Melanosis Coli: A Case of Mistaken Identity—A Case Report

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ABSTRACT

Introduction: Melanosis coli is a condition in which the colon develops a brown to black discoloration. It is associated with chronic laxative use and frequently diagnosed incidentally during colonoscopy or histopathologic evaluation.

Case Presentation: A 74-year-old woman presented to the Emergency Department with severe abdominal pain and bilious emesis. During a cecal volvulus repair, her melanosis coli was nearly misdiagnosed as bowel ischemia.

Discussion: Melanosis coli is a diagnostic finding that can easily be confused with bowel ischemia, which may create a dilemma for the surgeon who is attempting to make a decision regarding the extent of a colonic resection. As such, a pathology consult is warranted in any patient with suspected ischemic colitis and concerns for concomitant melanosis coli.

INTRODUCTION

Melanosis coli is a condition in which the colon develops a brown to black discoloration. It is considered benign and is often an incidental finding on colonoscopy or histopathologic evaluation.1-3 It is most commonly associated with chronic use of laxatives and is therefore often found in patients with chronic constipation.1,4-6 Because of the associated colon discoloration, melanosis coli can easily be confused with colonic ischemia. This can create a dilemma for the gastroenterologist or surgeon. We present the case of a 74-year-old woman who required operative intervention for a cecal volvulus and was discovered to have extensive melanosis coli that was initially concerning for ischemic colitis.

CASE PRESENTATION

Presenting Concerns

A 74-year-old woman presented to the Emergency Department with 1 day of severe abdominal pain and bilious emesis. She reported hematochezia on the previous day but stated this was normal because of her hemorrhoids. Her medical history was significant for osteoporosis and chronic constipation; her medications included a daily senna laxative. The patient’s surgical history was significant for a hysterectomy and tubal ligation approximately 40 years before this presentation. Upon examination, the patient’s abdomen was soft to palpation but demonstrated diffuse abdominal tenderness with guarding. Vital signs and laboratory data were within normal limits. A radiograph and computed tomography studies were conducted and revealed a cecal volvulus with no sign of perforation (Figures 1, 2, and 3).

Therapeutic Intervention and Treatment

On the basis of her clinical examination and computed tomography scan results, the patient underwent emergent exploratory laparotomy. Intraoperatively, a cecal volvulus was confirmed. The cecum appeared to be ischemic with no signs of perforation (Figure 4). A right hemicolectomy was initiated, and during the anastomosis of the terminal ileum to the transverse colon, the colonic mucosa appeared dark and dusky. Because of concerns that there was more extensive ischemia than initially suspected, the remaining bowel was inspected. The mucosa appeared the same throughout with no signs of a transition point toward viable–appearing bowel (Figure 5). Along the transverse colon and left colon, the serosa and external portion of the colon appeared healthy and viable. At this point, it was decided to forgo the anastomosis and leave the bowel in discontinuity. The plan was to resuscitate the patient in the intensive care unit and return to the operating room in 48 hours for further evaluation of the remaining bowel.

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Pathology of the colonic mucosa revealed pigmented macrophages in the lamina propria consistent with melanosis coli (Figure 6). The patient was brought back to the operating room 48 hours after her initial operation and a side-to-side functional-end ileocolonic anastomosis and abdominal closure were completed. Postoperatively, the patient did well and was discharged home on hospital day 8.

**DISCUSSION**

Melanosis coli is a condition termed by its brown to black pigmented appearance along the colonic mucosa.\(^1\)\(^-\)\(^3\) It is often caused by the chronic use of anthracene derivatives, such as sennosoids, cascara, frangula, rhubarb, and aloe.\(^1\)\(^,\)\(^4\)\(^,\)\(^5\) These are often used as over-the-counter laxatives.\(^1\)\(^,\)\(^4\)\(^,\)\(^5\) These agents impede the regular capability of epithelial tissue to function, often inhibiting absorption, secretion, and motility and causing apoptosis of the cells.\(^3\)\(^,\)\(^4\)\(^,\)\(^7\) The dead cells are then phagocytosed by macrophages leading to lipofuscin deposition in the lamina propria of the colon.\(^3\)\(^,\)\(^4\)\(^,\)\(^7\) As such, on the basis of the histology of the disorder, it would be more appropriately named “pseudo-melanosis coli” as the change in pigmentation of the mucosa is caused by lipofuscin and not melanin.\(^1\)\(^,\)\(^3\)\(^-\)\(^5\) The disorder is usually found incidentally on endoscopy or histology, and is most commonly located in the cecum and ascending colon.\(^5\) The appearance may vary throughout the colon on the basis of the pigmentation strength or the amount of absorption of the laxative.\(^5\) Furthermore, development of melanosis coli can occur 4 to 12 months after chronic laxative use.\(^2\)\(^,\)\(^4\)\(^,\)\(^7\) Populations at risk of developing melanosis coli include the elderly, those with irritable bowel syndrome, and those with chronic constipation.\(^2\) Of those individuals discovered to have melanosis coli, 95% have a history significant for chronic laxative use.\(^8\) One study showed that 3 out of 4 patients taking long-term anthranoid laxatives develop melanosis coli.\(^6\)

The discoloration of the colonic mucosa caused by melanosis coli creates a dilemma intraoperatively. Specifically, it is difficult to differentiate melanosis coli from ischemic bowel on gross inspection, as seen in our case (Figure 2). In one published case report, melanosis coli was mistaken for ischemic colitis, resulting in a subtotal colectomy, and the postoperative histology revealed no evidence of ischemia.\(^5\) Histopathology can be useful but may not always be available in emergency situations, as in the aforementioned case report.\(^3\) Histologic findings of ischemic colitis that differentiate it from melanosis coli include: Distortion of crypts, edema, hemorrhagic changes of the mucosa and submucosa, inflammatory infiltration of the lamina propria, and necrosis.\(^8\)

Our recommendations include utilization of the pathologist when feasible. Frozen-section biopsy can provide an immediate answer intraoperatively.\(^9\) In a stable patient with a known history of chronic laxative use who requires a bowel resection, obtain the input of the pathologist before proceeding with subtotal colectomy with end-ileostomy or small-bowel-to-colon anastomosis. A frozen section for pathology diagnosis can be done intraoperatively and takes a short time to complete. Of note, frozen sections are not indicated in the diagnosis of ischemic bowel or melanosis under usual circumstances. This is primarily because histopathology of the specimen can be distorted during the freezing of the tissue, making a correct diagnosis difficult.\(^10\) However, a frozen section of the specimen may assist in guiding intraoperative decision making.

It is critical to understand that frozen-section biopsy may provide an answer, but there are many situations in which the pathologist cannot definitively determine the extent of ischemia using frozen sections. In this situation, communication with the pathologist before and during evaluation of the specimen is key. When a pathologist is not readily available or the frozen section is inconclusive, the surgeon may consider leaving the bowel in discontinuity, with plans to return to the operating room in 24 to 72 hours. This allows evaluation by pathology, time for resuscitation, and improved decision making by obtaining additional pertinent information, as was done in our case.
CONCLUSION

Melanosis coli is a diagnostic finding that can easily be confused with bowel ischemia. It is important to note that this benign diagnosis is not associated with morbidity and is often asymptomatic. Melanosis coli can create an intraoperative dilemma for the surgeon who is contemplating a colonic resection. As such, in any patient with suspected ischemic colitis and the possibility of concomitant melanosis coli, the pathologist’s prompt input is of utmost importance. Frozen-section diagnosis can help guide the surgeon toward appropriate operative management in clinically ambiguous cases, but it is not always conclusive. In those frozen sections that are inconclusive or in hospitals where a pathologist is not available, the surgeon has the option of performing a limited resection with return to the operating room at a later time after a more definitive diagnosis can be made.

Disclosure Statement

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References