Aberrant Hepatic Artery: A Potential Cause for Error in the Angiographic Diagnosis of Traumatic Liver Hematoma

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Abstract. In a patient undergoing selective hepatic arteriography for suspected liver trauma, a nonopacified area of the liver, initially thought to represent a hepatic hematoma, was later discovered to be due to the presence of an accessory right hepatic artery arising from the superior mesenteric artery. This case illustrates the need for a search for aberrant vasculature whenever a liver hematoma is suspected on the basis of a selective hepatic arteriogram.

Key words: Abdominal angiography, technique — Liver, blood supply.

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Traumatic hematoma of the liver may be seen at angiography as an avascular area that displaces hepatic blood vessels and normally opacified hepatic parenchyma [1–5]. A false positive diagnosis may be made in a selective celiac or common hepatic arteriogram if the radiologist fails to realize that a seemingly avascular area in the liver is actually normal hepatic parenchyma supplied by an aberrant hepatic artery. We recently studied a case which indicates the necessity of searching for a possible aberrant vessel whenever hepatic arteriography demonstrates an area of nonopacified liver parenchyma. Diagnostic error resulting because of atypical arterial anatomy will thus be avoided.

Fig. 1. Proper hepatic arteriogram. The arterial (A) and capillary (B) phases of the hepatic arteriogram demonstrate a nonopacified area in the right lobe of the liver which was initially thought to represent a subcapsular hematoma.
Case Report

A 20-year-old woman was admitted to the Massachusetts General Hospital for suspected hepatic trauma. Four days earlier she had injured her abdomen in a fall and developed right upper quadrant abdominal pain, nausea, and vomiting. On admission she had a fever of 100.0°F but otherwise normal vital signs. Abdominal examination revealed right upper quadrant tenderness with guarding and no rebound. No organomegaly or masses were palpated and bowel sounds were normal. Stool was guaiac negative. Hematocrit reading was 30% and white blood cell count was 7,000 cu mm. Serum bilirubin, LDH, SGOT, and alkaline phosphatase were normal. Radiographs of the chest and rib cage were unremarkable. A selective common hepatic arteriogram (Fig. 1) demonstrated a nonopacified area along the lateral aspect of the right lobe of the liver. Initially, a subcapsular hematoma was suspected. However, a superior mesenteric arteriogram was performed to investigate the possibility of atypical vascular anatomy, and an accessory right hepatic artery was demonstrated (Fig. 2). The portal venous phase of the superior mesenteric arteriogram showed normal hepatic parenchyma and no avascular area. A selective injection into the accessory hepatic artery (Fig. 3) resulted in opacification of the exact area of liver parenchyma that was not seen on the common hepatic arteriogram. Over the following week the patient's pain diminished and she was discharged.

Discussion

Several authors have stressed the value of hepatic arteriography in the diagnostic work up of suspected