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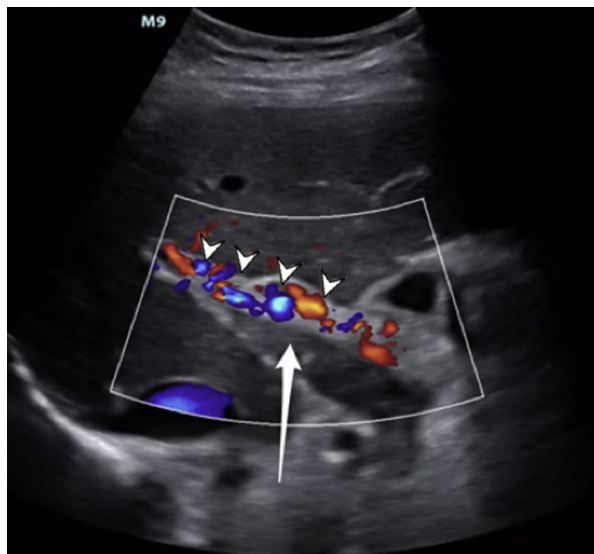


Figure 1. Color Doppler ultrasonography demonstrating lack of flow through the portal vein because of thrombosis (arrow). Flow was noted in the tortuous hepatic artery (arrowheads) medial to the portal vein.



Figure 2. Coronal CT of the abdomen and pelvis, demonstrating a clot (black outline) that began in the portal vein (arrow) and extended beyond the confluence of the splenic vein and superior mesenteric vein.

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A 36-year-old woman with oral contraceptive use presented with 1.5 weeks of epigastric pain and vomiting that improved with hot showers. She had previously attended another hospital and undergone abdominal computed tomography (CT), whose result was interpreted as normal. She had unremarkable vital signs and epigastric tenderness without rebound or guarding. Blood tests demonstrated anion-gap metabolic acidosis with respiratory compensation (pH 7.36; anion gap 19) and a lactate level of 0.9 mmol/L, with mild elevations in alanine transferase (75 U/L) and bilirubin (total 1.3 mg/dL; indirect 1.1 mg/dL). Point-of-care ultrasonography result was negative for cholecystitis or choledocholithiasis but noteworthy for an echogenic structure in the portal vein (Figure 1). CT with intravenous contrast confirmed her diagnosis (Figure 2).

For the diagnosis and teaching points, see page 723.

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the pharmaceutical company. This, however, comes at the harm of patients and adds little to our understanding of treatment for the disease. Additionally, it likely leads to increased research and development costs because subsequent studies comparing the new drug with active, accepted treatments would be required before clinicians could use the new drug.

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REFERENCES

1. Millum J, Grady C. The ethics of placebo-controlled trials: methodological justifications. *Contemp Clin Trials*. 2013;36:510-514.
2. World Medical Association. WMA Declaration of Helsinki—ethical principles for medical research involving human subjects. 1964. Available at: <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects>. Accessed August 25, 2019.
3. Simon R. Are placebo-controlled clinical trials ethical? *Ann Intern Med*. 2000;133:474-475.
4. Keranen T, Halkoaho A, Ikonen E, et al. Placebo-controlled clinical trials: how trial documents justify the use of randomisation and placebo. *BMC Med Ethics*. 2015;16:1-6.
5. Chiodo GT, Tolle SW, Bevan L. Placebo-controlled trials: good science or medical neglect? *West J Med*. 2000;172:271-273.
6. Temple R, Ellenberg S. Placebo-controlled trials and active-control trials in the evaluation of new treatments. *Ann Intern Med*. 2000;133:455-463.
7. Rothman KJ, Michels KB. The continuing unethical use of placebo controls. *N Engl J Med*. 1994;331:394-398.
8. Friedman B. Managing migraine. *Ann Emerg Med*. 2017;69:202-207.
9. American Headache Society. The American Headache Society position statement on integrating new migraine treatments into clinical practice. *Headache*. 2019;59:1-18.
10. Lipton RB, Munjal S, Buse DC, et al. Allodynia is associated with initial and sustained response to acute migraine treatment: results from the American Migraine Prevalence and Prevention Study. *Headache*. 2017;57:1026-1040.
11. Lipton RB, Croop R, Stock EG, et al. Rimegepant, an oral calcitonin gene-related peptide receptor antagonist, for migraine. *N Engl J Med*. 2019;381:142-149.
12. Orentlicher D. Placebo-controlled trials of new drugs: ethical considerations. *Diabetes Care*. 2001;24:771-772.

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DIAGNOSIS:

Portal vein thrombosis. This patient had portal vein thrombosis extending to the splenic confluence and superior mesenteric vein, with resultant mesenteric ischemia. She began receiving heparin, and urgent laparotomy demonstrated 60 cm of ischemic small bowel that was successfully resected, with no complications.

Portal vein thrombosis, typically associated with cirrhosis, malignancy, myeloproliferative disease, and coagulation disorders, is a rare complication of oral contraceptive use.¹ The patient had no *JAK2* mutation or myeloproliferative mutations, making oral contraceptive the likely cause of her thrombosis. In experienced hands, ultrasonography is reported to have a sensitivity of 73% to 100% and specificity of 88% to 99% for the detection of portal vein thrombosis.^{2,3}

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REFERENCES

1. Intagliata NM, Caldwell SH, Tripodi A. Diagnosis, development, and treatment of portal vein thrombosis in patients with and without cirrhosis. *Gastroenterology*. 2019;(March):1-18.
2. Yerdel MA, Gunson B, Mirza D, et al. Portal vein thrombosis in adults undergoing liver transplantation: risk factors, screening, management, and outcome. *Transplantation*. 2000;69:1873-1881.
3. Tessler FN, Gehring BJ, Gomes AS, et al. Diagnosis of portal vein thrombosis: value of color Doppler imaging. *AJR Am J Roentgenol*. 1991;157:293-296.