Mesenteric Venous Thrombosis Masquerading as Small Bowel Obstruction

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ABSTRACT

Mesenteric venous thrombosis (MVT) is an uncommon, but increasingly recognized, cause of intestinal ischemia. Presenting signs and symptoms are nonspecific, and diagnosis requires a high index of suspicion. We present the case of a 33-year-old woman who was transferred to our hospital for the management of a jejunal bezoar resulting in small bowel obstruction. She was found to have MVT that was complicated by intestinal infarction and perforation. This case emphasizes the need to consider MVT in the differential diagnosis of small bowel obstruction, as earlier diagnosis and treatment can prevent complications and improve outcomes.

INTRODUCTION

Mesenteric venous thrombosis (MVT) is an increasingly recognized cause of mesenteric ischemia in adults. The presentation is nonspecific and diagnosis requires a high index of suspicion. Computed tomography (CT) angiography showing venous filling defects or a lack of flow in mesenteric veins during the venous phase is considered the gold standard for diagnosis. Initial management is conservative and includes anticoagulation, bowel rest, intravenous fluid hydration, and bowel decompression. Surgery is indicated for complications such as bowel infarction or perforation. Early diagnosis and treatment are crucial to prevent complications and improve patients’ outcomes.

CASE REPORT

A 33-year-old woman presented to an outside hospital with a 3-day history of gradual-onset periumbilical abdominal pain that was associated with nausea and nonbloody vomiting. Her symptoms were not related to meals or bowel movements. Her past medical and surgical histories were unremarkable. She was not using any medications including oral contraceptives or nonsteroidal anti-inflammatory drugs. She also denied use of tobacco, marijuana, alcohol, or illicit drugs.

On presentation, vital signs were notable for mild tachycardia. Physical examination showed periumbilical tenderness without rigidity or guarding. Laboratory testing including a complete blood count and comprehensive metabolic panel was notable for mild leukocytosis (white blood cell count 10.8 × 10^3/μL) and normocytic anemia (hemoglobin 9.3 g/dL). Serum lipase was within normal limits, and the urine pregnancy test was negative. Contrasted CT of the abdomen and pelvis showed small bowel wall thickening with minimal ground-glass changes in the mesentery, suggestive of enteritis. With no improvement in symptoms, the patient underwent an upper endoscopy and colonoscopy, which were unremarkable. She subsequently had magnetic resonance enterography, which showed persistent small bowel wall thickening with a jejunal distention to up to 4 cm.

The patient was started on ciprofloxacin and metronidazole and was discharged home after some improvement in her symptoms. However, she presented again to the same outside facility a few days later because of the worsening of her abdominal pain and recurrence of nausea and nonbloody vomiting. Vital signs were within normal limits. Laboratory testing results were unchanged. She...
underwent a push enteroscopy showing a jejunal bezoar resulting in an almost complete small bowel obstruction. The patient was transferred to our facility, 2 months after her initial presentation, for consideration of repeat push enteroscopy and removal of jejunal bezoar.

At our facility, push enteroscopy showed multiple clean-based jejunal ulcers with a jejunal foreign body that could not be dislodged despite multiple attempts (Figure 1). Based on these endoscopic findings and elevated inflammatory markers (erythrocyte sedimentation rate 29.8 mg/dL), Crohn’s disease was suspected. Therefore, methylprednisolone 30 mg intravenously twice daily was started in an attempt to reduce small bowel wall inflammation to help passage of the foreign body. The patient initially noted improving abdominal pain and was able to tolerate a full liquid diet and pass loose bowel movements.

However, the patient redeveloped progressive symptoms, with evidence of worsening small bowel dilation on abdominal X-rays. CT abdomen with oral and intravenous contrast showed small locules of gas in the small bowel mesentery concerning perforation. Emergent exploratory laparotomy was undertaken and showed evidence of small bowel perforation adjacent to the bezoar, necessitating partial small bowel resection and primary anastomosis. Small bowel biopsies showed evidence of venous thrombosis and early canalization concerning MVT (Figure 2). A second review of the CT scan obtained prior to surgery showed evidence of occlusion of the superior mesenteric vein (SMV), which was also noted on review of the outside hospital CT scan performed 8 weeks prior to presentation (Figure 3). She was started on anticoagulation and was eventually discharged home with referral to hematology for evaluation of a hypercoagulable state.

**DISCUSSION**

MVT is an uncommon cause of mesenteric ischemia that was first reported in 1895.\(^1\) It has been increasingly recognized with the widespread use of cross-sectional imaging.\(^2\) Depending on the extent and rapidity of thrombus formation, MVT may present in an acute, subacute, or chronic fashion.\(^3\) As the presenting signs, symptoms, and laboratory testing are nonspecific, a high index of suspicion is required to avoid a delay in diagnosis. MVT has an overall better prognosis compared to other causes of mesenteric ischemia.\(^4\)

MVT usually involves the SMV and rarely involves the inferior mesenteric or portal veins. CT angiography, showing filling defects or a lack of flow in mesenteric veins during the venous phase, is considered the diagnostic modality of choice.\(^5\) Our patient had 2 CT scans but not CT angiography, which is considered the gold standard for the diagnosis of MVT. Once the diagnosis is made, it is important to look for predisposing factors such as local intra-abdominal inflammatory processes and prothrombotic states (eg, malignancies, JAK2 mutation, myeloproliferative disorders, among others).\(^6\) Idiopathic MVT has been reported in more than 25% of cases of MVT; however, this is expected to decline with more widespread use of thrombophilia testing.\(^7\)

It is unclear whether the subacute form of MVT represents a distinct form of MVT or a group of acute MVT with a delay in seeking medical care or diagnosis. Patients usually present after having symptoms for days to weeks. The resultant venous
occlusion is sufficient to produce ischemia, but ample venous drainage is provided through collateral vessels allowing recovery. Nevertheless, some patients with the subacute form of MVT can progress to acute mesenteric ischemia. Our patient most likely developed the subacute form of SMV thrombosis, which led to small bowel wall edema resulting in obstruction and bezoar formation, small bowel ischemia, and ultimately perforation.

Management of MVT is aimed at preventing bowel infarction and recurrent thrombosis. The initial management for subacute MVT is mainly conservative and includes anticoagulation, bowel rest, intravenous fluid hydration, and bowel decompression. Surgery is indicated for patients who show evidence of bowel infarction or perforation. The mortality rate and use of surgery for MVT are decreasing because of earlier diagnosis and treatment.

This case emphasizes the need to consider MVT in the differential diagnosis of atypical cases of small bowel obstruction. A high index of suspicion leads to earlier diagnosis and treatment, prevention of complications, and improved outcomes (Table 1).

**DISCLOSURES**

Author contributions: All authors contributed equally to this manuscript. A. Al-Taee is the article guarantor.

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**Table 1. Mesenteric venous thrombosis: Summary of key points**

| Findings | History | Nonspecific symptoms such as abdominal pain, nausea, and vomiting. May have risk factors such as a hypercoagulable state or abdominal inflammatory process. |
| --- | --- | --- |
| Physical examination | May have pain out of proportion of physical examination findings. May have peritoneal signs if ischemia or perforation are present. |
| Laboratory testing | Nonspecific findings such as leukocytosis and elevated inflammatory markers eg, c-reactive protein. Liver enzymes, serum lipase, urine pregnancy test (in females) are unrevealing. |
| Imaging | Plain films may reveal small bowel dilation and/or pneumoperitoneum if perforation is present. Computed tomography with intravenous contrast, or angiography, which is considered the gold standard for diagnosis, may show filling defects or a lack of flow in mesenteric veins during the venous phase. |
| Management | Anticoagulation, bowel rest, intravenous fluid hydration, and bowel decompression. Surgery for complications such as bowel infarction or perforation. |

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