

CLINICAL NOTE

Ischemic colitis due to vigorous physical exercise

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ABSTRACT

Physical exercise has been related with both beneficial effects on the gastrointestinal tract as with adverse effects on the latter. Gastrointestinal bleeding is one of these. In general, gastrointestinal bleeding is transient and mild. However, some cases caused by intestinal ischemia can sometimes be more serious due to the amount of bleeding and the presence of mucosal lesions. We present the case of a patient with abdominal pain and rectal bleeding caused by an extensive ischemic colitis due to vigorous physical exercise.

Key words: Ischemic colitis. Physical fitness. Rectal bleeding.

INTRODUCTION

Continuous aerobic exercise has proved to have a protecting effect against mortality caused by arteriosclerosis, diabetes mellitus type 2, and arterial hypertension (1). It also provides a potential protection against the risk of colon cancer, chronic constipation, diverticular disease, inflammatory bowel disease, and cholelithiasis (2,3).

Gastrointestinal symptoms related with vigorous exercise occur in 20 to 50% of long distance and triathlons runners, with higher incidence rates in women (4). Symptoms are mostly variable and transitory: sickness, vomiting, pyrosis,

diarrhea and gastrointestinal bleeding (5). Gastrointestinal suffering is higher when physical exercise is practiced in hot days, without previous training and with a poor hydration (2). The pathophysiology of these lesions remains unclear, although most authors have related it with: ischemic tissue because of the redistribution of blood flow from the splanchnic territory to other organs during exercise (muscle, heart, lungs and brain) (6); vascular anatomic abnormalities in colon, since 30% of general population has hypoplasia of some arterial arcades or they even do not exist, which makes some regions of the colon especially vulnerable to ischemia (7); mechanical factors due to abdominal wall vibration (7,8); neuroendocrine factors related with secretion of peptides that have influence on gastrointestinal homeostasis (8,9).

We present the case of a universal ischemic colitis in a young soldier after vigorous physical exercise in extreme temperature conditions.

CASE REPORT

A 26-year-old man with no medical history or toxic habits. He showed sudden abdominal pain, biliary incoercible vomiting and profuse sweating. Five hours later, the patient presented abundant rectal bleeding with clots and fresh blood. It was independent from defecation and it did not relieve abdominal pain. There were not other symptoms. The patient was in a military mission in a foreign country. He had practiced several training sessions consisted of 20 minutes of bodybuilding and 2 hours of continuous running. The training sessions were performed during the last three days, in the middle of the day and under extreme temperature conditions. The day the symptoms appeared, he started the training immediately after an abundant meal intake.

The patient was taken to a local hospital in bad general condition and febrile. He had leukocytosis and increased serum creatinine level. An urgent colonoscopy showed

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abundant intraluminal blood and mucosal edema in the sigmoid colon that did not allow endoscope progression. After 24 hours of conservative treatment with intravenous fluids and ciprofloxacin, the situation aggravated with appearance of drowsiness and paleness. Spanish military doctors decided then to move the patient to our military hospital.

He arrived 48 hours after the first symptoms appeared. The patient had tachycardia, febricula and a good oxygen saturation level. Physical examination showed a soft, lightly distended and tympanic abdomen, painful on palpation but not in a precise point, voluntary contracted without peritoneal irritation, and preserved bowel sounds. Digital rectal examination showed traces of fresh blood.

He had a complete blood test that showed 26,010 leukocytes (85% neutrophils) and glucose level of 146 mg/dl. The rest of parameters were normal. On the TC scan (with and without intravenous contrast) (Fig. 1) there were an important widening of the colon and thickening of the wall, plentiful of fluid in peritoneal cavity and multiple mesenteric lymph nodes smaller than 1 cm. Bowel perforation and obstruction of the blood flow were ruled out.

To complete the study, an urgent colonoscopy was performed. Only 100 cm of the colonoscope were introduced because of high risk of perforation. The colonoscopy revealed deep ulcers from sigmoid-rectum junction, mucosal edema and submucosal hematoma. These lesions were mainly located in the proximal colon simulating a tumoral mucosa (a biopsy was performed). The endoscopic diagnosis was ischemic colitis. This diagnose was confirmed later by the histological results (Fig. 2).

The patient evolved favorably on treatment with parenteral nutrition, intravenous antibiotics, analgesia and low-dose corticoids. Follow-up colonoscopy (12 days after

admission) showed persistence of lesions. There were not vascular lesions on CT-angiography. Immunological tests and hypercoagulability exams were negative. Vascular thrombosis was not found. Stool cultures were repeatedly negative. Bowel inflammatory disease was discarded because histology was not compatible. The patient was discharged 29 days after admission, without symptoms. He had a new follow-up colonoscopy 6 weeks after discharge from hospital, which showed complete mucosal healing.

After ruling out other possible causes of the symptoms, the origin of the disease was considered to be the result of a change in the blood flow from mesenteric area secondary to an increased demand of blood caused by a vigorous physical exercise practiced in a hot day.

DISCUSSION

Ischemic colitis is a common pathology in the general population but it rarely appears in people under 60 years old



Fig. 1. Coronal cut of CT scan with intravenous contrast. Note the marked thickening of the colon wall.

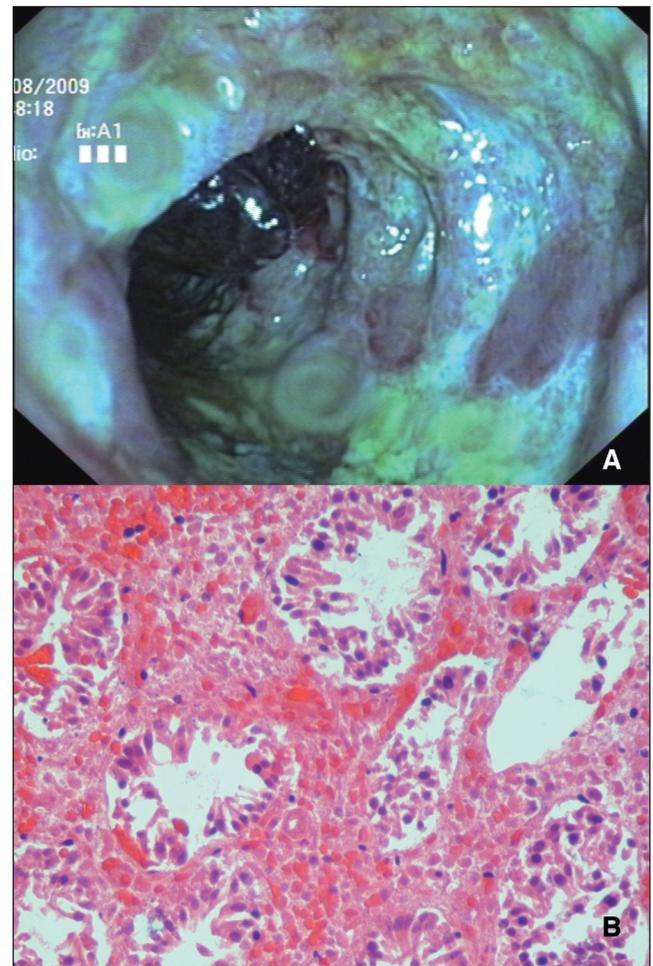


Fig. 2. A. Endoscope imaging of ischemic colitis in sigmoid colon. B. Histological view (hematoxylin-eosin). Crypt focal necrosis, inflammatory exudate and haemorrhage.

and it is extremely rare in patients so young as our patient, even more in the absence of documented risk factors (9). Vigorous physical exercise is a stressful situation to the gastrointestinal tract. A positive fecal occult blood test because of mucosal suffering secondary to transient ischemia is common among professional athletes after a resistance test (10). On the other hand, an obvious bleeding after exercise is uncommon. Endoscopic findings in those cases show different causes: hemorrhagic gastritis, hemorrhoids and ischemic colitis.

Ischemic colitis is the most common form of intestinal ischemia. It occurs because of a transient decrease in blood flow in colon necessary to maintain its metabolic needs. Ischemic colitis is more likely in patients over 65 years old, particularly if there is another underlying pathology such as hypertension or diabetes (11). However, it is not exceptional in young patients in which exists predisposing factors such as cocaine or metanephrines abuse, use of psychotropic drugs or estrogens, hypercoagulability, sickle cell disease, and vigorous physical exercise (12). However, it is necessary to rule out other causes of rectal bleeding in this age range, mainly inflammatory bowel disease and infectious colitis.

Generally, ischemic colitis after vigorous physical exercise is reversible and usually goes unnoticed. But it can indeed be serious and life threatening (13). There is a recent publication of a patient who underwent a right hemicolectomy due to ischemic colitis with clinical peritonism (14).

The case we present in this paper highlights the need of including ischemic colitis in the differential diagnosis of rectal bleeding in young patients. According to some authors, military combat itself is considered as risk factor for ischemic colitis (15). Furthermore, we consider this case interesting because the lesions affected the entire colon length, which is extremely rare when ischemic colitis is caused by physical exercise. In these cases, lesions affect preferentially to the cecum and ascending colon.

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