Spontaneous Intramural Hematoma of the Small Bowel after Oral Anticoagulation Therapy

Young-Soo Lee, MD, PhD, Cardiology Division, Department of Internal Medicine, Daegu Catholic University College of Medicine, Daegu, Korea

ABSTRACT
A 67-year-old woman was admitted to our institution for abrupt-onset abdominal pain. She had been undergoing aspirin and clopidogrel therapy for 8 years because of cerebellar infarction and oral anticoagulation therapy for 1 year because of atrial fibrillation. On admission, her international normalized ratio (INR) was found to be 5.26. An abdomen radiograph showed bowel gas with ileus and a free air level, and abdominal computed tomography (CT) showed an intramural hematoma in the small bowel. After conservative management for 7 days, her symptoms subsided and the follow-up simple radiograph and CT scan demonstrated resolution of the intramural hematoma.

Key words: anti-coagulation intramural hematoma

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Introduction
Long-term oral anticoagulation (OAC) therapy has been recommended for stroke prevention in patients with atrial fibrillation (AF) and is prescribed according to scoring systems such as CHADS2 or CHA2DS2–VASc. On the other hand, OAC increases bleeding risk on excessive accumulation of the oral anticoagulant, which is associated with various hemorrhagic complications such as hematuria, gastrointestinal bleeding, intracerebral hemorrhage, soft tissue hematomas, epistaxis, and retroperitoneal hematomas. Intramural hematoma of the small bowel is a rare complication of the use of OAC therapy. The condition usually presents as abdominal pain, which is frequently accompanied by nausea and vomiting. A history of OAC therapy use with prolonged international normalized ratios (INRs) should be considered in the diagnosis of patients presenting with abdominal pain.

We present a case wherein an AF patient developed a spontaneous intramural hematoma of the small bowel after OAC therapy.
Case

A 67-year-old woman presented to our institution with abrupt-onset abdominal pain. She was taking aspirin and clopidogrel for 8 years because of cerebellar infarction and therapy involving an oral anticoagulant (warfarin 2 mg/day) and amiodarone (200 mg/day) for 1 year because of atrial fibrillation. She did not have a history of trauma. Her blood pressure was 135/85 mmHg. Physical examination showed abdominal distension with tenderness and that bowel sounds had decreased. The following laboratory test results were obtained: hemoglobin level 11.8 g/dL, white blood cell count 11,020/mm³, and platelet count 319,000/mm³. The coagulation test showed a prothrombin time of 60.4 s and an INR of 5.26. The creatinine level was slightly elevated (1.6 g/dL). An abdominal radiograph showed ileus and air–fluid levels indicating intestinal obstruction (Figure 1A and 1B). Computed tomography (CT) demonstrated mural thickening and an intramural hematoma in the small bowel (Figure 2A and 2B). OAC was therapy stopped immediately and vitamin K was given intravenously. Furthermore, parenteral nutrition was initiated for bowel rest. Consequently, the INR value returned within normal range, and the bowel sounds increased. After 7 days, the follow-up radiograph and CT scan demonstrated resolution of the previous ileus and mural thickening, respectively (Figures 3 and 4). The patient then began oral nutrition and was discharged when she passed yellowish stools. She has been free of symptoms and is only undergoing aspirin treatment as an outpatient.

Discussion

Long-term OAC therapy has been recommended for preventing stroke in patients with AF, according to scoring systems. However, OAC increases bleeding risk on excessive accumulation

Figure 1. Radiograph of the abdomen showed ileus with bowel gas (arrows) in the supine position (A) and air-fluid level (arrows) in the erect position (B).
of the anticoagulant. Because of the narrow therapeutic range of OAC therapy, patients undergo capillary blood sampling for measuring prothrombin time (PT). The PT is standardized as the INR with a target range of 2.0–3.0. With OAC therapy, the annual risk of major bleeding increases significantly to 0.3%.¹ The most severe bleeding complication is intracranial hemorrhage. INR values of >4.0 have been known to increase the risk of major hemorrhage.² Furthermore, some schemes have been reported for predicting bleeding risk. Gage, et al.³ presented the HEMORRHAGES score, which considers the following factors: liver/renal disease, alcohol abuse, malignancy, age >75 years, low platelet count or function, rebleeding risk, uncontrolled hypertension, anemia, genetic factors (CYP2C9), and risk of fall or stroke, with 1 point for each risk factor present or 2 points for a previous bleed. The HAS–BLED score has been recently reported to allow assessment of bleeding risk for patients with AF in the SPORTIF cohort.⁴ The HAS–BLED score includes hypertension, abnormal renal/liver function, stroke, bleeding history or predisposition, labile INR (<60% of the time in the therapeutic range), elderly age (age >75 years), and concomitant drugs and alcohol. A score of more than 2 for the HAS–BLED scoring system is considered to indicate a high risk of major bleeding.

Spontaneous intestinal intramural hematoma is an uncommon complication of anticoagulation. The incidence of spontaneous intramural hematoma is reported to be 1 in 2,500 patients using anticoagulation therapy.⁵ The jejunum is commonly involved, followed by the ileum and the duodenum.⁶ The clinical manifestations vary from vague abdominal pain, nausea, vomiting, acute abdomen or intestinal obstruction, and gastrointestinal bleeding.⁷ The management approach involves medical treatment, discontinuation of anticoagulant drugs, bowel rest, correction of PT with intravenous vitamin K, and fresh frozen plasma.⁸ If correctly diagnosed pre-operatively, conservative management with restoration of coagulation parameters leads to a satisfactory recovery in most cases. Surgical intervention is indicated only if there is significant intramural hemorrhage, bowel perforation, ischemia,

Figure 2. Computed tomography scan of the abdomen demonstrated mural thickening and an intramural hematoma in the small bowel (arrows).
(A) Horizontal section (B) Sagittal section
**Figure 3.** Follow-up radiograph of the abdomen showed resolution of the ileus in the supine position (A) and an air-fluid level in the erect position (B) 7 days later.

**Figure 4.** Follow-up computed tomography scan demonstrated resolution of mural thickening 7 days later. (A) Horizontal section (B) Sagittal section.
or peritonitis.

Taken together, intramural hematoma is an uncommon hemorrhagic complication of long-term anticoagulation therapy and should be considered in patients presenting with acute abdomen pain. Early diagnosis enables treatment of most patients without an invasive operation.

References