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Massive Upper GI Bleeding from Duodenal Invasion of hepatocellular carcinoma successfully treated with embolization and Hemospray®

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Massive Upper GI Bleeding from Duodenal Invasion of hepatocellular carcinoma successfully treated with embolization and Hemospray®

Abstract

Direct invasion of hepatocellular carcinoma (HCC) into the duodenum is a unique and life-threatening complication of HCC that has been rarely reported. A 60-year-old male with known HCC and cirrhosis presented with melena. Computed tomography of the abdomen and pelvis showed a 7cm hepatic mass abutting the duodenum. Esophagogastroduodenoscopy demonstrated a large, actively oozing mass in the duodenum treated with Hemospray® followed by transarterial embolization (TAE). Active upper gastrointestinal bleeding due to duodenal invasion of HCC can be successfully treated with Hemospray® Endoscopic Hemostat and TAE.

Keywords

Hepatocellular carcinoma; gastrointestinal bleeding; duodenal invasion; embolization; Hemospray®

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Massive Upper GI Bleeding from Duodenal Invasion of Hepatocellular Carcinoma Successfully Treated with Embolization and Hemospray®

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Abstract

Direct invasion of hepatocellular carcinoma (HCC) into the duodenum is a unique and life-threatening complication of HCC that has been rarely reported. A 60-year-old male with known HCC and cirrhosis presented with melena. Computed tomography of the abdomen and pelvis showed a 7cm hepatic mass abutting the duodenum. Esophagogastroduodenoscopy demonstrated a large, actively oozing mass in the duodenum treated with Hemospray® followed by transarterial embolization (TAE). Active upper gastrointestinal bleeding due to duodenal invasion of HCC can be successfully treated with Hemospray® Endoscopic Hemostat and TAE.

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Hepatocellular carcinoma; gastrointestinal bleeding; duodenal invasion; embolization; Hemospray®

List of Abbreviations

GIB – Gastrointestinal bleed
HCC – Hepatocellular carcinoma

Introduction

Hepatocellular carcinoma (HCC) accounts for 90% of primary liver cancers and is the fourth most common cause of cancer-related death worldwide.^{1,2} Despite efforts to increase screening for HCC and the introduction of novel treatment modalities, the mortality rate from liver cancer has steadily increased in the United States by 43% for men and 40% for women.³ HCC most often occurs secondary to underlying liver diseases such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Non-Alcoholic Fatty Liver Disease (NAFLD), with cirrhosis of any cause increasing the annual risk of HCC between 2 and 4%.²

Complications related to HCC include liver failure and death. We present a case of massive gastrointestinal bleed (GIB) secondary to direct invasion of his HCC liver mass into the duodenal lumen. This is

a unique and life-threatening complication of HCC that has been rarely reported in the literature.⁴⁻⁷

Case

A 60-year-old male presented with 1-day of weakness and melena. Past medical history included T3N1M0 HCC (diagnosed 3 months prior, on nivolumab x4 weeks), liver cirrhosis secondary to untreated Hepatitis C (Child Pugh 8B), former intravenous heroin abuse, gallstone pancreatitis (status post cholecystectomy), and chronic obstructive pulmonary disease.

Physical exam revealed tachycardia (heart rate 109 beats/minute), tachypnea (respiratory rate 28/minute, oxygen saturation of 100% on ambient air) and a cachectic, lethargic male with diffuse skin and conjunctival pallor. He had palpable tenderness in the epigastric region and right upper quadrant without rebound. The remainder of the physical exam was unremarkable, and there were no other stigmata of liver cirrhosis. Complete blood count showed anemia (hemoglobin 5.3 mg/dL from baseline ~ 8.5 mg/dL, normal 13.9 -16.3 g/dL) and normal platelets (247 K/uL). Hepatic function panel was significant for hypoalbuminemia (2 g/dL, normal 3.4 - 5.1 g/dL), elevated transaminases (ALT 101 U/L, normal < 40 U/L, and AST 107 U/L, normal <

35 U/L). The results of other laboratory tests and chest X-rays were unremarkable.

He was admitted to the medical intensive care unit, given 3 units of packed red blood cells (pRBCs), and started on intravenous (IV) esomeprazole and ceftriaxone for spontaneous bacterial peritonitis prophylaxis. Computed tomography (CT) of the abdomen and pelvis with contrast showed large volume ascites and multifocal HCC, with the largest mass measuring 7.3 cm located adjacent to the duodenal wall with associated mass effect and hemoperitoneum (**Figure 1**).

Esophagogastroduodenoscopy showed an ulcerated mass with active bleeding in the duodenal bulb (**Figure 2**). Hemospray® was applied generously, and hemostasis was achieved. In addition to endoscopic hemostasis, the mass was also successfully treated with transarterial embolization (TAE). Ultimately, the patient elected for comfort measures was discharged home with hospice care and passed away 1 week later.

Discussion

Duodenal invasion of HCC is a rare cause of GIB and a rare complication of HCC.⁴⁻⁷ Prior reports of tumor bleeding from HCC have used various modalities to achieve hemostasis, including embolization, chemoembolization, radiation, and surgery.

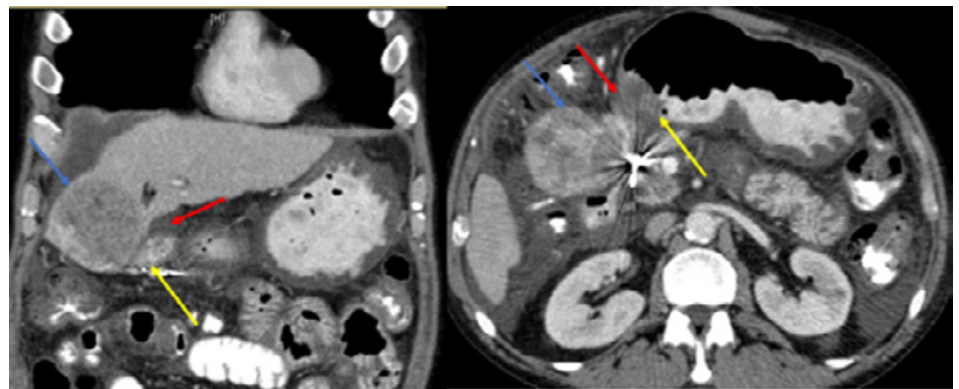


Figure 1. Coronal (left) and axial (right) Computed tomography (CT) of the abdomen and pelvis showing 7.3 cm segment IV HCC mass (blue arrows) eroding into the duodenum (yellow arrows) with associated mass effect and hemoperitoneum (red arrows).

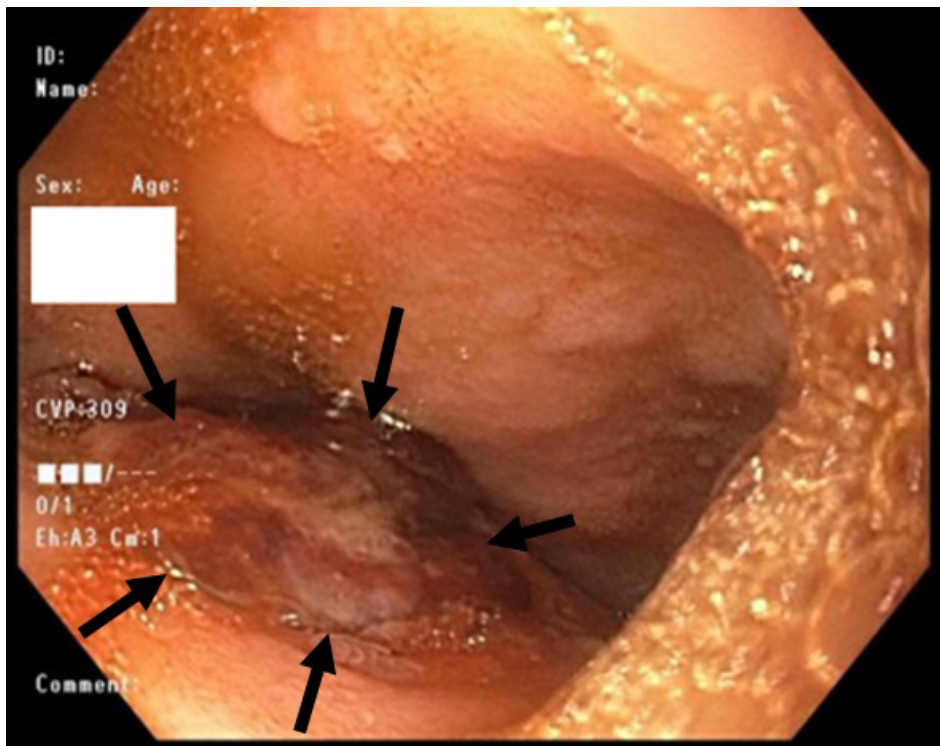


Figure 2. Esophagogastroduodenoscopy (EGD) showing a large mass with ulceration and a clot over it noted in the distal bulb/proximal sweep of the duodenum with active bleeding (black arrow).

Our case was successfully treated using a combination of Hemospray[®] and TAE. Hemospray[®] is a highly absorptive mineral agent containing bentonite, which, when applied endoscopically to bleeding lesions, can achieve hemostasis by absorbing water and creating a barrier that leads to mechanical tamponade and concentration of clotting factors to enhance coagulation.⁸ It can be useful for bleeding lesions that are difficult to treat with traditional endoscopic techniques for hemostasis, such as tumor bleeding. TAE is a catheter-based treatment of liver tumors that uses a combination of embolizing agents (e.g., polyvinyl alcohol, gelfoam, and embospheres) to occlude a tumor's blood supply, resulting in ischemia and infarction of tumor tissue.⁹

This case underscores the necessity of a broad differential for GIB in a patient with HCC. It serves as a reminder that objective data, such as the CT scan in our case, can provide important information about the cause of GIB prior to endoscopy. Although variceal bleeding can be a source of life-threatening bleeding in patients with underlying cirrhosis, we highlight an unusual cause of GIB in patients with cirrhosis and HCC. The choices of treatment used in our case were a result of the brisk nature of the bleed during endoscopy, but also the need to rapidly reduce the tumor's size using TAE to minimize the impact of mass effect into the duodenum.

While size and location of a liver tumor may increase clinical suspicion, there is no tool to risk stratify the likelihood of a patient's mass ulcerating into the GI tract. Our patient's mass was large and located in the inferior aspect of segment IV, which increased the risk for direct invasion.

A definitive diagnosis and lifesaving care were provided to this patient because of the collaboration of multiple specialties on the clinical team. Gastroenterologists should be aware of this unique complication of HCC because it can present with profuse GIB. Due to the difficulty managing this endoscopically, a delay in diagnosis can be life-threatening.

The patient was able to elect comfort care measures due to the success of the treatment provided.

Conclusion

Duodenal invasion of HCC is a rare cause of GIB and a rare complication of HCC.^{3, 4} There is no tool to risk stratify the likelihood of a patient's mass causing GIB. This case underscores the necessity of a broad differential for GIB with existing HCC and the importance of interdisciplinary treatment to maximize treatment efficacy and patient outcomes. ■

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Conflict of Interest

All authors report no conflicts of interest. All authors had access to data and had an equal role in writing and revising the manuscript.

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