Thromboangiitis Obliterans of the Colon: An Unusual Manifestation of Buerger's Disease

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Thromboangiitis obliterans, also known as Buerger's disease, is a nonatherosclerotic inflammatory disorder that predominantly involves the small- and medium-sized arteries, veins, and nerves. This condition primarily affects the extremities. Manifestations in other anatomical locations are exceptionally rare. It is almost exclusively seen in relatively young smokers, with an incidence rate of 12.6 per 100,000 individuals in the United States [1].

Tobacco smoking is the most significant risk factor for thromboangiitis obliterans. It plays a crucial role in both the initiation and progression of the disease. Patients typically present with ischemic symptoms resulting from occlusion of the small vessels in the extremities, whereas other symptoms are infrequent [1,2].

The diagnosis is mainly clinical, requiring a history of smoking, characteristic physical findings, and vascular abnormalities observed on imaging. Biopsy is seldom necessary for diagnosis, and smoking cessation remains the sole effective intervention to prevent disease progression [1,2].

In this report, we present the clinical course and surgical management of a 57-year-old male patient with a colonic mass that was histopathologically diagnosed as thromboangiitis obliterans.

PATIENT DESCRIPTION

A 57-year-old male who was a heavy smoker presented to his general practitioner with complaints of non-specific abdominal pain and periodic diarrhea without weight loss or other symptoms. He was referred for gastroscopy and colonoscopy due to these complaints.

In January 2022, both procedures were performed. Colonoscopy revealed a space-occupying lesion in the ileocecal valve and cecum occupying 30% of the cecal lumen. The lesion appeared obstructive, partially polypoid, and partially necrotic and ulcerated. Extensive biopsies were taken [Figures 1A, 1B, 1C]. The remainder of the colon was unremarkable. Gastroscopy was normal and revealed no pathology.

Following these findings, the patient was referred for a surgical consultation and a complete workup was conducted. Physical examination revealed mild tenderness in the epigastric region without other pathologies. Blood tests were unremarkable, and carcinoembryonic antigen (CEA) was 3.5 ng/ml. A computed tomography (CT) scan of the chest and abdomen showed mild concentric thickening of the cecal wall with mild fat stranding and a few small adjacent lymph nodes. No metastases were detected.

Given the suspicious macroscopic appearance of the lesion, absence of metastases on CT, and normal CEA levels, a decision was made to proceed with surgery. On 16 January 2022, the patient underwent a laparoscopic right hemicolectomy. No metastatic disease was observed intraoperatively, and the cecum was noted to be thickened. The surgery was uncomplicated, and the patient was discharged on postoperative day 3 following an unremarkable recovery.

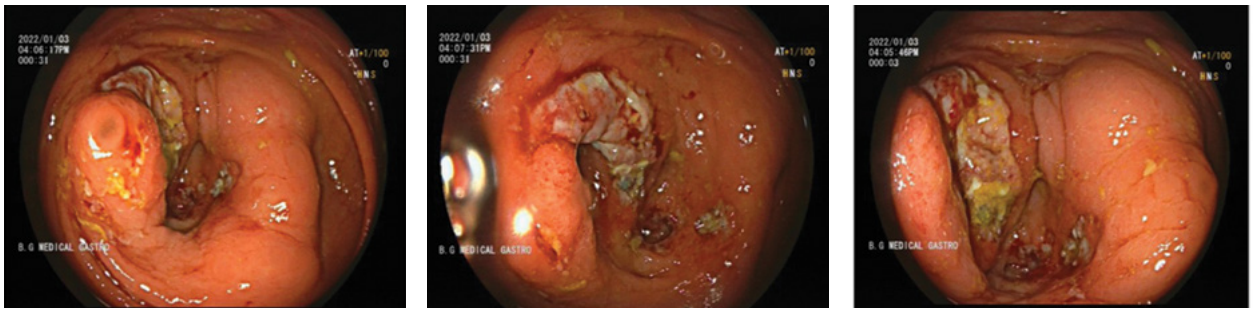
The pathology report of the resected colon indicated that the ileocecal valve exhibited superficial erosion with segments of residual surface epithelium showing low-grade dysplasia (adenomatous type). The underlying lamina propria and submucosa demonstrated fibrosis, plasma cells, and eosinophils. In the pericolonic fat, a medium-sized vessel was found to be obliterated by a thrombus with early organization [Figures 1D, 1E]. A true colonic diverticulum was present adjacent to the ileocecal valve. Extensive sampling of the colonic

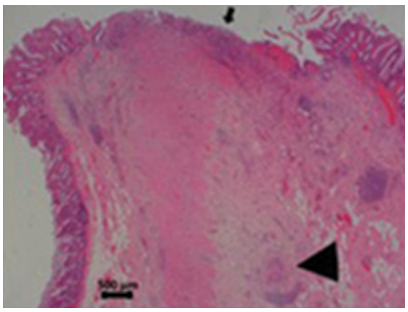
Figure 1. Endoscopic and microscopic view of the colonic mass

[A] Illustrating the tumor's obstructive characteristics

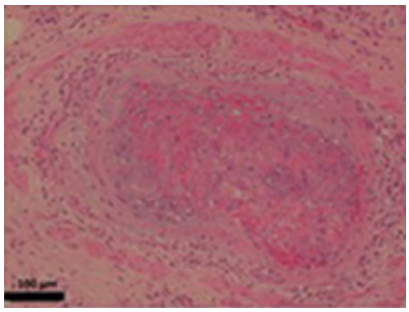
[B] Partially ulcerated and necrotic lesion

[C] Partially polypoid lesion





[D] Microscopic magnification (× 20) of the specimen stained by hematoxylin and eosin (H&E); the upper arrowhead shows an ulceration of the colonic mucosa
The lower arrowhead shows a middle caliber vessel, obliterated by a thrombus with early organization present in the outer part of the colonic wall, in the peri-colonic fibrofatty tissue



[E] Microscopic magnification (× 200) of the specimen stained by hematoxylin and eosin (H&E); a higher magnification reveals a medium-sized caliber vessel obliterated by a thrombus with early organization

specimen revealed no tumor, and all 25 lymph nodes were free of tumors. Considering the patient's heavy smoking history, the findings may also be compatible with Buerger's disease (thromboangiitis obliterans).

In addition, the pathology report of the cecal biopsy from the prior colonoscopy revealed inflamed colonic mucosa with ulcers showing necrotic debris and a few bodies of *Entamoeba histolytica*, strongly positive for periodic acid-Schiff (PAS) stain. No evidence of a tumor was found. The biopsy from the terminal ileum revealed mucosa with reactive lymphoid hyperplasia.

At follow-up, the patient exhibited an absent pedal pulse, with weakly palpable posterior tibial, popliteal, and femoral pulses. These findings were consistent with Buerger's disease. The patient was referred for a vascular surgery consultation and a computed tomography angiography (CTA) of the affected extremity was ordered. Smoking cessation was emphasized as the cornerstone of treatment.

COMMENT

Thromboangiitis obliterans, also known as Buerger's disease, was first described by Leo Buerger in 1908 when he detailed the pathological findings in amputated limbs of affected patients. This nonatherosclerotic inflammatory disorder primarily affects the small- and medium-sized arteries, veins, and nerves, predominantly in the extremities.

The disease predominantly affects males, but can also occur in females, with an average age of onset at 45 years. In the United States, the incidence rate is approximately 12.6 per 100,000 individuals, but the condition is more prevalent in the Middle East. The primary risk factor is tobacco smoking, which plays a central role in the initiation and pro-

gression of the disease. In addition, approximately 65% of patients have severe periodontal disease, with chronic anaerobic periodontal infections potentially contributing as an additional risk factor.

Thromboangiitis obliterans is distinguished from atherosclerosis and other vasculitides by its hallmark feature of vasculitis characterized by a highly cellular inflammatory thrombus with relative sparing of the vessel wall [1,2].

Patients typically present with ischemic symptoms due to the occlusion of the small vessels in the extremities. Symptoms often begin in the distal portion of one limb but usually progress proximally and to other extremities. Clinical manifestations can range from intermittent claudication to rest pain, ulceration, and digital gangrene, indicating critical ischemia.

While the disease is predominantly confined to the extremities. Rare cases have involved the cerebral, coronary, renal, mesenteric, and pulmonary arteries [1].

Diagnosis is primarily clinical, relying on a history of smoking, compatible physical findings, and vascular abnormalities observed on imaging. Biopsy is seldom required.

Smoking cessation is the only effective therapy to halt disease progression. Due to the distal and diffuse nature of the disease, surgical revascularization is generally not feasible. In selected patients, bypass surgery may be performed, but outcomes are typically suboptimal [1,3].

Our case is a rare presentation of thromboangiitis obliterans as a colonic mass. An extensive literature review did not reveal similar cases, although several reports have documented colonic presentation in the form of ischemic colitis [4,5].

To hypothesize how this presentation could occur, we proposed that recurrent episodes of ischemic colitis caused by thromboangiitis obliterans resulted in the area appearing as an almost obstructive tumor-like mass in the right colon.

These results underscore the challenge in preoperative diagnosis of colonic wall thromboangiitis obliterans due to its complex location, histological characteristics, and the rarity of this disease in the colon. A high index of suspicion is necessary to diagnose this condition in smokers presenting with a colonic mass or ischemic colitis.

Further research is required to characterize these rare presentations of thromboangiitis obliterans and to identify patients at risk for such atypical manifestation. To facilitate this identification, we encourage the medical community to report additional uncommon presentations of this disease and advocate for the establishment of an international registry.

CONCLUSIONS

Our case highlights an unusual gastrointestinal presentation of Buerger's disease and underscores the importance of considering thromboangiitis obliterans in the differential diagnosis of colonic masses in smokers. Increased awareness and reporting of such atypical cases are essential to enhance recognition and understanding of this rare manifestation.

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A harbor, even if it is a little harbor, is a good thing, since adventurers come into it as well as go out, and the life in it grows strong, because it takes something from the world, and has something to give in return.

Sarah Orne Jewett (1849–1909), American novelist, short story writer and poet, best known for her local color works set along or near the southern coast of Maine

Good fiction creates empathy. A novel takes you somewhere and asks you to look through the eyes of another person, to live another life.

Barbara Kingsolver (Born 1955), American novelist, essayist, and poet