

Cathartic Colitis

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The radiographic findings of cathartic colon [1] have been well known since Heilbrun [2] first reported this entity in 1943. Despite the characteristic radiographic changes seen in this entity, the pathogenesis and pathology have not been well understood. We have studied the pathology of cathartic colon and have correlated the pathological changes with the radiographic findings.

Case Report

A 67-year-old white female began using laxatives for chronic constipation during childhood and progressed to daily use of cascara in her teens.

Following surgery for an anal fissure at age 50, the patient developed anal stenosis. She required increasingly larger amounts of laxatives, which eventually resulted in liquid stools. Prior to admission she complained of mild abdominal gaseous distension and distress. Physical examination and laboratory findings were normal except for anal stenosis. A barium enema (fig. 1) demonstrated shortening of the proximal colon with a smooth mucosa and a lack of haustral markings. The terminal ileum was also smooth and dilated. The rectosigmoid was not remarkable. In addition to inconsistent constrictions in the proximal colon, a fixed and persistent stricture was seen at the hepatic flexure causing proximal dilation and poor evacuation. Since the patient was a known laxative abuser, a radiographic diagnosis of cathartic colon was made. However, because of the presence of a fixed stricture that had not been described in cathartic colon and some similarity of radiologic findings to ulcerative colitis, the possibility of cancerous degeneration of chronic ulcerative colitis was considered and a right hemicolectomy was performed. At surgery the ascending colon was considerably dilated but the colon was otherwise unremarkable. Palpation of the stenotic area revealed some thickening of the intestinal wall.

Gross examination of the surgical specimen of the ascending colon (fig. 2A) showed a normal serosal surface. The mucosa was atrophic and smooth with punctate, superficial ulcerations. Gross appearance of the stenotic area of the colon was similar to that of the rest of the colon.

Microscopy (fig. 2B) showed markedly atrophic mucosa with chronic inflammation and paneth cell metaplasia. Healing superficial ulcerations were noted. The cellular infiltrates were predominantly mononuclear cells, but a large number of eosinophils were also seen, raising the possibility of an allergic reaction to cathartics. Examination of the myenteric plexus was normal. Microscopic examination of the stenotic area, however, revealed markedly thickened muscularis mucosa distorted by fibrosis. The fibrosis extended to the submucosa, which was infiltrated by fat. Muscularis layers were normal. The stricture was therefore due to thickening of the muscularis mucosa and submucosal fibrosis.

Discussion

Radiology

Because history of laxative abuse is often not volunteered by a patient, the radiologist may be puzzled by the findings of a barium enema. The radiographic changes of cathartic colon are similar to those of burned-out ulcerative colitis: smooth mucosa, loss of haustration, and a general shortening of the colon. However, certain features may enable the entities to be distinguished in certain cases. We reviewed the findings of nine cases of cathartic colon and found these to be similar to those described by Plum et al. [1]. Cathartic colon predominantly involves the right colon, often sparing the rectosigmoid region. However, it may involve the entire colon and the terminal ileum, the latter having an appearance of the so-called "backwash ileitis" seen in ulcerative colitis. Shortening of ascending colon can be marked, but unlike ulcerative colitis, the shortened segments remain remarkably distensible. Inconstant luminal constriction or "pseudo strictures" are seen at fluoroscopy and most commonly occur at the hepatic flexure. True stricture of the colon has not been previously reported. When these characteristic findings are seen in a patient with long standing cathartic abuse, the diagnosis of cathartic colon is certain.

Pathology

In our experience the pathologic changes associated with cathartic colon are nonspecific. Jones [3] first reported the pathologic findings in 1967. He described dark brown colonic mucosa with a white reticular streaking resembling alligator skin; there was excessive submucosal fat and atrophy of the muscle layer. Bockus et al. [4] showed that certain laxatives cause pigmentation of colonic mucosa. In 1968, Smith [5] used the same colon specimen for microscopic examination of the myenteric plexus and described degeneration of neurons and axons. He postulated that laxatives are neurotoxic agents that cause myenteric damage.

The second case of cathartic colon pathology was reported by Urso et al. [6] in 1975. In this case, the colon was dilated and the mucosa was atrophic and smooth with multiple punctate superficial ulcerations measuring 2-3 mm. Thickening of muscularis mucosa and submucosal fibrosis were noted.

We reviewed the pathologic slides of the case described by Urso et al. [6]. The microscopic findings were

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similar to those in our case. Findings in both cases included smooth atrophic colonic mucosa with multiple punctate superficial ulcers, chronic inflammation with resultant thickening of muscularis mucosa, and submucosal fatty infiltration and fibrosis. The main muscular

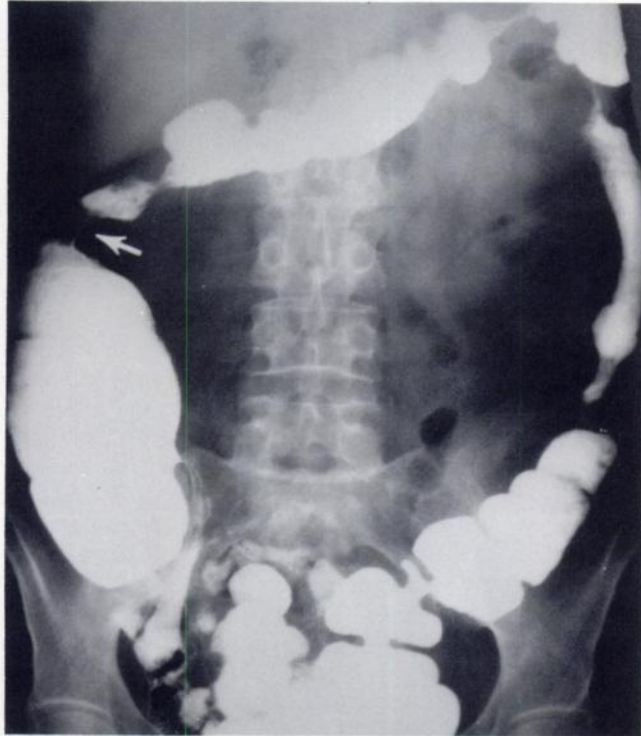


Fig. 1.—Barium enema showing smooth mucosa, lack of haustration shortening, inconstant constrictions, and smooth terminal ileum. Note true stricture with proximal dilation at hepatic flexure (arrow).

layer and myenteric plexus were normal. The degeneration of neurons described by Smith [5] was not appreciated in either case.

Goulston et al. [7] reported that benign strictures seen in ulcerative colitis are due to hypertrophy of the muscularis mucosa. This same pathology was found to be the cause of the stricture in our case. All of the pathologic findings of cathartic colon resemble those of chronic ulcerative colitis in remission; our pathologists were unable to distinguish between these entities in the cases reviewed.

Pathophysiology

A chronic colitis appears to develop with prolonged cathartic use, but the only symptom of colitis is a laxative-induced diarrhea. The pathophysiology of cathartic colon can only be postulated. It is possible that direct mucosal irritation by a cathartic for prolonged periods may produce a chronic colitis. Burned-out ulcerative colitis results from years of intermittent exacerbation of acute colitis, which is clinically apparent. However, cathartic colitis, similar both radiologically and pathologically to burned-out ulcerative colitis, develops without a clinically obvious acute phase.

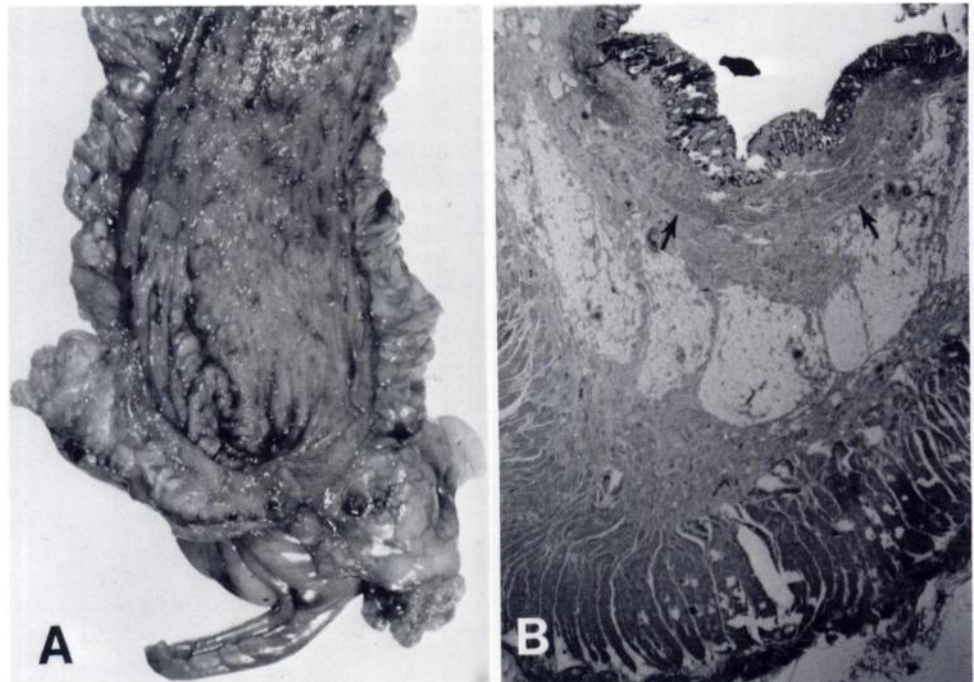
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REFERENCES

1. Plum GE, Weber HM, Sauer WG: Prolonged cathartic abuse resulting in roentgen evidence suggestive of enterocolitis. *Am J Roentgenol* 83:919-925, 1960
2. Heilbrun N: Roentgen evidence suggesting enterocolitis

Fig. 2.—A, Surgical specimen of ascending colon showing smooth, atrophic mucosa with punctate superficial ulcers (dark spots). Stenotic hepatic flexure is in distal-most portion of specimen at top. B, Microphotograph of colon at stenotic area. Mucosa is atrophic with chronic inflammation (top). Note thickened muscularis mucosa (arrows). Submucosal fat infiltration, fibrosis, and circular muscles are normal.



- associated prolonged cathartic abuse. *Radiology* 41:486-491, 1943
3. Jones FA: Cathartic colon. *Proc R Soc Med* 60:503-504, 1967
 4. Bockus HL, Willard JH, Bank J: Melanosis coli: the etiologic significance of the anthracene laxatives. *JAMA* 101:1-6, 1933
 5. Smith B: Effect of irritant purgatives on the myenteric plexus in man and the mouse. *Gut* 9:139-143, 1968
 6. Urso FP, Urso MJ, Lee CH: The cathartic colon: pathologic findings and radiological/pathological correlation. *Radiology* 116:557-559, 1975
 7. Goulston SJM, McGovern VJ: The nature of benign strictures in ulcerative colitis. *N Engl J Med* 281:290-295, 1969