WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 23, 812-817. Review Article ISSN 2277–7105

CHRONIC LAXATIVE AND MELANOSIS COLI: CASE SERIES REVIEW

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Article Received on
15 October 2024,

Revised on 04 Nov. 2024,
Accepted on 25 Nov. 2024

DOI: 10.20959/wjpr202423-34827

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ABSTRACT

Melanosis coli is a condition in which the colon develops a brown to black discoloration. It is often linked to long-term laxative usage and typically diagnosed by chance during colonoscopy or through histopathologic evaluation, potentially raising the risk of colorectal cancer. We review three cases of melanosis coli in patients with a history of chronic constipation and regular laxative use who underwent colonoscopy revealed features of melanosis. The study underscores the misuse of over-the-counter laxatives.

KEYWORDS: Melanosis coli, Anthraquinone laxatives, Constipation.

INTRODUCTION

Melanosis coli (MC) is a benign lesion, with black or brownish pigmentation of the colonic mucosa that is characterized by the accumulation of a pigment named lipofuscin in macrophages in the mucosa of the large bowel. It is typically diagnosed by examining the colonic mucosa during a colonoscopy.[1,2] It is associated with long term ingestion of laxatives containing anthraquinone compounds. It is found in patients with chronic constipation. It is a rare colonic disorder that is reversible within 6-12 months after discontinuing laxatives, however, there has been discussion regarding an increased risk of colorectal carcinoma associated with prolonged use.[3,4,5] Anthraquinone laxatives, like senna and rhubarb, disrupt the normal functioning of epithelial tissue by inhibiting absorption, secretion, and motility, and by inducing cell apoptosis.[6,7] These apoptotic cells are subsequently phagocytosed by macrophages, leading to theproduction of lipofuscin.[8] In a study conducted by Baker F *et. al.* out of 50128 patients who underwent colonoscopy, 718 patients were diagnosed with Melanosis coli and the indication for colonoscopy were constipation.[9]

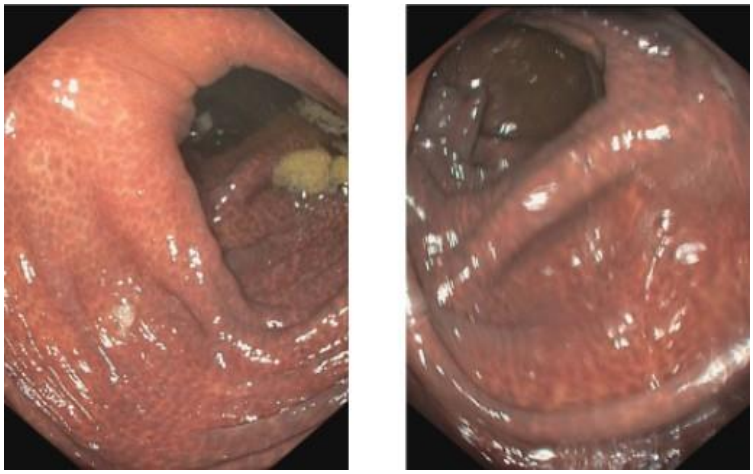

Fig 1: Black, Brownish pigmentation indicative of Melanosis Coli.

CASE 1

A 74 year old lady, came with complaints of vomiting which is bilious in nature and abdominalpain which was severe. She also complained of passing fresh blood in the stool on the day before she was presented to hospital. She had a history of hemorrhoids, osteoporosis and chronic constipation. On review of her medications, it was found that she was on senna laxatives. She had undergone hysterectomy and tubectomy 40 years ago. During the abdominal examination, she exhibited tenderness along with guarding. Her initial laboratory findings were normal. A CT scan was performed, disclosing cecal volvulus without any evidence of perforation. Based on the findings, the patient underwent exploratory laparotomy and a cecal volvulus was affirmed. The cecum on imaging appeared ischemic with no sign of perforation. Then, colectomy was done and during the procedure it was noted that her colonic mucosa appeared dark in color and shaded. Then the remaining bowel was examined, as there was a concern that it might be an extensive ischemia. But the serosa and outer portion of the colon appeared well-preserved and in good condition along the transverse and left colon. Then a conclusion was reached against the anastomosis procedure. Eventually, the colonic mucosa's pathology demonstrated pigmented macrophages in the lamina propria corresponding to melanosis coli.[10]

CASE 2

A 65 year old man came with complaints of per rectal bleed, alteration in stool frequency ranging from daily to twice in a week, excreting hard stools and has noticed a change in his stool consistency. He also reported a history of significant weight loss and abdominal bloating. The patient was already taking Senna laxatives for constipation which he was

experiencing for the last 3years. He also used homeopathic medications for the same. He was a known case of Type II Diabetes Mellitus for which he was on Tab. Metformin 500mg twice a day. His per abdomen examination revealed he had mild tenderness but soft and palpable. Laboratory tests were done which were normal and his vitals were normal as well. Based on his presentation and his examination findings, he underwent a colonoscopy which was absolutely normal but his biopsy features manifested scattered macrophages containing black to brown pigment which is likely indicative of melanosis coli.[11]

CASE 3

A 27 year old female patient was presented with complaints of chronic constipation, bloating, discomfort after defecation, anal pain and hemorrhoids. For a period of five years, she had been regularly consuming laxatives containing anthraquinone. She was unable to have a bowel movement without using a laxative. Colonoscopy was done to show a normal terminal ileum. All the remaining colonic segments, including rectum, had hyperaemic-edematous mucosa with diffuse, brown pigmented areas. Multiple biopsies were obtained. Histopathologic examination revealed mild chronic nonspecific inflammation and occasional lymphoid aggregates in the lamina propria. Also, at superficial lamina propria, histiocytes with cytoplasmic yellow-brown granules forming groups of 2 or 3 were present at all the biopsy specimens and the pigment was found PAS positive. Based on these findings, the patient was diagnosed with melanosis coli and advised to discontinue laxative intake immediately. Also, a fiber-rich diet program was initiated to manage her constipation.[12]

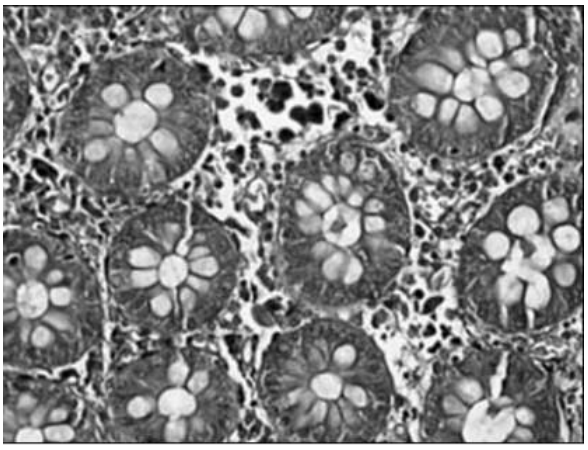

Fig. 2: Histiocytes with cytoplasmic brown pigments.

DISCUSSION

Melanosis is identified by the presence of dark pigmentation in the mucosa lining the colon.[13] Many of the over the counter anthraquinone laxatives including senna, rhubarb, aloe and cascara are associated with the onset of melanosis coli. The mechanism by which these agents induce melanosis is such that they will impair the normal function of epithelial tissue and thus inhibit absorption, secretion, and motility, leading to cell apoptosis.[14,15] Consequently, macrophages in the lamina propria will increase in their number and size which further leads to phagocytosis of those cells that passed through apoptosis. Then in macrophages, the proportion of lysosomes will increase and that oxidizes the cellular fragments. The lipofuscin like granules formed from the leftover materials which give macrophages their pigmented appearance.[16]

The occurrence of disease can start within 4 to 12 months after the laxative use and it can disappear within 6- 11 months with the discontinuation of laxatives. The risk groups associated with melanosis coli include elderly population mainly with complaints of chronic constipation.[17]

According to a study conducted by Park *et.al.* 69.2% of subjects diagnosed with melanosis coli were associated with the use of anthraquinone compounds.[18] There are studies also describing the necessity to rule out colorectal adenomas in patients who report to have macroscopic melanosis.[19] In another study conducted by Balázs *et.al.* they examined colon biopsies of patients who were prescribed laxatives containing anthraquinone for a longer period and that study validates that melanosis coli was histologically diagnosed in a total of forty- five patients.[20] In another study, it was found that 75% of patients using anthranoid laxatives long-term develop melanosis coli.[21]

In the three cases we reviewed, the patients had a history of chronic constipation with chronic laxative use. Colonoscopy was performed in all the cases. In the first case, the colonic mucosa appeared dark and dusky and the pathology revealed pigmented macrophages in the lamina propria. In the second case, the biopsy features exposed scattered macrophages containing black to brown pigment. In the third case, colonic segments except the terminal ileum had hyperaemic-edematous mucosa with diffuse, brown pigmented areas. Considering our review and the results of other authors, there appears to be a strong correlation between melanosis coli and chronic laxative intake.

CONCLUSION

Melanosis coli is characterized by macrophages in the colonic mucosa along with features like blackish-brown pigment in their cytoplasm. The condition is asymptomatic and is generally detected during colonoscopy or histopathological examination. Anthraquinone-based laxatives, readily available over the counter medication, are often used for managing chronic constipation. Prolonged use of these laxatives can lead to the development of melanosis coli. Although melanosis coli has not been definitively linked to pre-malignancy, additional studies are necessary to establish a conclusive understanding.

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