

Small bowel obstruction caused by intramural hematoma secondary to warfarin therapy: A report of two cases

Naime ALTINKAYA¹, Alper PARLAKGÜMÜŞ², Şenay DEMİR¹, Özlem ALKAN¹, Tülin YILDIRIM¹

Departments of ¹Radiology and ²General Surgery, Başkent University, School of Medicine, Adana

Background/aims: Spontaneous intestinal hematoma is a rare complication of anticoagulant therapy, and small bowel obstruction caused by intramural hematoma secondary to anticoagulant therapy is even rarer. The first symptom is usually abdominal pain, frequently accompanied by nausea and vomiting. A history of anticoagulant use with prolonged international normalized ratios in patients presenting with abdominal pain should alert physicians to search for this entity. Typical findings on abdominal computed tomography yield the diagnosis. Early diagnosis is crucial because most patients are treated non-operatively with a good outcome. Herein, we present the non-enhanced and enhanced computed tomography findings of two cases who were admitted to the emergency clinic with acute abdominal pain and diagnosed as spontaneous intramural ileal hematomas and partial small bowel obstruction secondary to intramural ileal hemorrhage.

Key words: Intramural hematoma, small bowel, warfarin, computed tomography

Warfarin tedavisine ikincil intramural hematoma bağlı ince barsak tıkanıklığı: İki olgu

Spontan intestinal hematom, antikoagülan tedavinin nadir bir komplikasyonu olup, intramural hematoma bağlı olarak gelişen ince barsak tıkanıklığı daha da nadir olarak karşılaşılan bir durumdur. Genellikle ilk semptom karın ağrısı olup, buna bulantı ve kusma sıklıkla eşlik eder. Karın ağrısı ile başvuran bir hastada antikoagülan kullanım öyküsü ile birlikte uluslararası normalize oranların uzaması varsa mutlaka uyarıcı olmalı ve araştırılmalıdır. Abdominal bilgisayarlı tomografideki tipik bulgular tanı koydurucudur. Erken tanı, hastaların çoğunda ameliyat gerektirmeden tedaviye iyi yanıt alınmasını sağlayabileceğinden çok önemlidir. Bu yazıda, akut karın ağrısı ile acil servise başvuran, ileal intramural hematom ve buna bağlı parsiyel ince barsak obstrüksiyonu tanısı alan iki olguya ait kontrastsız ve kontrastlı bilgisayarlı tomografi bulguları sunulmaktadır.

Anahtar kelimeler: Intramural hematom, ince bağırsak, warfarin, bilgisayarlı tomografi

INTRODUCTION

Warfarin is used extensively for therapeutic and prophylactic purposes. The most important complication of anticoagulation treatment with warfarin is bleeding. It is associated with various hemorrhagic complications, including hematuria, gastrointestinal bleeding, intracerebral hemorrhage, soft tissue hematoma, epistaxis, and retro-

peritoneal hematoma (1). Bleeding, presenting as an intramural hematoma of the small intestine, is a rare complication, seen in 1 of 2,500 patients (2). Computed tomography (CT) characteristics include circumferential wall thickening, intramural hyperdensity, luminal narrowing, and intestinal obstruction (3).

Address for correspondence: Naime ALTINKAYA

Başkent University, Faculty of Medicine, Department of Radiology,
Adana, Turkey
E-mail: naimeto@yahoo.com

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In this paper, we present two cases of warfarin overdose that resulted in spontaneous intramural ileal hematoma with characteristic CT findings, and we report their follow-up after treatment.

CASE REPORTS

Case 1

A 62-year-old male presented with a three-day history of persistent abdominal pain more marked in the epigastric region. The patient did not complain about nausea or vomiting. He did not excrete stool. His medical history revealed a diagnosis of cerebrovascular disease four years earlier, which had been treated with warfarin sodium (5 mg/day). The patient did not have a history of trauma. His vital signs were normal, and arterial blood pressure was 120/85 mmHg. Examination of the respiratory and circulatory systems showed no abnormality. On examination of the abdomen, there was distension, but no defense or rebound, and bowel sounds were normal. According to the results of the laboratory investigations, hemoglobin was 15.4 g/dl, white cell count 19,900/mm³, platelet count 323.00/mm³, and prothrombin time (PT) 59.4 sec. The blood tests revealed an international normalized ratio (INR) of 6.10. Abdominal non-enhanced and enhanced CT (a four-channel MDCT scanner, Sensation 4, Siemens; Erlangen, Germany) was performed to rule out acute abdominal disease.

Non-enhanced CT scan showed homogeneous and symmetric intramural thickening with hyperdense material in the ileum wall, the adjacent dilated segment of the ileum and hyperdense ascites indicating hemorrhagic ascites. Enhanced CT scan showed circumferential thickening of the ileal wall (Figure 1a, 1b). Based on these CT findings, partial intestinal obstruction due to intramural hematoma and intraperitoneal bleeding was diagnosed. Warfarin sodium was withdrawn immediately and decompression was applied with a nasogastric catheter. Vitamin K administered orally and conservative treatment helped to relieve the clinical signs and improve laboratory findings. The nasogastric catheter was removed three days after it was inserted and oral nutrition was initiated. The patient was discharged four days after his admission to the hospital. Follow-up CT scans one month after medical treatment demonstrated complete resolution of mural thickening and ascites (Figure 1c).

Case 2

A 70-year-old male who had been treated with warfarin (10 mg/day) since being determined as

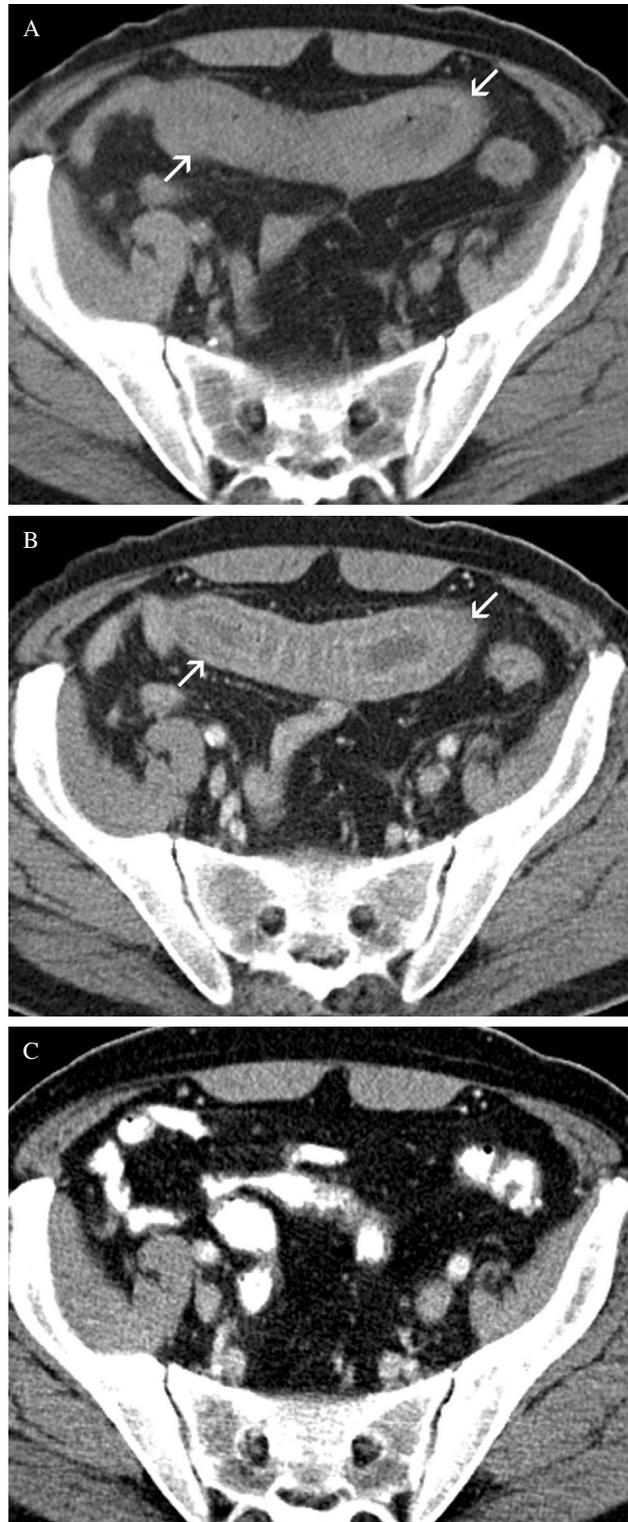


Figure 1. A) Non-enhanced and B) enhanced CT demonstrate circumferential thickening of the ileal wall; non-enhanced CT scan shows intramural hyperdensity (arrows). C) Follow-up non-enhanced CT scan shows regression of findings.

having chronic arterial obstruction seven years earlier presented with acute onset of abdominal pain accompanied by nausea and vomiting. The patient was able to pass gas and stool. His vital signs were normal. Abdominal examination revealed distension and widespread tenderness, but no defense or rebound. According to the results of laboratory investigations, hemoglobin was 14.9 g/dl, white cell count 19,000/mm³, platelet count 400.00/mm³, and PT 70.30 sec. The INR on admission was 5.90. CT scan showed circumferential thickening and intramural hyperdensity of the ileal wall, luminal narrowing, proximal intestinal dilation, and surrounding hyperdense ascites (Figure 2a, 2b). Based on these CT findings, intestinal partial obstruction due to intramural hematoma and intraperitoneal bleeding was diagnosed. De-

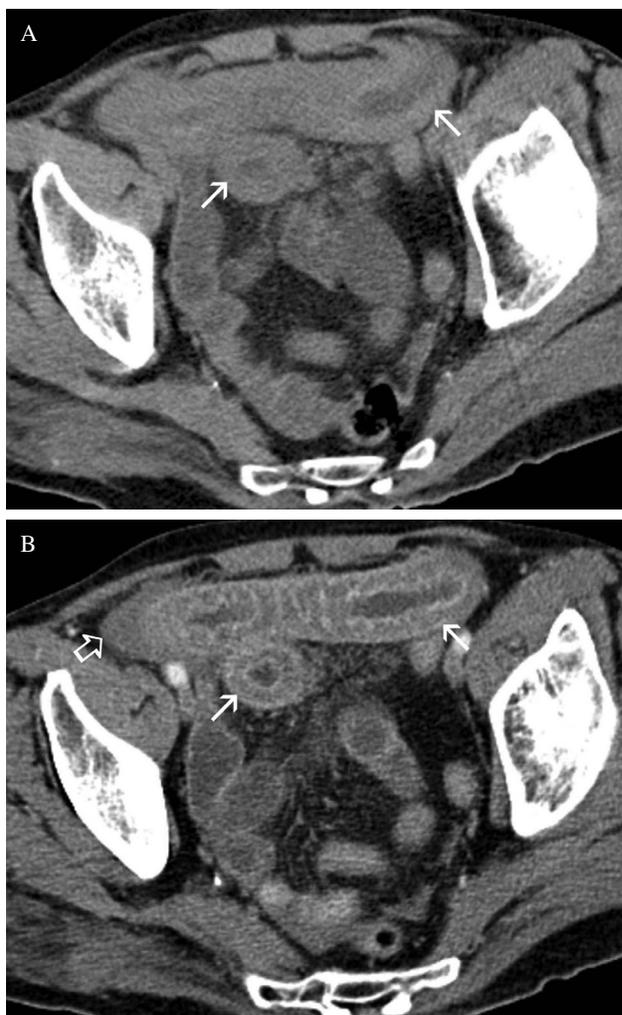


Figure 2. A) Non-enhanced and B) contrast-enhanced CT scans show circumferential thickening of the ileal wall, with non-enhanced CT scan showing intramural hyperdensity (arrows) and surrounding hyperdense ascites (open arrow).

compression was applied with a nasogastric catheter. He was successfully treated with conservative management with 3 units of fresh-frozen plasma. The nasogastric catheter was removed three days later and oral nutrition was initiated. The patient, whose symptoms were relieved, was discharged four days after his admission.

DISCUSSION

Over-anticoagulation with warfarin is the most common cause of spontaneous intramural small bowel hematoma. Other risk factors include hemophilia, idiopathic thrombocytopenic purpura, leukemia, lymphoma, myeloma, chemotherapy, vasculitis, pancreatitis, and pancreatic cancer (3,4).

The presentation can vary from mild, vague abdominal pain to intestinal obstruction and an acute abdomen (1,4). The hemorrhage is usually located in the submucosal layer of the bowel and originates from a small vessel that produces slow bleeding. Hemorrhagic ascites can be present and is related to leakage of blood from an engorged, thickened and inflamed bowel wall with submucosal bleeding extending into all layers (1,3). In addition to intramural bleeding, intraluminal, intramesenteric and retroperitoneal hemorrhage can occur, especially when the duodenum is involved (3). In contrast to traumatic small bowel, which commonly affects the duodenum and tends to be focal, spontaneous small bowel hematomas are more extensive and most commonly involve the jejunum, followed by the ileum and duodenum (1,3).

Abdominal CT is the key for diagnosis, with characteristics including circumferential wall thickening, intramural hyperdensity, luminal narrowing, intestinal obstruction, and hyperdense ascites. It has been suggested that an initial non-enhanced scan should be performed to help demonstrate high attenuation hemorrhage in the bowel wall. Non-enhanced CT findings include homogeneous and symmetric intramural thickening with hyperdense material (30–80 H) in the bowel wall. The hyperdensity of the bowel wall can be seen during the first 10 days after the onset of symptoms and can be helpful in distinguishing this condition from other infiltrative processes that can affect the small bowel, such as malignancy and infection (3). The diagnosis is confirmed by spontaneous resolution of the findings on a follow-up CT scan. Complete resolution of the hematoma usually occurs within a few weeks after the onset of the di-

sease. Imaging studies in the past have documented healing of the intestine within two months. Small bowel lesions persisting for more than two months should raise the radiologist's suspicion of other causes.

The sonographic appearance of acute intramural small bowel hematoma has been described and consists of a thickened and echogenic submucosal layer (1,3,5). However, this abnormality is not specific for intestinal tract hematomas and can be seen in a wide spectrum of disorders.

The first step in the treatment of acute intramural small bowel hematoma is discontinuation of the

anticoagulant medication and correction of coagulation parameters with fresh-frozen plasma and vitamin K. Operative intervention is only indicated if there is significant intraluminal hemorrhage, bowel perforation or ischemia (1,2,6).

Spontaneous small bowel hematoma is a rare clinical entity. It should be considered in any patient on long-term anticoagulation therapy presenting with an acute abdomen. CT, especially non-enhanced CT, is a valuable tool in the diagnosis of this condition. Early diagnosis is crucial because most patients are treated nonoperatively with a good outcome.

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