COLORECTAL CANCER IN A PATIENT WITH INTESTINAL SCHISTOSOMIASIS: A CASE REPORT

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Abstract

Significance: Intestinal schistosomiasis has been linked to development of colorectal cancer. A few documented cases were reported in some parts of Africa and Asia.
Clinical Presentation: A-44-year-old female from Laoang, Northern Samar presented with 4-month history of constipation, decrease in caliber of stool and weight loss. The abdomen was uniformly distended, normal bowel sounds and non-tender. On digital rectal examination, a firm, nodular, irregular and non-tender mass was appreciated with no evidence of blood on examining finger.
Management: Colonoscopy showed friable, circumferential mass approximately occluding 90% of the lumen noted at 5 cm from the anal verge. Histopathology revealed well-differentiated adenocarcinoma and calcified parasitic ova compatible with schistosoma species. She was referred to surgery service for evaluation. Praziquantel 600 mg/tab 4 tabs as single dose was given. Kato-Katz thick smear was done one month after, which does not show schistosoma ova or egg.
Recommendation: Definite association between intestinal schistosomiasis and colorectal cancer has not been established. Thus, further studies are warranted to establish causality.

Keywords: schistosomiasis, colorectal cancer

Background

Schistosomiasis is a water-borne trematode infection. More than 200 million people are affected worldwide. It is endemic in 76 countries most of which is in Africa.[1] Human schistosomiasis is generally caused by three major species: *Schistosoma mansoni*, *Schistosoma japonicum* and *Schistosoma hematobium*.[2] In the Philippines, the disease is endemic in 28 out of 81 provinces. The infection affects almost the whole of the Mindanao region, eastern part of the Visayas and a few provinces in Luzon.[1]

In endemic areas, schistosomal infection has been associated in several human malignancies. *Schistosoma hematobium* is correlated to squamous cell carcinoma of the urinary bladder. However, there is limited evidence supporting that *Schistosoma japonicum* is associated with the development of colorectal and hepatocellular carcinoma.[2]

We present as case of intestinal schistosomiasis associated with rectal adenocarcinoma.

Case presentation

A 44-year-old female, with no known co-morbidities, came in due to 4-month history of constipation and decrease in caliber of stool. There was no hematochezia or abdominal pain. She had unintentional weight loss described as loosening of clothes. She came from Laoang, Northern Samar, an area of high endemicity of schistosomiasis. In 2012, she received Praziquantel as part of the mass drug administration program (MDA) of the government. She has no family history of colorectal malignancy.

Physical examination was unremarkable except for firm, nodular, irregular and non-tender mass, with no evidence of blood on digital rectal examination. Complete blood count showed hemoglobin – 113 g/L, hematocrit – 34%, WBC –

10.5 x 10^9/L, neutrophils – 70% and platelet count - 348 x 10^9/L.

Colonoscopy showed friable, circumferential mass approximately occluding 90% of the lumen noted at 5 cm from the anal verge as shown in Figure 1. Histopathology revealed well-differentiated adenocarcinoma and calcified parasitic ova compatible with schistosoma species as shown in Figure 2.

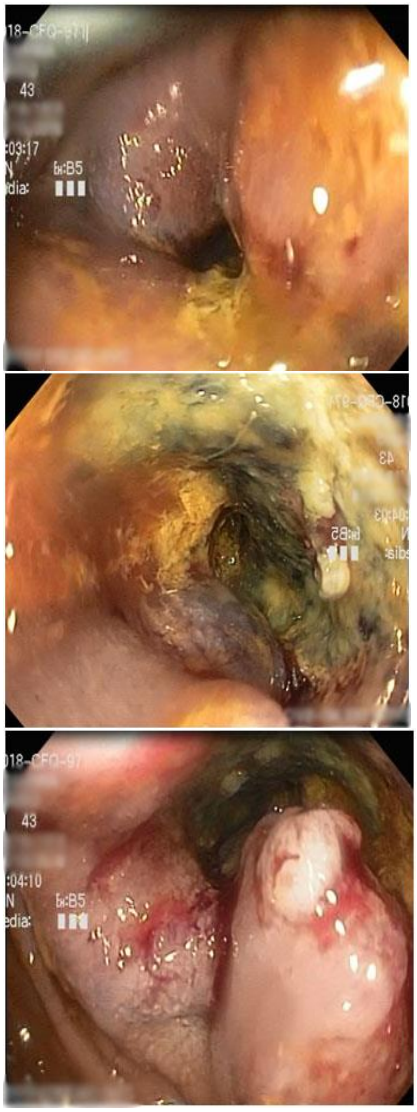

Figure 1. Colonoscopy showing friable, circumferential mass approximately occluding 90% of the lumen

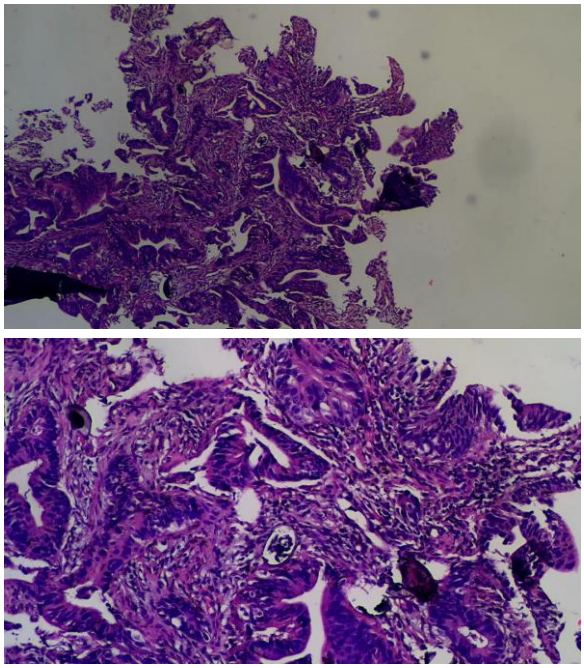

Figure 2. Photomicrograph showing typical Schistosoma ova in a background of well-differentiated adenocarcinoma.

Discussion

Both S. mansoni and S. japonicum cause intestinal schistosomiasis, which has been associated with the development of colorectal malignancy. However, S. japonicum has been more linked to colorectal cancer than S. mansoni.[3]

Chronic inflammatory reaction brought about by schistosome antigens provides the proliferative stimulus necessary to promote cancer growth from potentially malignant foci.[2] Granulomatous formation secondary to submucosal deposition of schistosoma ova may cause pseudopolyp formation and mucosal ulceration which may lead to dysplasia and neoplastic changes. Microsatellite instability due to chronic inflammation, which is a key feature to neoplastic changes, is believed to cause damaged DNA repair mechanism.[3] In the Philippines, the incidence rates of colorectal cancer steadily increase from 1980 to 2007, with an annual change of 1.3% for both males and females. However, there are limited studies on the pattern and distribution of CRC in the country.[4]

In 1990, the Philippine National Schistosomiasis Control Program (PNSCP) under the Philippine Health Development Plan received a substantial loan, which intensified case finding and treatment in all endemic areas. This lead to reduction the national prevalence from more than 10% before 1990 to less than 5% in 1995. Unfortunately, subsequent reduction and termination of funding resulted to decrease in proportion of population being tested annually, which probably lead to underreporting of the disease. After which, the chemotherapy-based control program shifted from case finding and treatment to mass drug administration (MDA) to provide treatment to all individuals aged 5–65 years residing in endemic villages regardless of the prevalence. Recent studies have reported that the national schistosomiasis prevalence in the Philippines is less than 1%.[5-6] The prevalence was highest in Mindoro Oriental (6.3%) followed by Agusan del Sur (3.9%) and Sorsogon (3.6%).[1] However, a study was conducted in 2012, which included 18 barangays in Northern Samar, showed prevalence rate of 5% to 48%. This is in contrary of previously reported mean human prevalence of 2.45%, which grossly underestimates the current human schistosomiasis prevalence in the area.[5] This recent data demonstrates that schistosomiasis has not been controlled in the Philippines and still remains a major public health concern.

Association between schistosoma infection and colorectal cancer has not been established. However, it is important to note that in areas where schistosomiasis is endemic, it can be an independent risk factor to the development of colorectal cancer.

Conclusion

Although the evidence of definite association between schistosomal infestation and colorectal cancer is currently inconclusive, there are compelling epidemiological data which entail a possible role for chronic schistosomiasis in the development colorectal neoplasms. Chronic inflammation appears to be a key factor in the carcinogenic process. Further epidemiological and experimental studies are warranted to investigate the causal relationship between intestinal schistosomiasis and colorectal cancer, especially in the areas of high endemicity.

References

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