



Spontaneous Intramural Small Bowel Hematoma Induced by Anticoagulant Therapy: Case Series

Ince M^{1*} and Ince L²

¹Department of Surgery, 100. Yil Private Hospital, Ankara, Turkey

²Abdurrahman Yurtaslan Oncology Hospital, Ankara, Turkey

Abstract

Objective: Spontaneous Intramural Small-Bowel and Intraabdominal Hematoma (SIBSH) is a rare complication of oral anticoagulation therapy. Bleeding due to anticoagulation therapy is generally treated conservatively by nasogastric decompression and total parenteral nutrition, surgical intervention is required in patients with active bleeding, acute abdominal pain, or intestinal obstruction. The aim of our study was to review the imaging findings and outcomes of seven patients.

Material and Method: The medical records and imaging of seven patients were evaluated at our institution between 2020-2024 with the diagnosis of spontaneous and nontraumatic intramural small-bowel hematoma. Ages, gender, primary disease, primary complaint, INR, PTT, LOS, Hb, HTC, CT findings and treatment of patients were retrieved retrospectively from our database.

Results: Seven patients (two female, mean age 69.9 years) were identified. All of the patients suffered from abdominal pain, two had additional symptoms. All of the patients had overdose of warfarin sodium and had abnormal coagulation parameters. The mean duration of the patients' anticoagulation was 45 months. Abdominal CT showed the exact pathology which is intramural hematoma in all patients. Five of the patients were treated, nonoperatively, and two patients underwent surgery due to necrosis and obstruction. All patients were well at mean 18.9-week follow-up.

Conclusion: SIBSH is a rare complication of anticoagulant therapy, however it should be considered in the differential diagnosis of acute abdomen. Firstly, nonsurgical treatment should be the treatment, but surgery is indicated if complicated patients such as generalized peritonitis, necrosis or intestinal obstruction develops.

Introduction

Intestinal obstructions are causes of abdominal pain necessitate surgery. Intramural small bowel hematoma is a rare cause of intestinal obstruction [1]. Anticoagulant or antiplatelet therapy such as warfarin, heparin, Low Molecular Weight Heparin (LMWH), and aspirin widely used for various purposes as a prophylactic agent or for treatment are a risk factor for Spontaneous Intramural Small Bowel Hematoma (SIBSH) an extremely rare, seen in 1 out of 2,500 patients' disease, often in the jejunum [2]. Computed Tomography (CT) findings such as wall thickening, intramural hyperdensity, luminal narrowing and obstruction of the intestine are most commonly used in diagnosis. Hematoma is observed in order of decreasing frequency, in the jejunum (69%), ileum (38%) and the duodenum (23%) [3]. Therapy is generally treated conservatively by nasogastric decompression and total parenteral nutrition, however, conditions requiring surgery are intestinal obstruction, intestinal infarction, bowel perforation or the presence of ischemia and pancreatitis with obstructive jaundice [4]. The aim of this study is to assess the clinical characteristics and outcomes of patients with SIBSH cause intestinal obstructions.

Material And Methods

We retrospectively reviewed the medical records, approved by our institutional review board in our hospital, of consecutive seven patients who were hospitalized for SIBSH. All patients were reviewed as nontraumatic, spontaneous intramural hematoma, caused by over-anticoagulation due to warfarin sodium and they had acute abdominal pain and the final diagnosis was confirmed by an abdominal Computed Tomography (CT) scan between 2016 and 2023. The findings of the CT scans, initial clinical presentations, demographic data, duration of warfarin use, predisposing

OPEN ACCESS

*Correspondence:

Mehmet Ince, Department of Surgery,
100. Yil Private Hospital, Ankara,
Turkey, Tel: +90505 8187038;

Received Date: 18 Jun 2024

Accepted Date: 02 Jul 2024

Published Date: 06 Jul 2024

Citation:

Ince M, Ince L. Spontaneous Intramural
Small Bowel Hematoma Induced by
Anticoagulant Therapy: Case Series.
Clin Surg. 2024; 9: 3717.

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diseases, results of laboratory tests were evaluated. Intramural small bowel hematoma was characterized as circumferential bowel wall thickening, luminal narrowing, and intestinal tract obstruction on the CT scan [5].

Because this study was a retrospective review of the patient's medical records, there was no additional risk to the patient. Therefore, the informed consent has been omitted.

Results

Seven patients diagnosed with small bowel intestinal obstructions due to SISBH were retrospectively analyzed. Five of the patients were male (71.4%) and 2 were female (28.6%). The mean age was 69.9 (52-87) years. At admission, the mean duration of the patient's complaints was 10 days (range 4-21 days). The mean duration of the patients' anticoagulation was 45 months (range 4-96 months). None of the patients had a history of trauma before admission to the hospital. The International Normalized Ratio (INR) value for all patients was higher than the normal range (0.85-1.15) and the therapeutic level (1.5-2.5). The mean Htc of the patients was 33.3% (range 20.6-40.6) (Table 1).

All of the patients suffered from abdominal pain, 2 had additional symptoms of nausea and vomiting, and 1 had anorexia. On admission, all of the patients had abdominal tenderness in all abdominal quadrants on physical examination. There was muscular rigidity and rebound tenderness in 1 patient and voluntary guarding in another, and melanic stool in 2 patients.

All of the 7 patients had overdose of warfarin sodium; 3 patients had received postoperative anticoagulant therapy for prosthetic mitral valve replacement, 1 patient aortic valve replacement and coronary bypass surgery, 1 patient for deep venous thrombosis of the leg, 1 patient coronary bypass surgery, and 1 patient for cardiac thrombus. All patients were diagnosed with the CT findings; the wall thickening jejunal segment in 6 patients, free fluid (bleeding) in the abdomen in 2 patients (Figure 1). A laparotomy was done in two patients (28.6%) with mechanical bowel obstruction and acute abdomen, both of these patients underwent partial small bowel resection and end-to-end anastomosis. In patients who underwent resection, intramural hematoma causing obstruction and ischemic changes was observed at the level of the jejunum in 1 patient, and in the duodenum-jejunum-ileum in 1 patient (Figure 2).

The other 5 patients were followed by medical treatment with cessation of oral intake, intravenous fluids, Fresh Frozen Plasma (FFP), Erythrocyte Suspension (ES) and vitamin K1 were given with signs of partial obstruction and absence of acute abdomen. All of

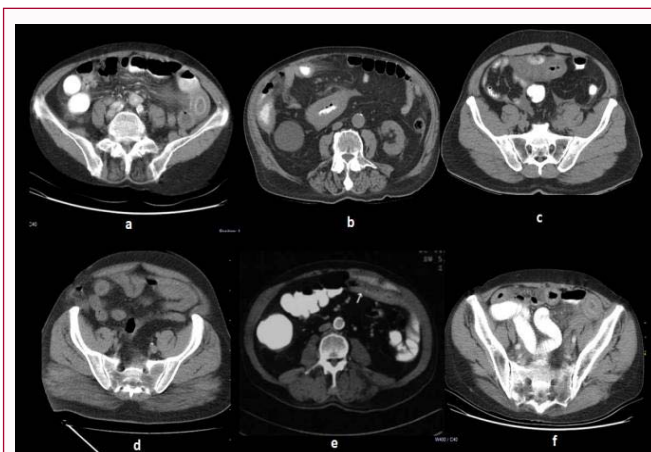


Figure 1: CT findings.



Figure 2: Resection.

patients were discharged without complications in mean 12.85 days (7-20). All patients were well at mean 18.9-weeks (6-52) follow-up (Table 2).

Discussion

Partial or complete bowel obstructions due to SISBH is an uncommon complication of anticoagulant therapy. Abdominal pain was the initial symptom in all of our patients. However, the initial symptoms of intramural hematoma of the intestine are usually abdominal pain, nausea, and vomiting. SISBH should be considered in any patient with abdominal pain and nausea and vomiting and/or rectal bleeding who is receiving long-term anticoagulation therapy [6]. The Prothrombin Time (PT), activated Partial Thromboplastin Time (aPTT), and INR should add to routine laboratory tests. All of the patients' PT, aPTT, and INR values were above the normal

Table 1: Demographic and Laboratory Findings of Patients.

| Patients No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Mean |
|----------------------------------|------|------|------|------|-------|------|-------|--------|
| Age | 73 | 87 | 52 | 53 | 79 | 63 | 82 | 69,9 |
| Gender, F/M | F | M | M | M | M | F | M | 02-May |
| INR | 7.1 | 7.77 | 7.68 | 9.93 | 11.34 | 5.24 | 8.39 | 8.2 |
| PTT, sc | 76.2 | 90.9 | 89.8 | 78.1 | 83.6 | 54.7 | 106.3 | 82.8 |
| Htc, % | 30.1 | 33.2 | 40.6 | 40.4 | 20.6 | 29 | 39.2 | 33,3 |
| Hb, g/dL | 9.98 | 10.2 | 13.9 | 12.9 | 6.9 | 9.2 | 12.7 | 10,82 |
| WBC, mm3 | 18.1 | 11.2 | 12.1 | 15.9 | 19.2 | 20.8 | 12.4 | 12.5 |
| Duration Complaint, day | 21 | 7 | 9 | 14 | 10 | 5 | 4 | 10 |
| Duration Of Warfarin use, months | 36 | 50 | 12 | 4 | 72 | 48 | 96 | 45 |

Table 2: Clinical Findings of Patients

| Patients | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------------|---|--|---|--|---|---|---|
| Primer Disease | Mitral valve replacement | Mitral valve replacement | Deep vein thrombosis/ Antiphospholipid antibody syndrome | Cardiac Thrombus and COPD | Coronary bypass surgery | Mitral valve replacement | Aort valve replacement and Coronary bypass surgery |
| Primer Complaint | Abdominal pain | Abdominal pain | Abdominal pain | Abdominal pain | Abdominal pain | Abdominal pain | Abdominal pain |
| Sekonder Complaint | - | Anorexia | Nausea Vomiting | - | Nausea-Vomiting | - | - |
| Treatment | Segmental small bowel resection+ anastomosis/ Conservative treatment for duodenal hematoma | Cons. treatment* | Cons. treatment | Cons. treatment | Cons. treatment | Cons. treatment | Small bowel resection+ anastomosis |
| CT findings | Wall thickening of duodenum and small bowel and free fluid in the abdomen (bleeding?) (Figure 1a) | Wall thickening of proximal jejunal segment (Figure1b) | Wall thickening of jejunal segments and free fluid in the abdomen (Figure 1c) | Free fluid between in the jejunal segments (Figure 1d) | Wall thickening of jejunal segment and free fluid between the intestine (Figure 1e) | Intramural hematoma of ileum, dilatation of small intestine (Figure 1f) | Wall thickening of jejunal segment (intramural hematoma) and free fluid between the intestine |
| LOS, day | 12 | 11 | 7 | 16 | 17 | 20 | 7 |
| Follow up, weeks | 12 | 8 | 6 | 8 | 52 | 40 | 6 |

* IV fluids, erythrocyte suspension, K vit, *Fresh Frozen Plasma*

therapeutic range [7]. Abdominal CT reveals the “ring spring” sign and the pseudokidney signs commonly seen in intramural hematoma. Although these signs are not pathognomonic, they have a high diagnostic accuracy in the right clinical context in patients who have had anticoagulation therapy [8]. Six of 6 patients (85.6%) in our study had their hematoma and 5 patients had free intraabdominal fluid (28.6%) diagnosed through abdominal CT. These results are compatible with those of previous studies [3,9].

Conservative nonoperative therapy is to stop the administration of anticoagulant drugs and correct the patient’s coagulation parameters with fresh-frozen plasma and vitamin K. It has been shown that from 2 to 4 units of fresh-frozen plasma and vitamin K treatment well correct coagulation parameters within 72 h. We used a mean of 3 units (2-8 units) of fresh-frozen-plasma with full resolution for 5 patients. The management of warfarin overdose without bleeding, 1 mg to 2.5 mg of oral vitamin K, reduces the INR from 5.0-9.0 to 2.0-5.0 within 24 h to 48 h. In patients with serious bleeding and increased INR, vitamin K (10 mg) by slow intravenous infusion supplemented with FFP, repeated every 12 h for persistent INR elevation is recommended, also [10,11].

If the patients deteriorate due to generalized peritonitis or intestinal obstruction develops laparotomy should not be delayed after medical treatment [12]. As previous studies have shown, peritonitis occurs initially in 7.7% to 14.3% of patients, and about 15.3% to 28.5% undergo surgical exploration because of peritoneal signs or obstructing mass (hematoma) [3,13]. In our study, up to 57.1% of patients had peritoneal signs, and only two of them underwent surgical exploration such as small bowel resection + anastomosis. Five patients in this review successfully received medical treatment and were discharged without recurrence of intestinal tract hematoma, abdominal pain, or intestinal tract obstruction in 6 weeks of follow-up.

Conclusion

SISBH causing intestinal obstruction is a rare complication of anticoagulant therapy, it should be considered in the differential

diagnosis of acute abdomen. Prompt and early diagnosis of this complication requires a high index of suspicion. Abdominal CT evaluation performed will improve the diagnostic accuracy in all cases. Surgery is indicated if generalized peritonitis or intestinal obstruction develops, but nonsurgical treatment should be the treatment of first choice for others.

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