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Colon Melanosis in a 15-Year-Old Child: Clinical Observation

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Melanosis coli is a rare pathology associated with long-term intake of non-steroidal anti-inflammatory drugs or laxatives containing anthraglycoside. Melanosis coli is also observed at liver and pancreatic diseases, as well as at colon cancer. This disease is only rarely observed in children. The article presents a clinical observation of melanosis coli in a 15-year-old girl with chronic constipations and uncontrolled intake of a senna preparation as a laxative for 6 months. The diagnosis was established on the basis of the endoscopic presentation and confirmed by a histological study of colonic mucosal fragments.

Keywords: *melanosis coli, colonoscopy, lipofuscin, constipation, constipations, anthraglycoside.*

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INTRODUCTION

Melanosis coli is a pathologic condition where the macrophages of the lamina propria of colonic mucosa accumulate glycoproteide lipofuscin, which results in a characteristic brownish pigmentation of mucosa. This condition was first described in 1829 by J. Cruveilhier [1, 2]. In 1933, Bockus et al. described the clinical symptoms thereof and defined this pathology.

Colonic mucosa pigmentation is mostly identified by endoscopists upon colonoscopy of constipation patients. This condition is mostly induced via uncontrolled intake of nonsteroidal antiinflammatory drugs or laxatives containing anthraglycoside. Melanosis coli can be diagnosed in cases of hepatic or pancreatic disease as well as in colon cancer cases [3—5]. If melanosis is intensified, pigmentation can be localized not only in the colon, but also in the small intestine, where it can reach mesenteric lymph nodes [2].

CASE MONITORING

A girl, 15, was admitted to the gastroenterology unit of the Scientific Center of Children's Health with complaints about periodic abdominal heaviness, belching after food intake, and spastic abdominal pain that is reduced by defecation.

The medical history contained the following data. She had suffered constipations since her very birth, a reason for multiple tests and examinations. Irrigography diagnosed dolichocolon; contrast is accumulated in the distal sections of the intestines after evacuation. An X-ray barium

study of the gastrointestinal tract did not identify stenosis areas. For 6 months prior to this encounter, the girl had been administered a herbal laxative, senna, 2 pills twice a day, which regulated her stool. Her condition was satisfactory upon admission, and she was to undergo scheduled colonoscopy.

Colonoscopy findings were as follows: unaltered lumen of the ileum terminal section; pink mucosa; velutinous intestinal walls, vascular pattern unidentifiable, active peristalsis. The ileocecal valve was flat and oriented towards the cecal cupula. The opening was closed and labial in shape. The transverse colon of the transverse colon was widened, the tonus was reduced, the circular folds were smoothened, the intestinal wall was elastic. The mucosa of the cecum, descending colon, transverse colon, ascending colon, and sigmoid colon was smooth, lucent, and had red-brownish punctuate pigmentation, which was most intense in the cecum and the ascending colon, with multiple whitish lymphoid follicles (*Fig. 1*). In the ascending colon, mucosa partly had transverse striation (*Fig. 2*). The vascular pattern was clear.

Study. Step biopsy was performed. A histologic study of the biopsy material identified that some fragments of the colon had moderate inflammatory infiltration with lymphohistiocytes and eosinophiles. In the lamina propria, there were diffuse and focal deposits of apoptotic bodies in form of macrophages loaded with brownish pigment (Fig. 3).

Conclusion. Chronic colitis, melanosis coli.

Fig. 1. Mucosa of the ascending colon

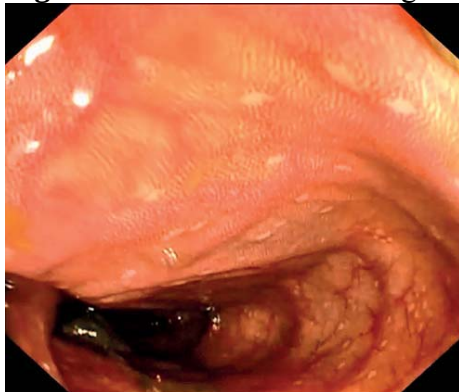


Fig.2. Mucosa of the ascending colon

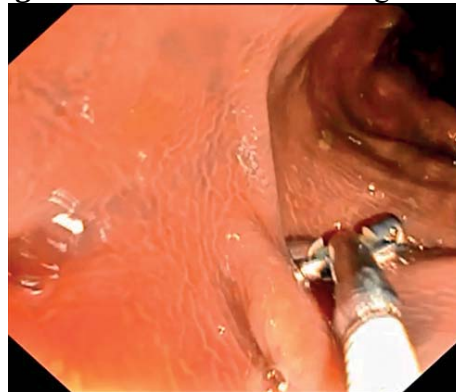
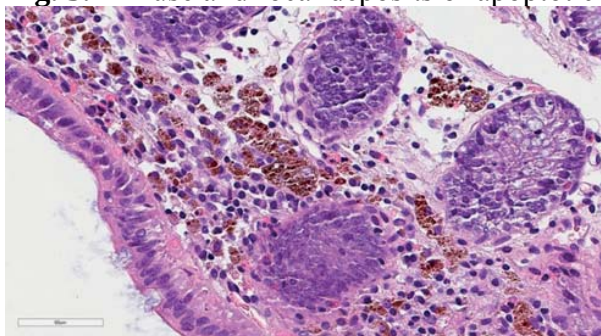


Fig. 3. Diffuse and focal deposits of apoptotic bodies (dyed with hematoxylin eosin)



DISCUSSION

The pigmentation of the colonic mucosa, visible upon endoscopy and confirmed by histological studies, is a consequence of pigment granules accumulation in macrophages [6]. Pigmentation is unequally intense, it is more intense in the cecum and proximal sections of the colon [3, 7–9]. This is believed to be caused by large amounts of harmful agents, like a laxative or its derivations, concentrating in the lumen of the proximal section of the colon. Discrepancies in the absorbing capabilities of different colon sections may be another reason. Finally, the peculiarities of macrophage topographic distribution in the colon are significant, too [3, 8]. Lymphoid follicles that are normally found in mucosa cannot accumulate pigment in case of melanosis,

which is why the tissue looks like a "star-lit sky", especially in the rectosigmoid section of the colon. Multiple narrow yellow stripes are also characteristic of this condition. Such striation is caused by the lack of this pigment where surface vessels are. It should also be noted that this pigment is not accumulated in the areas of mucosal dysplasia, "sitting" polyp, and colonic mucosa tumors, which is why melanosis helps identify such tumors [10].

It was believed this pigment was melanin, thence the name of the pathology, but electronic microscopy and X-ray diffraction helped reveal that the macrophages of the lamina propria of the colon accumulate lipofuscin. Granules of lipofuscin are residual bodies with non-digested and/or oxidated lipids. It is suggested these granules are generated as a result of cellular organelles being consumed and digested inside lysosomes. Electronic microscopy identified singular mucosa-bound bodies that contained electron-dense lipid materials alongside with electron-transparent or middle-density neutral fat [2, 6, 9, 10].

A histologic study of mucosal biopsy, dyed with standard hematoxylin eosin, identifies in the lamina propria multiple macrophages, filled with brown pigment granules.

CONCLUSION

Melanosis coli is found in 4% of adults; this pathology develops if laxative treatment exceeds a year in duration. In this case, melanosis coli developed after six months of taking anthraglycoside-containing laxatives. Such a shorter term can be due to children's colon mucosa being more sensitive to adverse factors. As of today, the issue of melanosis coli in children requires further studying. Given the fact that subsequent colon adenoma is statistically significant in melanosis-affected children, physicians should be watching for oncologic events in respect to such patients. Children should take less anthraglycoside-containing laxatives due to the potential carcinogenic effects thereof. Pathophysiological mechanisms of melanosis development require further studies as well.

CONFLICT OF INTEREST

The authors of this article have declared absence of reportable financial support / conflict of interest.

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