

CLINICAL VIGNETTE

Mesenteric Vein Thrombosis in Setting of Oral Contraceptive Use

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Case Presentation

A 33-year-old nulliparous, female presented to the office for Emergency Department follow up for periumbilical pain. Past medical history was notable for Irritable Bowel Syndrome and polycystic ovary syndrome (PCOS) for which she had been taking Ethinyl Estradiol-Norethindrone for the past seventeen years. The abdominal pain started three months ago but worsening pain associated with nausea and vomiting for five days, prompted the ED evaluation. ED evaluation included, extensive laboratory studies along with an abdominal ultrasound, which was unrevealing. She improved after administration of intravenous ondansetron and was discharged on oral ondansetron and dicyclomine. At the office visit, she reported persistent periumbilical pain with resolution of nausea and vomiting. Pain was described as sharp, constant, and radiating to the back. She was tolerating clear liquids but was unable to advance further due to pain. There was, no fever, chills, dysuria, heartburn, weight loss, postprandial fullness, early satiety, or changes in bowel habits. She reported one to glasses of wine daily for several months but had stopped approximately two weeks prior to evaluation. Patient denied non-steroidal anti-inflammatory drugs, cigarette, and illicit drug use. There was no previous upper or lower gastrointestinal endoscopy. She did not report improvement with dicyclomine, acetaminophen, or omeprazole. She was afebrile and normotensive. Physical examination was notable for an individual in mild distress with moderate periumbilical tenderness without rebound or guarding, soft, non-distended, with active bowel sounds, and no palpable masses. Computed tomography (CT) of the abdomen and pelvis with and without intravenous contrast was ordered and performed three days later. It revealed thrombus present throughout the course of the superior and inferior mesenteric veins with associated perivascular fat stranding within the mesentery, and the patient was directed to emergency department. She was started on heparin infusion with significant improvement in symptoms and tolerated regular diet. Vascular surgery found no indication for surgical intervention. Her combined oral contraceptive pill (COCP) was discontinued and hypercoagulable testing returned back negative. Given no adverse effects with heparin, she was safely transitioned to apixaban and discharged. As the thrombosis was considered to be provoked in setting of oral contraceptive use and given lack of any other risk factors for thrombophilia, patient completed a six-month course of apixaban. Regular menses resumed despite being off of COCP.

Discussion

Mesenteric vein thrombosis (MVT) was first described in 1895. The pathophysiology of MVT is the result of the Virchow's classic triad of venous stasis, endothelial injury, and hypercoagulability state. MVT nearly always involves the distal small intestine (superior mesenteric venous drainage) but rarely involves the colon (inferior mesenteric venous drainage).¹ This frequency has been suggested due to the collateral flow of the inferior mesenteric venous distribution.

Combined oral contraceptive pills have been well described as risk factor for venous thromboembolism (VTE). The most common locations of VTE while on an oral contraceptive pill (OCP) are the deep veins of the legs followed by the pulmonary vasculature. MVT linked to OCP use accounts for approximately 4-5% of all MVTs.² Thrombogenicity correlates with the strength of the estrogen component in the OC and the progestin element intensifies the effect. OCPs stimulate hypercoagulable states.³ These include acceleration of the internal and external pathways of the coagulation cascade, lowering of antithrombin III levels, induction of antifibrinolytic activity by lowering spontaneous fibrinolysis, and production of intimal hyperplasia. Other disorders that can cause MVT include neoplasms, pancreatitis, diverticulitis, portal hypertension, cirrhosis, inflammatory bowel disease, thrombophilia, personal or family history of VTE, and myeloproliferative disorders.⁴

The onset of mesenteric vein thrombosis may be acute, subacute, or chronic. Diagnosing MVT may be challenging due to nonspecific abdominal symptoms and physical examination findings which can progress over a prolonged period of time. Abdominal pain is characteristically colicky and can be accompanied by abdominal distention, nausea, vomiting, anorexia, and occult blood. It can result in ischemia and is, therefore, potentially life-threatening.

Reliable diagnosis is most commonly confirmed with contrast-enhanced Computed tomography (CT) scan of the abdomen and pelvis. CT findings typically reveal a filling defect in the mesenteric vein and branches along with mesenteric congestion and stranding. If ischemic, bowel wall can appear thickened.⁵ If clinical suspicion remains high and initial CT is nondiagnostic, angiography in the form of CT, magnetic resonance (MR), or standard catheter based can be obtained.

Initial management consists of systemic anticoagulation to limit extension of thrombosis, with heparin, either low molecular weight or unfractionated. Intravenous fluid administration, pain management, bowel rest, and serial abdominal exams are also mainstays of conservative management modalities. Discontinuation of COC is mandatory. Hypercoagulable testing should be obtained as the mesentery is a rare location of thrombosis. Once the patient is stable and there is no plan for surgical intervention, anticoagulation can be transitioned to an oral medication, either warfarin or a novel oral anticoagulant. A total duration of three to six months is typically completed unless a thrombophilic state is detected, at which point a longer duration can be considered. Surgery in the form of open abdominal exploration rather than laparoscopy, is indicated with signs of bowel infarction.⁶ Thrombolysis and thrombectomy can also be considered with suboptimal response with systemic anticoagulation without evidence of bowel necrosis.

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Conclusion

Mesenteric vein thrombosis is a rare but potentially life-threatening condition. Diagnosis is often delayed due to nonspecific symptoms and physical examination. It should be considered in the differential diagnosis of abdominal pain in women of reproductive age taking OCPs. Meticulous personal history including all medications helps to swiftly and accurately establish the diagnosis.

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