



Case report

Management of ruptured hepatocellular carcinoma invading the gastrointestinal tract: A case report

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ARTICLE INFO

Keywords:

Hepatocellular carcinoma
Rupture
Embolization

ABSTRACT

Introduction and importance: Hepatocellular carcinoma (HCC) constitutes most of primary liver cancers. HCC invading the gastrointestinal tract (GIT) is considered a rare entity with limited reports in the literature. Management can either be palliative or curative such as transarterial chemoembolization (TACE) followed by definitive resection. Here, we present a case of direct HCC invasion of the GIT that was managed by surgical resection.

Case presentation: A 74-year-old male with a history of a liver mass, found to have HCC. Admitted for medical optimization prior to definitive resection, however his stay was complicated by hemorrhagic shock, with imaging findings of hemoperitoneum suggestive of spontaneous rupture of the mass. TACE was done to stabilize the patient prior to resection. Patient was taken immediately to the operating room for definitive resection.

Clinical discussion: Most cases of direct HCC invasion into the GI tract present mainly with GI bleed. Some patients, present with abdominal pain without any warning signs of an occult GI bleed. Thus, absence of an occult GI bleeding does not exclude a GIT invasion. Management options are several, but in advanced stages, management is not limited to palliation.

Conclusion: GIT invasion is a rare complication of HCC reported in scarcity in the literature. Most cases present with GI bleeding but with some rare cases, they present with more generalized symptoms like abdominal pain, weight loss or fatigue. Despite having a poor prognosis, complete surgical resection of the tumor may be a reassuring and life prolonging treatment option for these patients.

1. Introduction

Hepatocellular carcinoma (HCC) constitutes most of primary liver cancers and is a major cause of cancer mortality [1]. Gastrointestinal tract (GIT) involvement is a rare complication of hepatocellular carcinoma, occurring in around 2 % of reported cases [2]. On average, the time between diagnosis of primary liver tumor and GIT involvement is around 4.5 months with median survival period of around 1 month following diagnosis [3]. Possible interventions include TACE (Transarterial chemoembolization), TEA (Transarterial embolization), TARE (Transarterial radioembolization), resection or a systemic chemotherapy [2]. The treatment modality depends on several factors including availability of resources and staging system. Development of surgical practices and peri-operative patient care has allowed surgical

resection of advanced HCC to be safely performed [4]. Here, we present a case of HCC with GIT involvement, predominantly the stomach and small bowel that were managed by surgical resection. This case report has been reported in line with the SCARE Criteria [5].

2. Case

A case of a 74-year-old male with a history of a liver mass first discovered incidentally on Computed Tomography (CT) abdomen and pelvis to evaluate vague abdominal pain. Underwent surgery; however, the procedure was complicated by an intraoperative bleeding that was controlled, however resection could not be performed. Biopsies taken during the operation turned out to be negative for malignancy.

Patient presented again with a 1-year interval history of a 30-kg

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<https://doi.org/10.1016/j.ijscr.2022.107330>

Received 9 May 2022; Received in revised form 17 June 2022; Accepted 17 June 2022

Available online 21 June 2022

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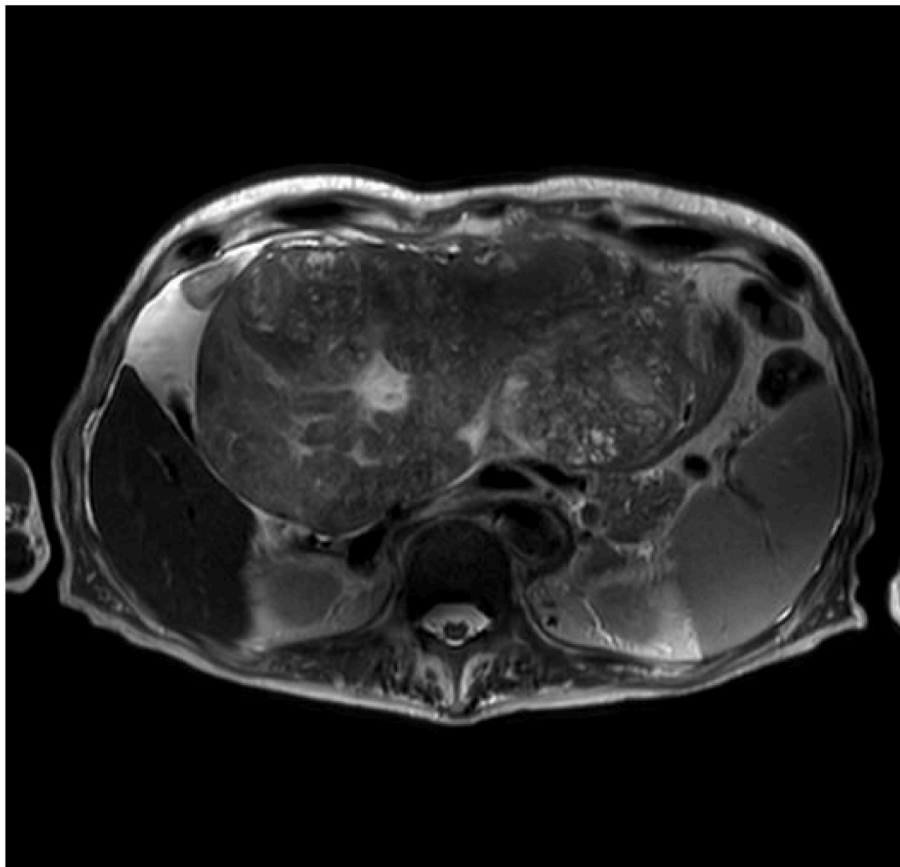
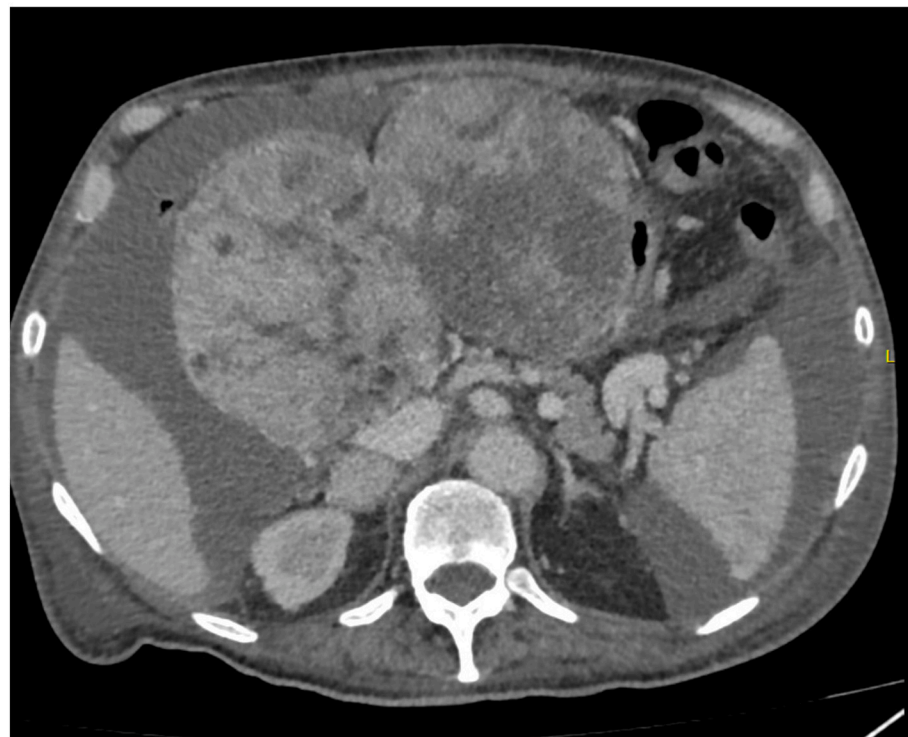


Fig. 1. (A) Abdominal MRI showing a large bilobed necrotic hepatic mass measuring $19.1 \times 17.7 \times 10.3$ cm (TR \times CC \times AP dimensions) replacing the entire left hepatic lobe with mass effect and left portal and hepatic veins thrombosis/occlusion with severe narrowing of main portal vein and signs of portal hypertension. (B) Abdominal CT angiography showing new ascites and new hyperdense components adjacent to the liver. New hemoperitoneum, likely caused by spontaneous rupture of the patient's known hepatic mas.

(A)



(B)

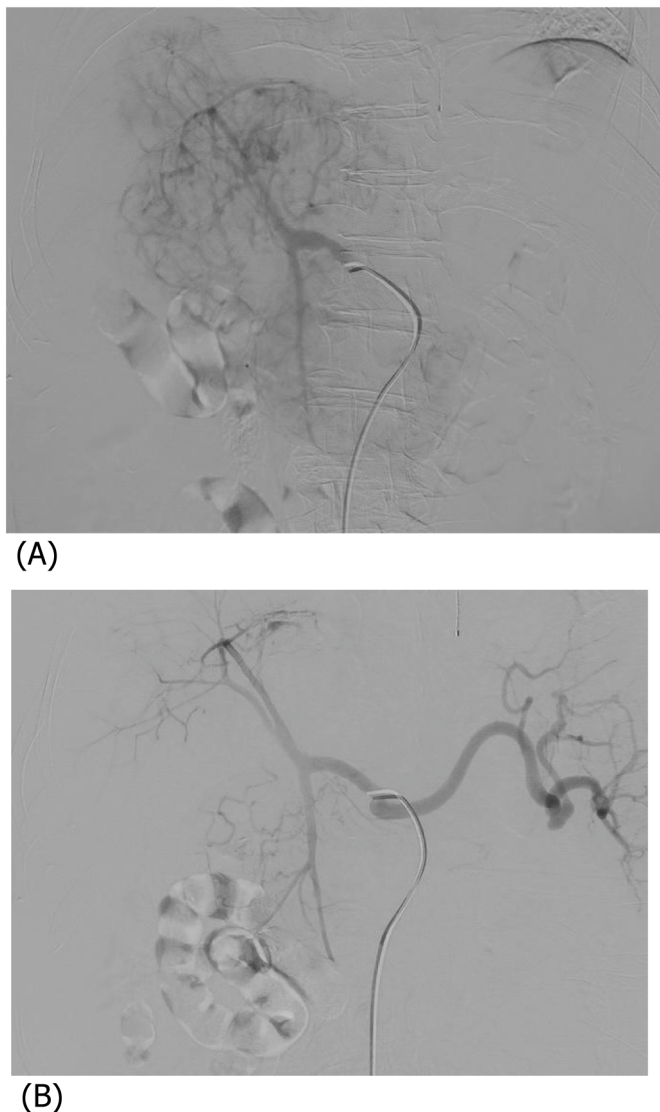


Fig. 2. Angiography showing the hyper vascular exophytic mass before (A) and (B) after embolization of the feeding branches.

weight loss, fatigue and increasing abdominal discomfort. Magnetic Resonance Imaging (MRI) of the abdomen and pelvis was done and showed enlargement of the necrotic bilobed hepatic mass compared to the previous CT accompanied by thrombosis/occlusion of left portal and hepatic veins.

Previous pathologies were re-evaluated and showed moderately differentiated HCC. The patient's tumor was deemed operable, however, due to severe malnutrition, decision was to admit the patient for optimization prior to surgery. His stay was complicated by a hemorrhagic shock. A triphasic CT angiography revealed new hemoperitoneum likely due to spontaneous rupture of the patient's hepatic mass.

Hemodynamic resuscitation was started and considering his stable clinical condition, decision was taken to proceed with TACE. Angiography of the common hepatic artery was attempted that revealed, a hypervascular exophytic mass being supplied by the left hepatic artery however with no active contrast extravasation. Embolization of the feeding branches was performed and a satisfactory 80 % devascularization of the mass was achieved. Following embolization, the patient remained stable and was transferred to the operating room for definitive resection of the mass. The patient underwent a left hepatectomy with hemigastrectomy, enterectomy with primary anastomosis, cholecystectomy with Roux-en-Y gastrojejunostomy. The mass was grossly seen

invading the stomach, a small part of duodenum (D4) and the omentum, therefore, all the aforementioned organs were resected En-block.

Final histopathology of the resected mass showed G2 moderately differentiated hepatocellular carcinoma measuring $19 \times 17 \times 10$ cm, involving the visceral peritoneum and directly invading the stomach and small intestine.

Following surgery, the patient had an uncomplicated hospital stay of 18 days including 5 days of ICU stay. On follow up in clinic, the patient was doing well, gaining weight, and resumed basic life activities with minor assistance. At the time of writing this report, the patient remains alive and is not receiving any adjuvant therapy at our institution (Figs. 1-3).

3. Discussion

Liver cancer remains among the most common cancers, accounting for 5 % of all new cancer cases in 2020 and for 8 % of all new deaths due to cancer in 2020 in 185 countries. Hepatocellular carcinoma accounts for 80–90 % of primary liver cancers [6]. Even though HCC metastasis to lungs, lymph nodes and bones is well described and is found in 30–75 % of advanced HCC, direct HCC invasion into surrounding organs can also occur and it mainly invades the diaphragm, adrenals, abdominal wall, colon, and stomach and occurs in 2 % of clinical cases of HCC [7].

Most cases of direct HCC invasion into the GI tract present mainly with GI bleed. Our patient, however, presented with abdominal pain without any sign of GI bleed. Thus, the absence of GI bleed does not exclude gastrointestinal invasion.

Several treatment options exist for advanced HCC with some being potentially curative, such as liver resection and transplantation and systemic chemotherapy. Although there are several staging systems and guidelines directing treatment, the decision on the treatment regimen to be adopted is taken on a patient basis.

The Barcelona Clinic Liver Classification (BCLC) is a widely adopted staging scale for HCC. It takes into consideration tumor related, patient related, and liver disease related factors [8]. Our patient ranks as Intermediate to Advanced disease, and therefore guidelines would recommend palliative care. In a multicenter study, patients that underwent surgery with resection of tumor and affected vessels had better survival rates than that of patients on palliative care [9,10].

TACE is the treatment of choice for intermediate stage tumors with prominent survival benefits and minimal complications [11]. Surgery remains the most efficient intervention in HCC and is made possible in intermediate/advanced HCC with survival rates range between 50 % and 70 % [12,13]. The median survival of patients with HCC and GI involvement who underwent curative surgery was 9.7 months compared to 3 months and 1 month in patients who received nonsurgical therapies and supportive therapy, respectively [4,14–17].

4. Conclusion

GIT invasion is a rare complication of HCC reported in scarcity in the literature. Most cases present with GI bleeding but with some rare cases, they present with more generalized symptoms like abdominal pain, weight loss or fatigue. Despite having a poor prognosis, complete surgical resection of the tumor may be a reassuring and life prolonging treatment option for these patients.

Funding

None.

Ethical approval

Not applicable.



(A)



(B)

Fig. 3. (A) Resected mass.
(B) Gross invasion of the tumor inside the gastric lumen.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request

Author contribution

BH: Design, data editing, revision and final approval of final manuscript. BO: Concept, data interpretation, design and final approval of manuscript. JC: Literature review and writing the manuscript. JH: Literature review and writing the manuscript. KA: Data editing and revision.

MK: Final approval of manuscript.

Guarantor

Mohammad J. Khalifeh.

Provenance and peer review

Not commissioned, externally peer reviewed.

Research registration

Not applicable.

Declaration of competing interest

Not applicable.

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