ACG CASE REPORTS JOURNAL

IMAGE | LIVER

Massive Hepatic Infarction Caused by HELLP Syndrome

Adam E. Mikolajczyk, MD[1], John Renz, MD, PhD[2], Geraldine Diaz, DO[3], Lindsay Alpert, MD[4], John Hart, MD[4], and Helen S. Te, MD[1]

[1]*Center for Liver Diseases, The University of Chicago Medicine, Chicago, IL*
[2]*Department of Surgery, Section of Transplantation, The University of Chicago Medicine, Chicago, IL*
[3]*Department of Anesthesia, The University of Chicago Medicine, Chicago, IL*
[4]*Department of Pathology, The University of Chicago Medicine, Chicago, IL*

CASE REPORT

A healthy, 30-year-old woman at 32 weeks gestation presented to the emergency department with sudden-onset headache and abdominal pain. On physical exam, she was hypertensive (188/69 mm Hg) and had mild tenderness to palpation in the right upper quadrant. Initial laboratory studies revealed proteinuria, aspartate aminotransferase at 730 U/L, and alanine aminotransferase at 478 U/L. She was diagnosed with severe preeclampsia, and an emergent cesarean section was performed.

However, 24 hours after the surgery, the patient began experiencing marked worsening of her right upper quadrant abdominal pain and was subsequently noted to have developed new thrombocytopenia (53,000/μL), anemia (hemoglobin 7.5 g/dL), low haptoglobin (<20 mg/dL), and worsened liver injury (aspartate aminotransferase 19,036 U/L; alanine aminotransferase 5,238 U/L). A contrast-enhanced computed tomography (CT) scan was performed, which revealed marked peripheral hypoattenuation with central sparing consistent with massive hepatic infarction (Figure 1). Over the subsequent 48 hours, the patient developed multi-organ failure and underwent liver transplantation with a complete recovery. The explanted liver revealed extensive necrosis and associated hemorrhage, including a subcapsular hematoma (Figure 2). The gross cross-section of the explanted liver closely mirrored the CT scan findings, with evidence of diffuse necrosis and hemorrhage in the periphery and preserved central parenchyma (Figure 2). Furthermore, histological assessment of the liver parenchyma revealed massive hepatocellular necrosis and hemorrhage (Figure 3). Of note, lupus anticoagulant/antiphospholipid syndrome testing, performed prior to transplantation, was negative.

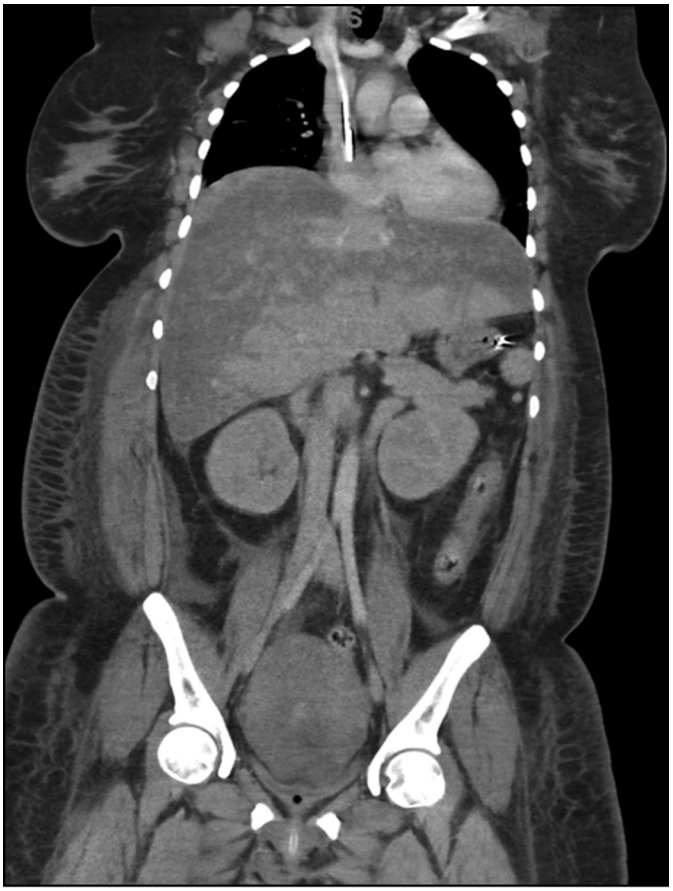

Figure 1. Coronal view of the patient's liver on a CT scan, demonstrating marked peripheral hypoattenuation with central sparing consistent with massive hepatic infarction.

ACG Case Rep J 2017;4:e81. doi:10.14309/crj.2017.81. Published online: June 21, 2017.

Correspondence: Adam Mikolajczyk, The University of Chicago Medicine, Center for Liver Diseases, 5841 S. Maryland Ave, MC 4076, M421, Chicago, IL 60637 (adam.mikolajczyk@uchospitals.edu).

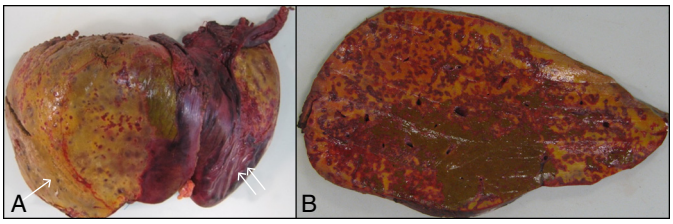

Figure 2. (A) The patient's explanted liver with extensive necrosis (single arrow) and associated hemorrhage, including a subcapsular hematoma (double arrow). (B) A cross-section of the explanted liver with evidence of diffuse necrosis and hemorrhage in the periphery and preserved central parenchyma.

The incidence of HELLP syndrome, which is characterized by hemolysis, elevated liver enzymes, and low platelet count, is 0.6% of all pregnancies. It occurs in 10–20% of patients with severe preeclampsia, and 30% of the cases happen in the post-partum period, as with our patient.[1,2] Rarely, HELLP syndrome can be complicated by the development of hepatic infarction as well as subcapsular hematoma or hepatic rupture. These potentially fatal conditions each manifest with severe right upper quadrant abdominal pain and marked elevations in serum aminotransferases. Thus, these findings in a patient with HELLP syndrome should trigger cross-sectional imaging to establish a prompt diagnosis and a timely treatment plan, which often includes surgical interventions such as hepatic resection or liver transplantation.[3-5]

DISCLOSURES

Author contributions: AE Mikolajczyk wrote the manuscript and provided the images. J. Renz, G. Diaz, and HS Te edited the manuscript. L. Alpert and J. Hart provided the images and edited the manuscript. HS Te is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received March 19, 2017; Accepted May 5, 2017

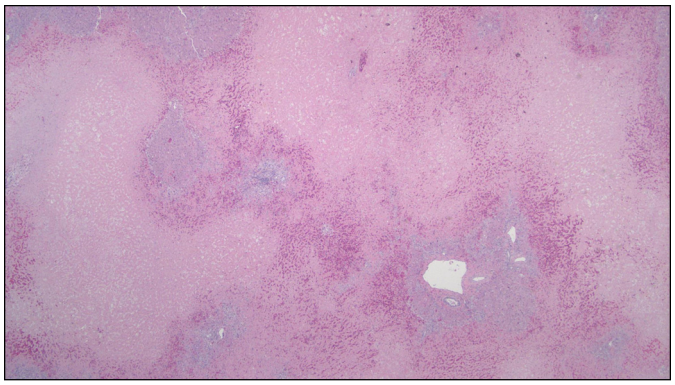

Figure 3. Hematoxylin and eosin stain (20x) of the explanted liver demonstrating massive hepatocellular necrosis and hemorrhage.

REFERENCES

1. Hammoud GM, Ibdah JA. Preeclampsia-induced liver dysfunction, HELLP syndrome, and acute fatty liver of pregnancy. *Clin Liver Dis*. 2014;4(3):69–73.
2. Sibai BM, Ramadan MK, Usta I, Salama M, Mercer BM, Friedman SA. Maternal morbidity and mortality in 442 pregnancies with hemolysis, elevated liver enzymes, and low platelets (HELLP syndrome). *Am J Obstet Gynecol*. 1993;169(4):1000–6.
3. Zissin R, Yaffe D, Fejgin M, Olsfanger D, Shapiro-Feinberg M. Hepatic infarction in preeclampsia as part of the HELLP syndrome: CT appearance. *Abdom Imaging*. 1999;24(6):594–6.
4. Barton JR, Sibai BM. Hepatic imaging in HELLP syndrome (hemolysis, elevated liver enzymes, and low platelet count). *Am J Obstet Gynecol*. 1996;174(6):1820–7.
5. Shames BD, Fernandez LA, Sollinger HW, et al. Liver transplantation for HELLP syndrome. *Liver Transpl*. 2005;11(2):224–8.