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Seminal vesicle mass: An unusual site for metastatic hepatocellular carcinoma after orthotopic liver transplant

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ABSTRACT

Metastasis of hepatocellular carcinoma (HCC) to the seminal vesicle is extraordinarily rare, with only two other cases reported in the literature. Herein we present the first documented case of a seminal vesicle as the initial site of solitary metastasis in a patient with a history of liver transplantation for HCC. We aim to provide more information regarding the disease process, histopathology, and management strategy.

1. Introduction

Primary seminal vesicle tumors are extremely rare, with only a few cases reported in literature. Seminal vesicle malignancies more commonly result from contiguous invasion by tumors originating from adjacent organs such as prostate, bladder, and rectum. Thus far in the literature, there are only two reported cases that describe metastasis of hepatocellular carcinoma (HCC) to the seminal vesicle.[1,2] Given that the most common sites of extrahepatic metastases occur in the lung, adrenals, bone, or lymph nodes, the fact that the seminal vesicle is the site of initial metastasis for a primary liver cancer is unheard of.[3] Herein we present the first documented case of a seminal vesicle as the initial site of metastasis in a patient with a history of liver transplantation for HCC. Given that the seminal vesicles are an unusual site of metastasis for HCC, we aim to provide more information regarding disease process, histopathology, and management strategy.

2. Case presentation

A 55-year old Caucasian male with a 5-year history of orthotopic liver transplant because of HCC presented to our department in October 2019 with new-onset weight loss, fatigue, and rectal pain of one-month duration. CT revealed a new 2.1 cm hyperdense nodule adjacent to the left seminal vesicle (Fig. 1). His medical and surgical history was remarkable for hepatitis C status post treatment and alcoholic cirrhosis complicated by the development of HCC, status post radiofrequency ablation, chemoembolization x4, and liver transplantation. Social history included a 40 pack-year smoking history and significant alcohol use. Physical exam was within normal limits and the seminal vesicle mass was not palpable on rectal exam. Pelvic MRI revealed an indeterminate 2.1 × 2x2 cm enhancing nodule posterior to the left seminal vesicle (Fig. 2A). CT-guided core needle biopsy was non-diagnostic. His lesion was followed with a repeat pelvic MRI 4 months later, which showed an interval increase of the mass to 2.5 × 2.2 × 2.8 cm (Fig. 2B). Robotic exploration was performed for diagnostic purposes. Gelatinous material came from the mass as soon as the peritoneum was incised. The mass had poorly defined margins and appeared to be infiltrating the posterior bladder wall. The dissection was very difficult as in most cases of tumors with the presumptive mechanism of dissemination of peritoneal "drop metastases". After ureterolysis was performed, the left vas deferens was surrounded by thick tissue. The seminal vesicle and vas deferens were dissected en bloc. Histopathologic examination revealed metastatic carcinoma involving the soft tissue adjacent to the seminal vesicle and extending to margins. The cells were positive for Hepatocyte Paraffin-1 and Arginase-1 and negative for Glypican-3–consistent with metastasis from the patient's primary HCC (Fig. 3A–B). CT chest, abdomen, and pelvis 5 weeks post-operatively showed a 26 × 20 mm residual soft tissue density within the resection bed with mild tethering of the anterior wall of the rectum towards it (not shown). No other recurrent or metastatic lesions were identified. The patient was advised to undergo external beam radiation therapy to the seminal vesicles in addition to concurrent chemotherapy with capecitabine for 5.5 weeks.

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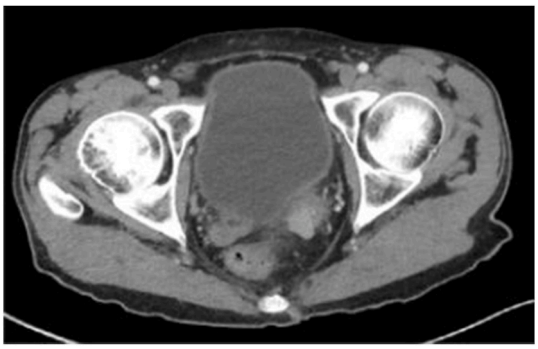

Fig. 1. Initial pelvic CT scan demonstrates 2.1 cm hyperdense nodule adjacent to the left seminal vesicle.

3. Discussion

HCC metastasis to the seminal vesicles after liver transplant is very rare, with only one other case reported in a patient with already documented metastases.[2] In this case, the patient had a history of HCC status post orthotopic liver transplant. His preoperative imaging did not reveal any abnormalities in the prostate, bladder, or rectum; his rectal exam was within normal limits, and a recent colonoscopy was normal. This case underscores the importance of conducting a comprehensive history and physical examination when evaluating patients with seminal vesicle masses given the nature and etiology of seminal vesicle tumors.

Imaging also plays an important role in the evaluation of a seminal vesicle mass, with MRI being the most accurate tool in view of its excellent tissue contrast and multiplanar technology.[4] Another benefit of MRI is its accuracy in identifying seminal vesicle invasion by adjacent organs. Despite recent advances in imaging techniques, there are no reliable features that can differentiate primary from secondary malignancy on MRI, making tissue sampling often necessary for an accurate diagnosis.[5] Because our patient had an inconclusive MRI and non-diagnostic biopsy, he underwent robotic-assisted seminal vesiculectomy for diagnostic and therapeutic purposes. An intraoperative frozen section suggested that the patient's malignancy was metastatic from his HCC. After consultation with medical oncology, a decision was made to resect the seminal vesicle and vas deferens en bloc instead of pursuing a more aggressive approach (ie. partial cystectomy with ureteral reimplantation or radical cystoprostatectomy). The preoperative evaluation of a seminal vesicle mass should focus on distinguishing between benign and malignant lesions since the nature of the lesion will guide surgical planning. Likewise, intraoperative frozen pathology sections also have an important role in managing seminal vesicle masses as they can help distinguish primary versus secondary etiologies and guide treatment strategies. The presumptive mechanism of metastasis of HCC to the seminal vesicle is peritoneal implant by "drop metastasis".

Given that metastasis of HCC to the seminal vesicles is very rare, there are no guidelines for the workup or management of this disease. Surgical intervention can have a diagnostic and therapeutic role in treatment, especially if the patient's metastasis is confined to one site and clear margins are obtained. Beyond surgical management, however, there is limited data regarding the role of postoperative antineoplastics. In our case, postoperative management with radiation therapy and concurrent chemotherapy with capecitabine was advised given his young age, excellent performance status, long disease-free interval prior

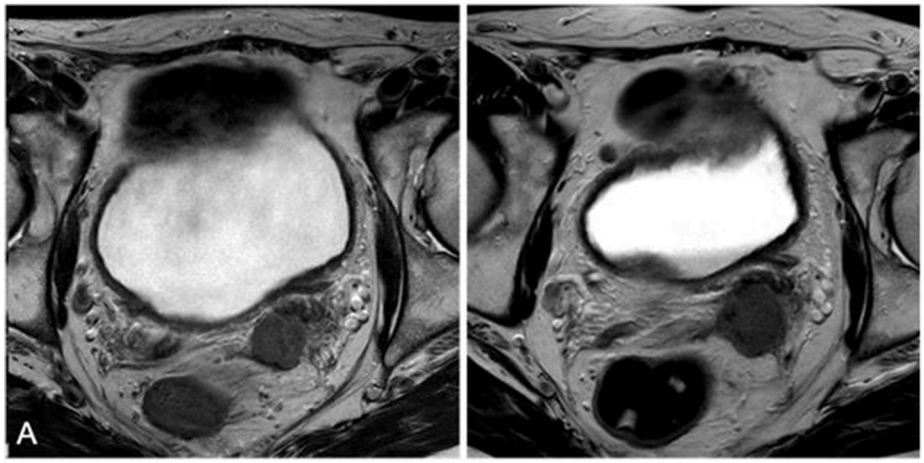

Fig. 2. A, BSerial pre-operative axial pelvic MRI scans. (A) Initial pelvic MRI reveals indeterminate 2.1 × 2 × 2 cm enhancing nodule posterior to the left seminal vesicle with no definite restricted diffusion. (B) Subsequent MRI after four months shows a slight interval increase in the size of the 2.5 × 2.2 × 2.8 cm oval mass.

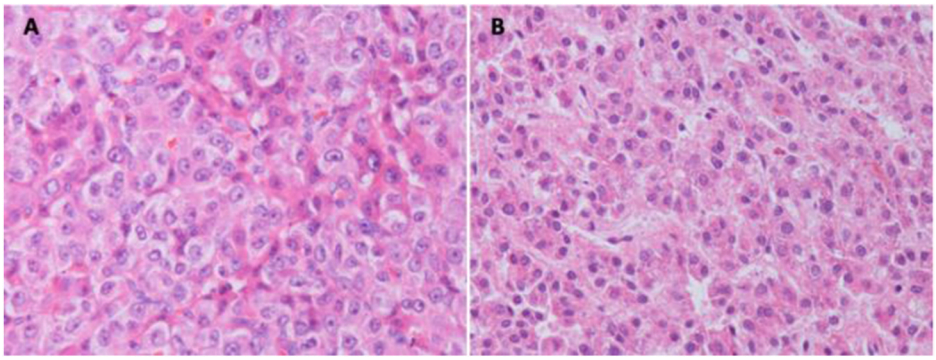

Fig. 3. A, BHistology slides of seminal vesicle and hepatic masses. (A) Microscopic view of seminal vesicle mass, 400x. (B) Microscopic view of hepatic mass, 400x.

to this event, and small volume metastatic disease. Patients with metastatic HCC ultimately have a poor prognosis, so shared decision making should be employed to come up with a plan in accordance with the patient's wishes.

4. Conclusion

Seminal vesicle metastasis from HCC is rare. Thorough history-taking, physical examination, abdominopelvic MRI, and immunohistochemical staining are helpful in diagnosis. Surgery has a diagnostic and potentially therapeutic role in management; however, these patients ultimately have poor prognoses. More data is required to determine the role of postoperative radiation therapy with concurrent antineoplastics.

Consent

Informed consent was obtained from patient verbally over telephone by author JTX.

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Declaration of competing interest

None.

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