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CASE REPORT | LIVER

Oligometastatic Hepatocellular Carcinoma to the Perirectal Pelvis, a Rare Site of Distant Spread

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ABSTRACT

Prevention, recognition, and staging of hepatocellular carcinoma (HCC) rely primarily on abdominal imaging. Treatment of HCC varies widely based on tumor stage, lymph node involvement, and metastatic disease along with the patient's functional status. We present an unusual case of isolated extrahepatic HCC metastasis involving a solitary lesion in the pelvis, with no other evidence of viable intrahepatic or extrahepatic disease. The detection of this metastasis was aided by regular surveillance magnetic resonance imaging, alpha-fetoprotein monitoring, and pathological diagnosis. Our case highlights the importance of thoroughly evaluating interval changes on surveillance imaging in HCC.

KEYWORDS: liver cancer; hepatocellular carcinoma; surveillance; metastasis; locoregional therapy; endoscopic ultrasound

INTRODUCTION

Primary liver cancer has among the lowest 5-year survival rates (22%) in the United States, with hepatocellular carcinoma (HCC) being the most common subtype.[1,2] Hepatitis C virus-related cirrhosis is the leading risk factor of developing HCC in the United States.[2] Tumor, node, metastasis staging for HCC includes tumor size, portal vein invasion, hepatic vein invasion, direct invasion into adjacent organs, regional lymph node involvement, and distant metastasis.[3] The most common sites of lymph node involvement are regional: perihepatic, peripancreatic, and retroperitoneal locations.[4] Distant metastasis most commonly occurs in the lung, bone, and adrenal glands.[4] Three large autopsy-based case series of HCC patients, with 240, 490, and 232 patients, respectively, reported a rare prevalence of pelvic metastasis with only 2 cases of rectal metastasis but zero perirectal sites.[5–7] Similarly, the most common sites of lymph node metastasis were in the areas involving the hepatic hilum, pancreas, mediastinum, aorta, stomach, and retroperitoneum.[7] We present an atypical case of oligometastatic HCC to the perirectal pelvis in a patient with otherwise nonviable residual disease.

CASE REPORT

A 74-year-old man with a medical history of hepatitis C virus-related cirrhosis, HCC, and prostate cancer was found to have an enlarging pelvic mass on surveillance abdominal and pelvic magnetic resonance imaging (MRI) imaging. The patient was diagnosed 4 years earlier with hepatic biopsy-proven HCC in the setting of a significantly elevated alpha-fetoprotein (AFP: 310 ng/mL) and had undergone multiple locoregional therapies (LRTs), including transarterial radioembolization, transarterial chemoembolization, laparoscopic ablation, and stereotactic body radiation therapy (SBRT). The initial diagnosis was consistent with 2 biopsy-proven HCC liver lesions, measuring 4.7 by 3.8 cm and 1.6 cm, respectively, with no known lymphatic or metastatic involvement. Following serial LRTs, the patient had achieved nonviable HCC lesions, normalized AFP, and was undergoing surveillance for HCC recurrence.

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While undergoing routine surveillance, the patient had a rise in AFP from 14 to 31 ng/mL over the span of 3 months. A chest computed tomography (CT) was negative for metastatic disease. Abdominal and pelvic MRI revealed treated HCC lesions in hepatic segments V and VI, which had decreased in size and remained nonviable. A 1.1 cm, left-sided perirectal mass was noted (Figure 1) and was deemed indeterminate according to the radiology report. A positron emission tomography/CT scan was obtained showing no evidence of fluorine-18 fluorodeoxyglucose-avid uptake in this lesion or elsewhere. Prostate-specific antigen remained within normal limits. A screening colonoscopy had recently been performed, showing no evidence of colorectal malignancy.

The patient underwent lower endoscopic ultrasound assessment which revealed a 12 by 8 mm hypoechoic mass in the left perirectal space, 12 cm from the anal verge. Fine-needle biopsy revealed moderately differentiated HCC (Edmondson-Steiner grade 2 of 4). Detailed pathology findings are referenced in Figure 2. The patient underwent SBRT of the perirectal space (3,500 cGy over 5 fractions) with curative intent and continued to follow-up with medical and radiation oncology (Figure 3). Following SBRT therapy, the patient's AFP decreased from 31 to 11 ng/mL over the ensuing 5 months.

DISCUSSION

HCC remains a malignancy with one of the worst 5-year survival rates.[1] Early recognition of HCC through regular screening is imperative in high-risk populations. Current treatment guidelines from the American Association for the Study of Liver Diseases define at-risk populations as patients with cirrhosis from any etiology and noncirrhotic patients with chronic hepatitis B virus infection.[2] Current screening relies on a combination of radiologic (abdominal ultrasound, MRI, or CT scan) and serologic (AFP) monitoring performed biannually.[2] Moreover, HCC surveillance relies on the same strategies for patients undergoing ongoing cancer-directed therapy.[2] As multidisciplinary treatment options have flourished, accurate characterization of disease stage informs clinical decision-making.

The Barcelona Clinic Liver Cancer classification system is commonly used in staging HCC.[8] It combines tumor size, presence of metastasis, patient physical status, and liver function to help delineate recommendations for LRT or systemic treatment.[8] According to Barcelona Clinic Liver Cancer staging, the presence of portal invasion or extrahepatic spread determines candidacy for unresectable HCC and LRTs such as transarterial chemoembolization, transarterial radioembolization, SBRT, or laparoscopic/microwave ablation.[8] LRT is also increasingly used in bridging patients to liver transplantation if they meet Milan Criteria exceptions.[9] In addition, as overall survival and disease-specific survival improve with available therapies, the probability of intrahepatic and extrahepatic metastasis may increase over time.[10,11]

Our patient's AFP at the onset of his HCC treatment was significantly elevated to 310 ng/mL. Following the initial LRT therapy, the AFP normalized, making the subsequent increase in surveillance AFP from 14 to 31 ng/mL later in the disease course worrisome. Imaging was then expanded to include the pelvis and chest, ultimately finding the pelvic lesion of concern. This underscores the need for vigilance with serologic and radiologic surveillance of patients with HCC following LRT treatment with special attention to AFP trends.

The typical routes of HCC spread can occur through infiltrative growth or through hepatic portal and venous circulation.[12] Portal venous circulation, and less commonly hepatic venous and lymphatic circulation, act as conduits for intrahepatic and, ultimately, extrahepatic metastasis and multifocal HCC.[12,13] In a radiology case series of 403 consecutive patients, 148 had extrahepatic HCC metastasis, with the most common sites being the lungs (39%), abdominal lymph nodes (41%), and bone (28%).[14] This corroborates findings from 3 large autopsy case series.[5–7] To date, we have not found evidence of perirectal HCC involvement. In addition, a relatively rare complication risk of directly seeding the peritoneum following a biopsy or an ablation procedure exists, which may have been predisposed by the patient's prior diagnostic biopsy and laparoscopic microwave ablation.[15] However, based on the available data, it is

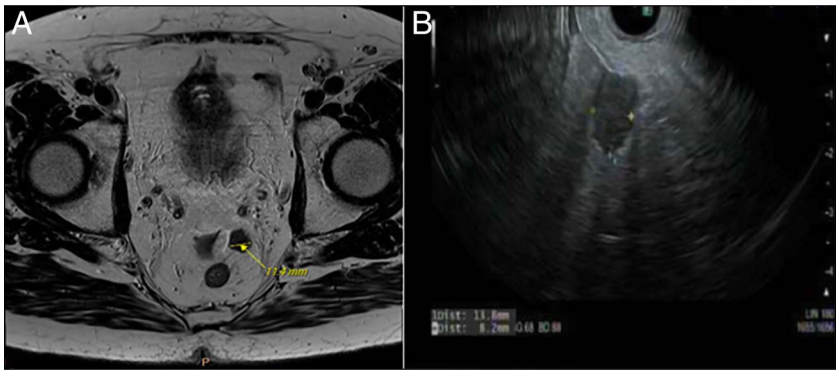

Figure 1. (A) Pelvic MRI with 1.1 cm left-sided perirectal lesion. (B) Endoscopic ultrasound (EUS) with 1.1 cm left-sided perirectal lesion.

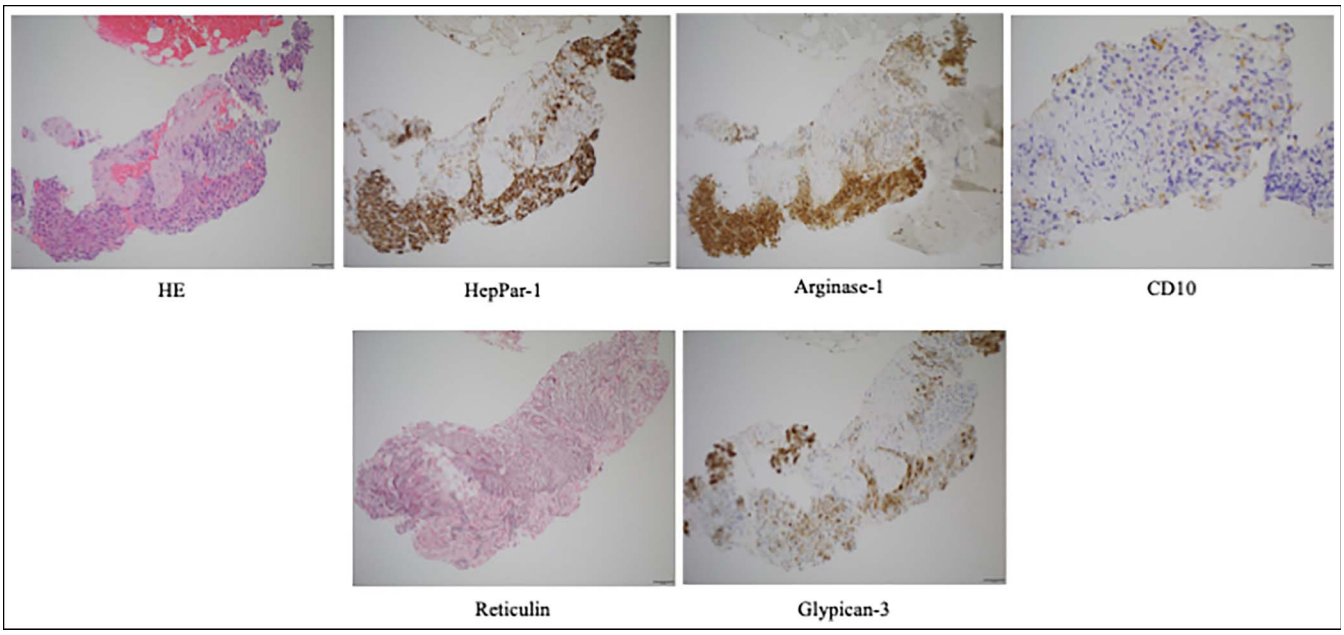

Figure 2. Biopsy shows moderately differentiated hepatocellular carcinoma with evidence of trabecular growth pattern and tumor cells with abundant eosinophilic cytoplasm, foci of necrosis, and desmoplastic stroma. Foci of tumor are positive for arginase-1, HepPar-1, and glypican-3 and negative for NKX3 on immunohistochemistry. Reticulin stain highlights the trabecular tumor growth pattern with patchy loss of reticulin meshwork. CD10 shows canalicular-type staining pattern, characteristic of hepatocellular carcinoma (Edmonson-Steiner grade 2 of 4).

unclear if the patient's perirectal lesion is due to a replaced lymph node or, much less likely, a dropped metastasis as a result of direct seeding from a procedure years ago. Our patient benefited from an endoscopic ultrasound-guided perirectal biopsy, emphasizing the growing use of advanced endoscopy in managing complications of liver disease and liver cancer.[16] The patient did experience a decline in AFP following SBRT therapy to the perirectal HCC lesion. This presentation is a rare example of oligometastatic spread of HCC, where LRT can be used with curative intent, significantly affecting the patient's outcome.[17]

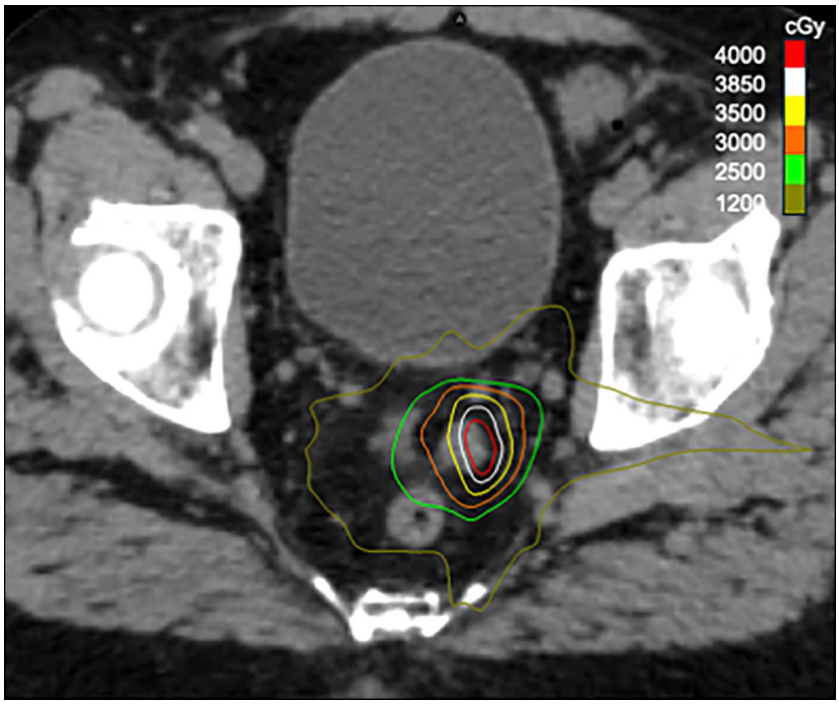

Figure 3. Stereotactic body radiation therapy (SBRT) plan for presumed perirectal hepatocellular carcinoma metastasis (3,500 cGy over 5 fractions).

This case highlights the importance of investigating interval radiographic changes in patients with HCC, including atypical sites of spread, as they could represent metastatic HCC where there is a possibility of curing the disease.

DISCLOSURES

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