

## Antiobesity drugs-induced melanosis coli

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**Abstract:** Melanosis coli is described as a black or brown discoloration of the mucosa of the colon. It is a benign condition arising from laxative abuse and has no symptoms of its own. Representative autopsy appearances of melanosis coli are shown where the deceased took antiobesity drugs. Melanosis coli is most often detected during examinations for long-standing constipation, often in conjunction with a history of the chronic use of anthracene cathartics. This case report is intended to remind the clinicians that extensive melanosis coli may mimic ischemic colitis and thus must be considered as a differential diagnosis.

**Key Words:** melanosis coli, antiobesity drugs, rhubarb

Melanosis coli is a common condition characterized by brown or black pigmentation of the colonic mucosa. The condition itself is asymptomatic and the diagnosis is usually made on incidental endoscopic or histological findings. The importance of correctly diagnosing melanosis coli lies in the fact that if extensive, it can mimic ischemic mucosa and thus pose a diagnostic dilemma. This clinical situation has been reported previously in supposedly necrotic stoma. [1, 2] Melanosis coli is a dark brown pigmentation of the colon which occurs with the use of laxatives containing anthraquinone, such as cascara, senna, aloes and rhubarb.

### Case report

A 58-year-old woman was strangled and autopsy incidentally revealed diffuse dark brown and black pigmentation throughout the colon which is consistent with the presence of melanosis coli. (Figure. 1) The sites of melanosis coli were present from the descending colon to rectum. The victim had taken a daily dose of antiobesity drugs which contained rhubarb for 6 months. The histopathology of the specimen showed that there was extensive melanosis coli. (Figure. 2) The histopathology examination revealed extensive melanosis coli spreading to the pericolonic lymph nodes.

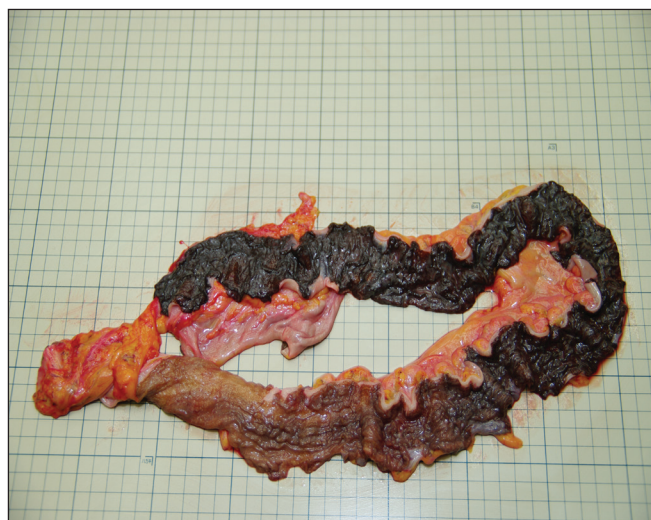
### Discussion

Melanosis coli is probably the most common form of pigmentation change seen in the intestinal tract mucosa during endoscopic evaluation and in biopsy materials submitted for histopathologic evaluation. It was first described by Cruveilhier in 1829 before the emergence of endoscopic technologies. [3] The abnormally brown or black pigmentation can even be visualized in the biopsy specimen in tissue using forceps or on filter paper prior to fixation immersion. Melanosis coli occurs due to the deposition of a brown-black pigment called lipofuscin in the lamina propria of the colon.

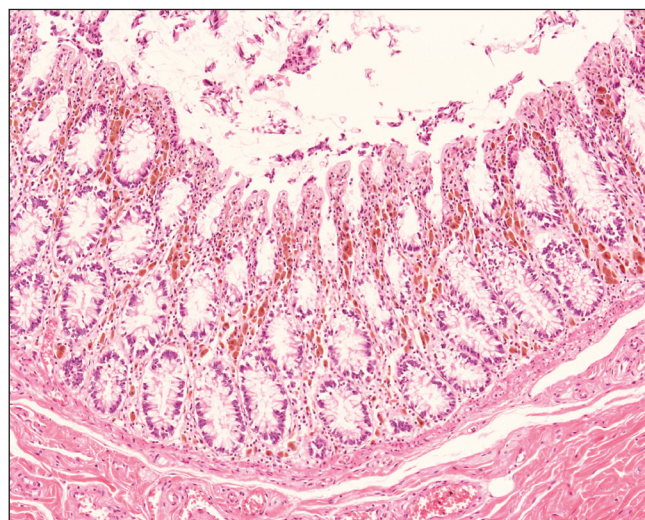
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**Figure 1.** Partially opened specimen of the colon showing the very dark mucosa. (Autopsy)



**Figure 1.** The image shows a colonic mucosa, with no architectural distortion of the glands, with large amount of brown pigment between crypts and sparse inflammatory cells. (Hematoxylin & Eosin staining ×100)

[4] Recently, however, a lectin method for application to formalin-based and paraffin-embedded colon was used to explore changes in biopsies from patients with melanosis coli associated with laxative use. These studies revealed increased apoptotic bodies in the colonic epithelium with pigment accumulation in macrophages. [5, 6] The apoptotic bodies in the colonic epithelium were thought to be due to laxative-induced cell death, not from natural programmed cell renewal. In addition, these apoptotic epithelial cells were believed to be the source of the pigment saccharides while the melanic substance appeared to be derived directly from the anthraquinones. [6] Melanosis coli is most often detected during examination for long-standing constipation, often in conjunction with a history of chronic use of anthracene cathartics (including cascara, senna, aloes and rhubarb). [7, 8] Its incidence is understandably higher in the older population and people who suffer from conditions, such as irritable bowel syndrome and chronic constipation and is rising because of the popularity of herbal remedies containing anthraquinones. [2, 9] It can develop within a few months of use and can disappear in a few months if the use of the laxative is discontinued. Melanosis coli is a benign reversible condition with no malignant potential. [10] This case report is intended to remind clinicians that extensive melanosis coli may mimic ischemic colitis and must be considered as a differential diagnosis.

### Acknowledgements

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### References

1. Fleischer I, Bryant D: Melanosis coli or mucosa ischemia? A case report. *Ostomy. Wound Manage.* 1995; 41(4):46-47
2. Sosa JL, Cortes V, Zeppa R: Melanosis coli: a case report in a trauma patient and review of the literature. *Am Surg* 1991; 57(6):378-380.
3. Cruveilhier J. Cancer avec melanose. *Anat Pathol Corps Humain* 1829; 19:6
4. Walker NI, Bennett RE, Axelsen RA: Melanosis coli: A consequence of anthraquinone induced apoptosis of colonic epithelial cells. *Am J Pathol* 1988; 131(3): 465-466
5. Freeman HJ, Lotan R, Kim YS. Application of lectins for detection of goblet cell glycoconjugate differences in proximal and distal colon of the rat. *Lab Invest* 1980; 42: 405-412
6. Benavides SH, Morgante PE, Monserrat AJ, Zarate J, Porta EA. The pigment of melanosis coli: a lectin histochemical study. *Gastrointest Endosc* 1997; 46: 131-138.
7. Badiali D, Marcheggiano A, Pallone F, Paoluzi P, Bausano G: Melanosis of the rectum in patients with chronic constipation. *Dis Colon Rectum* 1985; 28: 241-245.
8. Ewing CA, Lalan M, Chucker F, Ozdemirli M: Melanosis Coli involving pericolonic lymph nodes associated with the herbal laxative Swiss Kriss: a rare and incidental finding in a patient with colonic adenocarcinoma. *Arch Pathol Lab Med* 2004; 128(5): 565-567
9. Kostela E, Kulju T, Collan Y: Melanosis coli, prevalence, distribution and histological features in 200 consecutive autopsies at Kuopio University Central Hospital. *Dis Colon Rectum* 1989; 32(3): 235-239
10. Russell NJ, Royland JE, McCawley EL: Melanosis coli in the guinea pig: A light and electron microscopic study. *Proc West Pharmacol Soc* 1982; 25: 193-195