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Ultrasound in Emergency Medicine

SUBCAPSULAR LIVER HEMATOMA AFTER COLONOSCOPY DIAGNOSED BY EMERGENCY DEPARTMENT BEDSIDE ULTRASONOGRAPHY

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□ **Abstract—Background: Hepatic subcapsular hematoma is an uncommon cause of right upper quadrant pain in the Emergency Department. It must be recognized early, as large volumes of acute blood loss and rupture into the peritoneum carry significant morbidity and mortality. In the absence of gallbladder disease, the differential diagnosis should include liver pathology. Bedside ultrasonography can be used to identify such lesions. Objectives: To discuss the presentation, evaluation, and management options of hepatic subcapsular hematoma. Case Report: We report a case of a 30-year-old woman who presented with the chief complaint of right upper quadrant pain radiating to the right scapula 6 h after a screening colonoscopy for intestinal polyps. Emergency physician-performed bedside ultrasound revealed a large hyperechoic mass in the right lobe of the liver. Radiology-performed comprehensive ultrasound and subsequent computed tomography scan of her abdomen and pelvis revealed a subcapsular hematoma without intestinal perforation. Conclusion: In a patient with undifferentiated right upper quadrant abdominal pain, bedside ultrasonography is a rapid and effective modality in the diagnosis of liver masses, including subcapsular hematoma.** © **2013 Elsevier Inc.**

□ **Keywords—subcapsular hematoma; emergency ultrasound; abdominal pain; colonoscopy; computed tomography**

INTRODUCTION

The presentation of a hepatic subcapsular hematoma has a multitude of etiologies, ranging from traumatic, obstetric, vascular, neoplastic, and iatrogenic, among others. Patients typically present with right upper quadrant abdominal pain, which may include signs and symptoms of shock if the bleeding is severe. Thus, it is important to recognize this diagnosis in the Emergency Department (ED). Although computed tomography is the preferred imaging modality for diagnosis, rapid bedside ultrasonography is an effective tool to narrow the differential diagnosis and identify the lesion. We will discuss a case of a hepatic subcapsular hematoma that presented several hours after a diagnostic colonoscopy.

CASE REPORT

A 30-year-old woman presented to the ED with severe epigastric and right upper quadrant pain radiating to the right scapula after a colonoscopy 6 h prior. The patient was otherwise well before the procedure, and the pain began shortly after the colonoscopy was performed. She also complained of one episode of non-bilious, non-bloody emesis and watery diarrhea with scant rectal bleeding

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after the procedure. The patient had been observed in the post-op care unit after the colonoscopy, with no improvement in pain, and was sent to the ED by her gastroenterologist to obtain imaging for possible intestinal perforation. The colonoscopy had been performed due to irregular bowel habits and concern for possible intestinal polyps. The patient had been in remission for 3 years after chemotherapy for choriocarcinoma of the uterus complicated by metastatic spread to the lungs and brain.

Upon presentation to the ED, the patient's initial vital signs were as follows: temperature 96.6°F, pulse 58 beats/min, and blood pressure 113/54 mm Hg. She denied chest pain, shortness of breath, or fever. Physical examination was unremarkable except for significant tenderness in the right upper quadrant and epigastrium. Urine pregnancy test was negative. She was given morphine and ondansetron for pain and nausea, with mild relief of symptoms. Laboratory tests revealed unremarkable results for liver function tests, coagulation studies, and basic electrolyte panel. A complete blood count showed no leukocytosis, but the patient's hemoglobin and hematocrit was 11.0 g/dL/32.5% and platelets 204,000/mm^3. Upright chest and abdominal radiographs in the left lateral decubitus position were obtained, showing no abnormalities. However, her pain persisted, primarily in the right upper quadrant.

Emergency physician-performed bedside ultrasound was done using a portable ultrasound machine and a 9–3 MHz curvilinear probe (Zonare, Mountain View, CA) that showed no cholelithiasis or other signs of acute cholecystitis. However, on transverse view, a large hyperechoic mass on the right lobe of the liver displacing the right kidney was visualized (Figure 1). Radiology-performed comprehensive ultrasound was subsequently obtained, confirming a 17.0 × 13.2 × 14.1 cm hepatic mass (Figure 2). A computed tomography (CT) scan confirmed the hyperechoic mass to be a subcapsular hematoma in the right lobe of the liver measuring 18.0 × 5.9 cm (Figure 3), with no evidence of intestinal perforation.

The patient was admitted to the medical Intensive Care Unit for further evaluation of the subcapsular hematoma. On hospital day 3, a CT scan of the abdomen/pelvis with contrast showed an enlarging hematoma measuring 19.2 × 8.9 cm (Figure 4). The patient received 2 units of packed red blood cells after a hemoglobin and hematocrit drop from 11.0 g/dL/32.5% on date of admission to 7.8 g/dL/24.1% on hospital day 4. She was transferred to an outside institution on hospital day 5 to be closer to doctors who were familiar with her past medical history. On telephone follow-up 2 months after presentation to our ED, the patient remains in stable condition and has not had any need for follow-up care of this hematoma. She states that she had no further transfusions or any surgical interventions performed while at the outside hospital. She was released on hospital day 9.

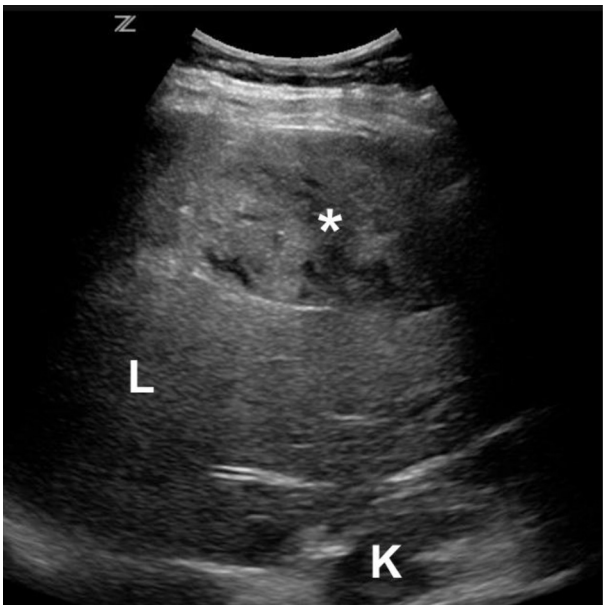

Figure 1. Emergency physician-performed ultrasonography showing hyperechoic mass in liver. L = liver; K = kidney; * = hyperechoic mass.

DISCUSSION

Subcapsular hematoma of the liver has been defined in the literature as a collection of blood between the liver parenchyma and Glisson capsule (1). The majority of these hematomas are located in the right lobe of the liver (75% of cases). Rupture of the hematoma into the peritoneum carries a high mortality rate, up to 75% (2,3).

Trauma is the most common cause of subcapsular hematomas of the liver. Anatomic etiologies of spontaneous

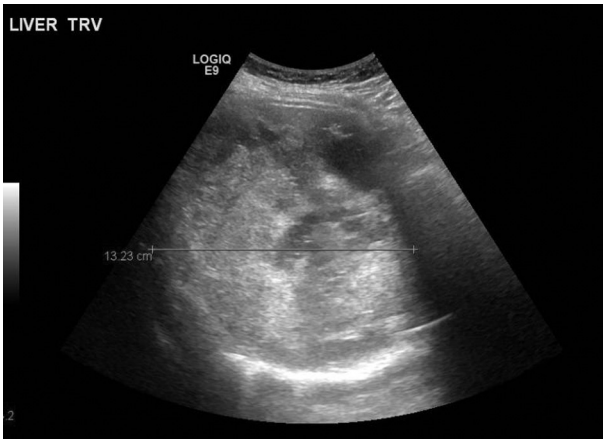

Figure 2. Radiology-performed comprehensive ultrasound performed revealing a right hepatic lobe heterogeneous mass with ill-defined margins.