and correlation with histologic diagnosis is important to reach to the diagnosis. The presence of pre-malignant condition in association with colonic schistosomiasis is well established in *Schistosoma japonicum* but not for *S. mansoni* and these case report give an additional evidence to consider infections as a predisposing factors in colo-rectal malignancy.

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