Case Report

Seminal vesicle metastasis from hepatocellular carcinoma and renal cell carcinoma

Marius Wai-Lok Chan, Wing-Hung Lau[1], Chi-Fai Kan, Wing-Hang Au

Department of Surgery, Queen Elizabeth Hospital, [1]Department of Pathology, Kwong Wah Hospital, Hong Kong

Abstract

We presented two rare cases of secondary seminal vesicle (SV) metastasis from hepatocellular carcinoma of the liver and renal cell carcinoma from the right kidney. Diagnosis of secondary SV metastasis should be made based on clinical history, radiological examination, histopathological examination, and, more importantly, the directed panel of immunohistochemistry. Via our experience in the investigation and diagnostic process, a better understanding of this unusual disease can be achieved.

Keywords: Hepatocellular carcinoma, renal cell carcinoma, seminal vesicle metastasis

Address for correspondence: Dr. Marius Wai-Lok Chan, Department of Surgery, Queen Elizabeth Hospital, Hong Kong.
E-mail: lok050056@hotmail.com

Received: 11.09.2022, **Accepted:** 16.01.2023, **Published:** 14.02.2023.

INTRODUCTION

Primary seminal vesicle adenocarcinoma (PSVA) is extremely rare, and only around 60 cases were reported in the literature before 2016.[1] Secondary seminal vesicle (SV) tumor is far more frequent than the primary tumor. Secondary tumor is usually due to contiguous invasion by adjacent tumors such as the prostate, bladder, and rectum. We reported two extremely rare cases which had hepatocellular carcinoma (HCC) and renal cell carcinoma (RCC) metastasized to SV, respectively. Rarely, HCC metastasizes to the SV, which was reported by only three case reports.[2-4] Due to its paucity, it will be a diagnostic challenge. A confident diagnosis of SV metastasis was made based on the patient's medical history, radiological examination, and a directed panel of immunohistochemistry (IHC).

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/ua.ua_123_22

CASE REPORTS

Case 1: Hepatocellular carcinoma with seminal vesicle metastasis

Presenting history

A 59-year-old Chinese male had a history of hepatitis B carrier and recurrent HCC with subsegmentectomy and wedge resection of the liver performed. No distant metastasis was all along.

He was admitted via the emergency department with abdominal pain and acute on chronic renal failure in 11/2020, which was 14 years after the diagnosis of liver cancer. Physical examination showed ascites. Plain radiographs, urine culture, and urine cytology were unremarkable.

Imaging

Ultrasound showed bilateral hydronephrosis and a 17.2 cm heterogeneous mass with internal vascularity at the posterior aspect of the urinary bladder.

How to cite this article: Chan MW, Lau WH, Kan CF, Au WH. Seminal vesicle metastasis from hepatocellular carcinoma and renal cell carcinoma. Urol Ann 2023;15:235-7.

Contrast computed tomography (CT) revealed a 12 cm × 10 cm × 10 cm enhancing pelvic tumor arising from left SV, local recurrence of HCC [Figure 1].

Cystoscopy

Cystoscopy showed external compression from the posterior aspect of the bladder. Bilateral ureteric stent insertion failed because of poor vision by hematuria from the prostate. Subsequently, the patient underwent bilateral percutaneous nephrostomies.

Transperineal biopsy of seminal vesicle

Left SV tumor biopsy was taken transperineally. Biopsy showed anastomosing trabeculae of malignant cells with sinusoidal growth patterns [Figure 2]. The tumor cells possessed mildly pleomorphic enlarged nuclei, dark chromatin, occasional prominent nucleoli, and moderate amount of eosinophilic to pale cytoplasm. Immunohistochemical study showed diffuse tumor cell positivity by using the antibody Hep-Par1. The morphology and immunoprofile supported involvement by metastatic HCC.

Patient outcome

A positron emission tomography/CT (PET/CT) was performed and showed distant metastasis in the left SV, bone, and lymph nodes. He received palliative radiotherapy to the SV metastasis and palliative targeted therapy from the oncologist. The patient eventually died from pneumonia in 12/2021.

Case 2: Renal cell carcinoma with seminal vesicle metastasis

Presenting history

A 58-year-old Chinese male with a history of right radical nephrectomy for RCC in 1998. RCC was in remission until an ultrasound showed a 6.9 cm heterogeneous mass at the left lateral aspect of the prostate gland and posterior aspect of the bladder in 3/2021.

Imaging

CT showed 5.4 cm × 5.6 cm irregular enhancing mass at the left pelvic region and posterior to bladder and lung metastasis in 4/2021. Findings were suggestive of SV tumor [Figure 3].

Cystoscopy

Cystoscopy showed a bulging at left low posterior wall, likely due to external compression by the seminal vesicle metastasis.

Computed tomography guided biopsy of seminal vesicle tumor

CT-guided biopsy of the left SV tumor was performed on 6/2021. Microscopic examination showed sheets of closely packed nests of malignant tumor cells with rich backgrounds supporting delicate vascularization. The tumor cells showed clear cytoplasm and roundish hyperchromatic nuclei. Immunohistochemical studies showed the tumor expressed transcription factor PAX8 and the Von Hippel–Lindau protein (VHL) [Figure 4]. The features supported involvement by metastatic clear cell RCC.

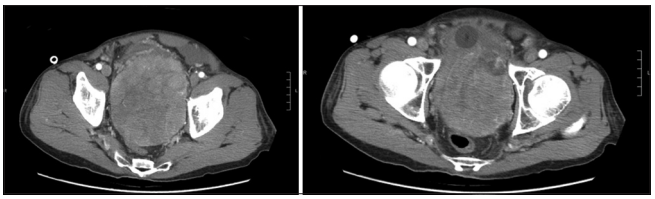

Figure 1: Contrast CT showing 12 cm left SV metastasis posterior to bladder. CT: Computed tomography, SV: Seminal vesicle

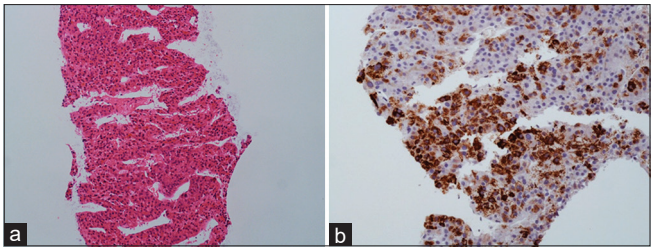

Figure 2: (a) H and E stain, (b) The tumor cells are positive for Hep-PAR1 by immunohistochemical study

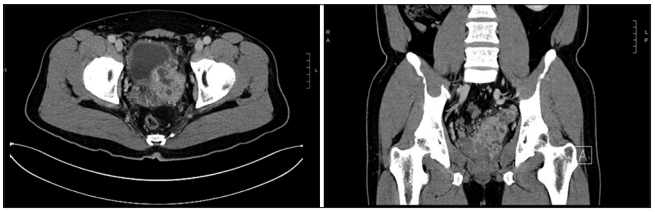

Figure 3: CT revealed a 5.6 cm left SV metastasis with extension toward the pelvic side wall. CT: Computed tomography, SV: Seminal vesicle

Patient outcome

A PET/CT showed distant metastasis in the left SV, lungs, and lymph nodes. He received palliative target therapy by the oncologist. The patient will have regular oncology follow-up.

DISCUSSION

It would be a diagnostic challenge in a primary SV tumor which the majority are asymptomatic in the early stage. In some advanced cases, patients may present with hematuria, hematospermia, pain, or urinary tract obstruction due to the mass effect.[5] However, hematospermia secondary to malignancy is usually due to prostate cancer.[6] SV metastasis should be considered if the patient with metastatic cancer presented with renal failure, as SV metastasis can lead to malignant ureteric obstruction in Case 1.

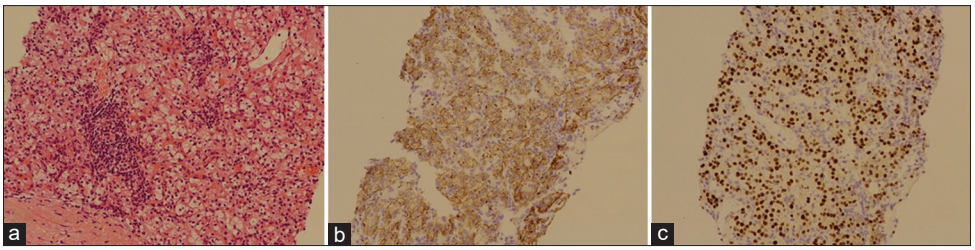

Figure 4: (a) H and E stain, (b) Tumor expressing VHL protein, (c) Tumor was immunoreactive for transcription factor PAX8. VHL: Von Hippel–Lindau

Tumor biomarkers can guide our suspicion to differentiate the primary site of the tumor. Serum prostate-specific antigen (PSA), cancer antigen (CA)-19.9, and CA 15-3 are usually normal in PSVA. A normal serum carcinoembryonic antigen can be considered the absence of invasion of colon carcinoma. For serum CA-125, it usually elevated in PSVA, though it may be normal in some cases.[1]

Biopsy of lesions is essential to both pathologists and oncologists for histopathological examination and subsequent systematic therapy, respectively. For Case 1, the specimen showed classical histomorphological features of HCC. Meanwhile, for Case 2, the specimen was compatible with a typical clear cell RCC histology feature indicating a glycogen or lipid-rich cytoplasm.[7] Whereas tumor cells of PSVA are common with focal papillary architecture and tubular structure.

For IHC, it can help rule out tumors originating from other organs, yet there is no stain specific for SV epithelium. With the clinical history, it helps pathologists to formulate a direct panel of IHC. The specimen of our first patient showed a typical morphological appearance of HCC and a strong positivity in HepPAR1, which is considered a reliable immunohistochemical marker and the most sensitive and specific marker for HCC.[8] In our second patient, the tumor morphology with the expression of PAX8 and VHL protein supported a diagnosis of metastatic clear cell RCC. PAX8 expression can be found in most of the normal renal tissue and up to 80% of ccRCC.[9] Meanwhile, VHL protein has a high sensitivity for renal neoplasm as an immunohistochemical marker. Positive VHL immunostaining was observed in >90% of primary renal epithelial neoplasms and 95% of metastatic RCC.[10] The expression of PAX8 and VHL basically ruled out other morphological differential diagnoses such as paraganglioma, ectopic adrenal cortical neoplasm, and prostatic adenocarcinoma with clear cell changes. Literatures reported that PSVA commonly demonstrated Ca-125 and CK7 positive but CK20 and PSA negative.[1,5]

CONCLUSION

We presented two rare cases of secondary SV metastasis from the liver and kidneys. A confident diagnosis of SV metastasis was made by clinical, radiological, and pathological findings, especially IHC.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Gong L, Zheng M, Li Y, Zhang W, Bu W, Shi L, *et al*. Seminal vesicle metastasis after partial hepatectomy for hepatocellular carcinoma. BMC Cancer 2011;11:111.
2. Katafigiotis I, Sfoungaristos S, Duvdevani M, Mitsos P, Roumelioti E, Stravodimos K, *et al*. Primary adenocarcinoma of the seminal vesicles. A review of the literature. Arch Ital Urol Androl 2016;88:47-51.
3. Shen Y, Nie L, Yao Y, Yuan L, Liu Z, Lv Y. Seminal vesicle metastasis after liver transplantation for hepatocellular carcinoma: A case report. Medicine (Baltimore) 2019;98:e13770.
4. Aponte-Colon DA, Xu JT, Sorcini A. Seminal vesicle mass: An unusual site for metastatic hepatocellular carcinoma after orthotopic liver transplant. Urol Case Rep 2022;40:101938.
5. Bhat A, Banerjee I, Kryvenko ON, Satyanarayana R. Primary seminal vesicle adenocarcinoma: A lethal yet cryptic malignancy with review of literature. BMJ Case Rep 2019;12:e232994.
6. Han M, Brannigan RE, Antenor JA, Roehl KA, Catalona WJ. Association of hemospermia with prostate cancer. J Urol 2004;172:2189-92.
7. Muglia VF, Prando A. Renal cell carcinoma: Histological classification and correlation with imaging findings. Radiol Bras 2015;48:166-74.
8. Hanif R, Mansoor S. Hep Par-1: A novel immunohistochemical marker for differentiating hepatocellular carcinoma from metastatic carcinoma. J Coll Physicians Surg Pak 2014;24:186-9.
9. Barr ML, Jilaveanu LB, Camp RL, Adeniran AJ, Kluger HM, Shuch B. PAX-8 expression in renal tumours and distant sites: A useful marker of primary and metastatic renal cell carcinoma? J Clin Pathol 2015;68:12-7.
10. Lin F, Shi J, Liu H, Zhang J, Zhang PL, Wang HL, *et al*. Immunohistochemical detection of the von Hippel-Lindau gene product (pVHL) in human tissues and tumors: A useful marker for metastatic renal cell carcinoma and clear cell carcinoma of the ovary and uterus. Am J Clin Pathol 2008;129:592-605.