A 50-year-old woman presented with a 5-day history of right upper quadrant abdominal pain that was dull and achy. Initially, the pain had been mild, but it was constant and worsened when she ate. She also had some nausea but did not vomit. She did not have any fever or chills. Her stool was brown, although she did not have any bowel movements in the 24 hours before admission. The patient has a history of well-controlled asthma. Her current medications are NuvaRing, fluticasone inhaler, and albuterol inhaler.

The patient’s blood pressure was normal (110/62 mm Hg), and her pulse rate was 78/min and regular. The abdominal examination revealed an area of mild tenderness at the right upper quadrant and epigastrium; there was no guarding, rigidity, or rebound tenderness. Bowel sounds were normal. Findings from a rectal examination were normal; there was no mass or tenderness. Results of a fecal occult blood test were negative.

Laboratory studies revealed a normal complete blood cell count—no anemia or leukocytosis. Blood chemistry test results were normal, with no indication of metabolic acidosis. Lactate level was 1 mmol/L (normal, 0.5 to 2.2 mmol/L). A CT scan of abdomen with contrast showed an abnormal filling defect in the superior mesenteric vein with apparent thrombus occlusion (Figure). Otherwise, visualized abdominal visceral structures were essentially normal. Results of a hypercoagulable panel were normal. The laboratory and imaging findings led to a diagnosis of mesenteric vein thrombosis related to NuvaRing use.

Immediately after the CT scan was obtained, a heparin intravenous drip was started. The patient was closely monitored by both the medical and the surgical team. Her NuvaRing was removed. Warfarin therapy was initiated on the following day. The pain subsided, and the patient was able to tolerate
an increase in food intake. She was discharged home after her international normalized ratio achieved therapeutic target; warfarin therapy was continued for 6 months. She was advised to stop using NuvaRing or other hormonal contraceptives.

Discussion

Mesenteric vein thrombosis is a rare cause of abdominal pain. It accounts for 5% to 15% of all mesenteric ischemic events. Bowel ischemia can occur as a result of obstruction in mesenteric venous blood flow because it causes profound bowel wall edema and back pressure to the mesenteric artery, leading to diminished arterial flow.1 Patients with mesenteric vein thrombosis usually present with insidious onset of abdominal pain (typically days to weeks). About half of the patients have associated nausea and vomiting. Hematemesis, hematochezia, and melena can occur in patients in whom bowel necrosis develops.2 The diagnosis of acute mesenteric vein thrombosis can be challenging, given the obscure and nonspecific presentation of the disease. Imaging studies play a crucial role in detecting the disease. CT with contrast is the diagnostic test of choice because it can establish the diagnosis in more than 90% of patients. Typical findings include a filling defect in the mesenteric vein, enlargement of the corresponding mesenteric artery vein and artery and a sharply defined venous wall with increased density in the rim.3 Findings such as pneumatosis intestinalis, portal vein gas, and persistent enhancement of bowel wall can be seen in patients who present late and in whom bowel necrosis develops. Mesenteric angiography should be reserved for patients whose CT scans are normal but for whom clinical suspicion is still high, such as patients who have known underlying thrombophilia. About 75% of patients with acute mesenteric vein thrombosis have an identifiable risk factor, such as an inherited or acquired hypercoagulable state, portal hypertension, postoperative state, intra-abdominal inflammation, or blunt abdominal trauma.1 Once the diagnosis of mesenteric thrombosis has been established, patients should be screened for protein C, protein S, and antithrombin III deficiency; factor V Leiden and associated mutation; antiphospholipid syndrome; hyperhomocysteinemia; paroxysmal nocturnal hemoglobinuria; myeloproliferative disorder; cancer; and medication use to identify inherited or acquired thrombophilia.4,5 Oral contraceptive use is well known for its association with an increased risk of venous thromboembolism. It accounts for 9% to 18% of cases of mesenteric vein thrombosis in young women.1 A non-oral hormonal contraceptive has been developed in hope of reducing the risk of a thromboembolic event by bypassing hepatic first-pass metabolism, thereby decreasing the liver’s exposure to the hormone; this is important because the liver is where coagulation factors are synthesized.6 NuvaRing (NV Organon, Oss, the Netherlands) is the only FDA-approved contraceptive vaginal ring available in the United States. It releases 120 µg of etonogestrel and 15 µg of ethinyl estradiol daily over a 3-week period. Several studies have noted that thromboembolic events are rare among NuvaRing users.7,8 However, mesenteric vein thrombosis associated with NuvaRing use has been reported.9

Treatment

Treatment of acute mesenteric vein thrombosis consists of anticoagulation and surgery. Surgical intervention is not indicated in most cases; however, surgical resection is required in patients with bowel necrosis.1 Immediate anticoagulation with heparin after the diagnosis is vital, since it significantly increases survival and decreases the risk of recurrence.10 Heparin can be given even if the patient has GI bleeding, if the bleeding risk is outweighed by the risk of bowel infarction. Oral anticoagulation with warfarin for at least 6 months is indicated for prevention of recurrent venous thrombosis. A longer duration may be warranted if a hypercoagulable state has been identified.10,11 Low-molecular-weight heparin may be an alternative, but long-term data are not yet available.

References


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