CASE REPORT

Metastatic primary seminal vesicle adenocarcinoma: management of a rare tumour with multiagent chemotherapy and hormonal therapy

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SUMMARY

Primary seminal vesicle adenocarcinoma is one of the rarest genitourinary cancers. The pathogenesis is unknown and clinical manifestations are protean. There is no defined treatment for this disease and various combinations of surgery, chemotherapy, radiation therapy and hormonal therapy have been used in the past. Here, we have reported a primary seminal vesicle adenocarcinoma with hepatic metastases, managed with multiagent chemotherapy (oxaliplatin and 5-fluorouracil based) and androgen ablation (with triptorelin). The key to management of such a case is early diagnosis and multimodal treatment. The reported survival rate continues to be poor even for a localised disease. A consolidated follow-up protocol ensures early diagnosis of recurrent or metastatic disease so that second-line therapy can be started.

BACKGROUND

The seminal vesicle is frequently involved due to invasion from locally advanced primary carcinoma from the prostate and rarely harbours any primary malignancy. Lyons reported the first case of primary seminal vesicle carcinoma in 1925.¹ Thereafter, a little over 60 cases of this entity have been reported.^{2–11} As the symptoms can be non-specific, diagnosis is difficult, especially since similar complaints are also present in patients with bladder and prostate cancers.¹²

Here, we present a rare case of a primary seminal vesicle adenocarcinoma with lower urinary tract symptoms, which on evaluation was found to have primary seminal vesicle adenocarcinoma with metastasis to the liver. The patient was managed with multimodal therapy with a favourable outcome and quality of life.

CASE PRESENTATION

A 62-year-old man, a non-smoker, presented with a history of poor urine stream, straining, frequency and nocturia for 6 months. He also had anorexia, generalised weakness, loss of 11 kg and constipation in the previous 3 months. There was no history of haematuria, haemospermia or melena and he did not undergo any urethral instrumentation or evaluation during this period. General physical examination revealed pallor. There was no lymphadenopathy. Abdominal examination was unremarkable and rectal examination revealed a hard

irregular mass anteriorly, bulging into the rectal lumen and indistinguishable from the prostate. The superior margin of the swelling could not be reached and the rectal mucosa overlying the mass was smooth and mobile.

INVESTIGATIONS

Haemoglobin was 7.1 g/dL (normal: 12–16 g/dL). Total leucocyte count, renal function tests and liver function tests were normal.

Serum prostate-specific antigen (PSA) was 1.2 ng/mL (normal: <4 ng/mL). Uroflowmetry showed a peak flow of 9.8 mL/s (normal: >15 mL/s) at a voided volume of 300 mL and postvoid residual volume was 150 mL. Urine routine and microscopic examinations revealed 20–30 red blood cells (RBCs) per high power field (normal: 0–5 RBCs per high power field) along with 0–1 epithelial cells (normal: 1–2 per high power field). Abdominal ultrasonography revealed multiple hypoechoic liver nodules. The prostate was enlarged and had a volume of 170 cc. Transrectal ultrasonography (TRUS) revealed a homogeneous enlargement of bilateral seminal vesicles. Contrast-enhanced CT scan of the abdomen and pelvis showed multiple metastatic lesions in both lobes of liver and a hypodense mass in the infravesical region involving bilateral seminal vesicles infiltrating into the prostate (figure 1). The prostate showed homogeneous enhancement.

TRUS-guided biopsy was done to characterise the lesion. The cores from the prostate showed a benign stroma and epithelium while the cores from both seminal vesicles showed poorly differentiated adenocarcinoma (figure 2). Seminal vesicle origin of the tumour was also confirmed on immunohistochemistry, showing strong positivity for cytokeratin 7 (CK7), and negativity for CK20, carcinoembryonic antigen (CEA), prostate specific acid phosphatase (PSAP) and prostate specific antigen (PSA). Serum cancer antigen 125 (CA-125) level of the patient was 3769 U/mL (normal: 0–35 U/mL). Percutaneous biopsy from the liver nodule showed metastatic adenocarcinoma with a similar immunohistochemical staining profile (figure 3).

DIFFERENTIAL DIAGNOSIS

1. Metastasis to the seminal vesicle: most common malignancy of seminal vesicle.
2. Primary seminal vesicle adenocarcinoma: rare entity.

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Figure 1 (A) Contrast-enhanced CT pelvis in axial plane at the level of seminal vesicles showing bilateral mildly enhancing seminal vesicle masses. (B) Contrast-enhanced CT abdomen in axial plane showing multiple liver metastases.

TREATMENT

The patient was initiated on folinic acid, fluorouracil and oxaliplatin based regimen (FOLFOX6).¹³ Androgen deprivation therapy was given in the form of injection triptorelin 11.25 mg subcutaneously, planned to be repeated every 3 months. Patient was transfused two units of packed red blood cells for anaemia and was started on oral hematinics. CA-125 levels were measured every 6 months and were found to be decreasing on therapy.

OUTCOME AND FOLLOW-UP

The patient received 12 cycles of FOLFOX6 regimen along with androgen deprivation therapy. At 18 months of follow-up, the patient is doing well with no clinical evidence of progression. Serum CA-125 level had decreased to 179 U/mL.

DISCUSSION

Primary seminal vesicle adenocarcinoma is a rare tumour of the seminal vesicles as most of the tumours in this organ are metastases from other sites. Although the age at diagnosis can vary from 10 years to 90 years, it is most commonly detected after

50 years of age.^{14 15} There are no known risk factors. It has been suggested that renal agenesis or dysgenesis, with chronic stimulation of the ectopic ureters secretion may induce carcinomatous changes in the seminal vesicle epithelium.^{8 16} Interestingly, several cases are found to be bilateral which could suggest a field change.^{8 17} In the present case too, the tumour was bilateral.

Seminal vesicle adenocarcinoma may be asymptomatic or may present with lower urinary tract symptoms such as frequency and nocturia. Haematuria and haemospermia may also be seen. A tumour bulging into the rectum posteriorly can cause constipation and bleeding. On few occasions, the patient can present with symptoms of metastatic disease such as bone pains, ascitis or liver dysfunction.^{4 18 19} It has also been discovered incidentally in the prostates resected for benign prostatic hyperplasia.²⁰ Up to a third of the patients may have a normal rectal examination.⁷ Cross-sectional imaging like CT or MRI is widely used for evaluating the primary mass, detection of distant metastasis and for anomalies like renal dysgenesis and agenesis.^{7 21 22} Fluorodeoxyglucose positron emission tomography CT has been used for diagnosis, staging as well as assessment of the treatment

Figure 2 (A) Biopsy from the seminal vesicles showing fibromuscular tissue infiltrated by a tumour disposed in nests with focal tubule formation suggestive of adenocarcinoma. (B) Biopsy from one of the liver metastatic foci showing linear cores of fibrocollagenous tissue infiltrated by a tumour disposed in small sheets and tubulopapillary configuration.

Figure 3 Immunohistochemistry for CK7 showing diffuse positivity in the seminal vesicles (A) as well as the liver metastasis (B).

response.^{6 21} Serum PSA and prostate-specific acid phosphatase are usually normal. Although CA-125 is a marker of Mullerian development, it is often elevated while CEA may be elevated in rare cases.^{7 21 22} CA-125 level tends to decrease after treatment and a rise in levels can signify metastases. Absence of staining for PSA and PSAP^{2 21} along with strong positivity for CA-125 helps to differentiate seminal vesicle adenocarcinoma from other cancers. CK7 is usually positive while CK20 is usually negative.^{2 4 21}

Prostatic adenocarcinoma frequently involves the seminal vesicles and its distinction from primary seminal vesicle adenocarcinoma may be difficult especially in poorly differentiated tumours.¹² Daalgard and Giertsen have proposed diagnostic criteria to identify primary tumours of the seminal vesicles.¹⁰ The tumour should be a macroscopically and microscopically verified carcinoma, localised exclusively or mainly to the seminal vesicle; there must be no other primary carcinoma elsewhere in the body; and the tumour should preferably be a papillary adenocarcinoma resembling the architecture of the non-neoplastic seminal vesicle. These have been subsequently modified to include presence of mucus production in the anaplastic variant, and negative immunostaining for PSA and PSAP.¹⁴ The most common histology of primary seminal vesicle tumours is adenocarcinoma, with frequent presence of papillary differentiation. In the present case, no papillary differentiation was observed. The tumour was a poorly differentiated adenocarcinoma and the immunostaining pattern was showing negative staining for PSA, PSAP, CK 20 and CEA along with a strong positivity for CK7 corresponding with the immunostaining pattern observed in previously reported cases.²⁻¹¹ Other histological types that have been reported include sarcomas, squamous cell carcinomas, lymphomas, germ cell tumours, gastrointestinal stromal tumor and neuroendocrine tumours.¹¹ Benign tumours are even rarer and include cystic dysplasia, fibroepithelial tumours, leiomyoma, cystadenoma and schwannoma.¹¹

Seminal vesicle adenocarcinoma has a poor prognosis regardless of presence or absence of metastasis. Mortality is uniformly high, with less than 5% patients surviving after 2 years of diagnosis.^{7 9 14} This, coupled with rarity of the disease, has resulted in lack of consensus regarding the appropriate treatment. Surgical resection, chemoradiotherapy^{18 19 23 24} as well as hormonal therapy^{2 14 18 23} have been tried with limited success.

For a localised disease, radical cystoprostatectomy offers the best chance of cure. However, the same advantage is lost in a metastatic disease where it may only offer palliation. Chemotherapy alone is not sufficient. The most commonly used regimen is FOLFOX, which has been extensively used in colorectal cancers.¹⁸ Second-line treatment had been done with docetaxel and a gemcitabine-cisplatin combination.⁸ Docetaxel is used in prostate cancer and gemcitabine-cisplatin combination has been used in bladder cancer. Despite the anatomical contiguity with bladder and prostate, for unknown reasons, primary seminal vesicle adenocarcinoma responds poorly to the chemotherapeutic agents used in these cancers while it has a better response to FOLFOX regimen, which is used in colorectal cancers. The effect of chemotherapy can be augmented by using hormonal therapy used for prostate cancer.^{2 6 14 18 19} It may be due to the androgen dependent growth and development of the seminal vesicles. However, unlike prostate cancer, which progresses through the hormone-sensitive phase to the hormone-resistant phase, the response of primary seminal vesicle adenocarcinoma to androgen ablation is unpredictable. Seminal vesicle adenocarcinoma may be negative for androgen receptors on immunostaining.¹⁸ Such tumours may not respond to hormonal ablation. In the present study, androgen ablation was given in addition to chemotherapy. There was clinical as well as biochemical response to combined chemohormonal therapy. CA-125 level decreased progressively suggesting that it may be useful to assess response to therapy.

Learning points

- Primary seminal vesicle adenocarcinoma is among the rarest of genitourinary cancers.
- It is an aggressive tumour with uniformly poor outcome across the literature despite any form of treatment.
- Multimodal treatment with chemotherapy (FOLFOX6) and hormonal therapy (androgen deprivation therapy) is an effective and well tolerated option.
- CA-125 may be a useful marker for follow-up after treatment but its role for the same is unproven.

As the tumour is aggressive, a rigorous follow-up is needed. Cross-sectional imaging of the abdomen and pelvis must be done at 3-month intervals to detect any recurrent or metastatic disease. CA-125 level was found to be useful in our study as a follow-up marker but its role for the same is unproven.

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REFERENCES

- Lyons O. Primary carcinoma of the left seminal vesicle. *J Urol* 1925;13:477.
- Ormsby AH, Haskell R, Jones D, *et al*. Primary seminal vesicle carcinoma: an immunohistochemical analysis of four cases. *Mod Pathol* 2000;13:46–51.
- Hoshi A, Nakamura E, Higashi S, *et al*. Epithelial stromal tumor of the seminal vesicle. *Int J Urol* 2006;13:640–2.
- Stenzel P, Wettach G, Leroy X. Primary seminal vesicle carcinoma. *Int J Surg Pathol* 2011;19:401–4.
- Angulo JC, Romero I, Cabrera P, *et al*. [Vesiculectomy with laparoscopic partial prostatectomy in the treatment of primary adenocarcinoma of the seminal vesicle with carcinomatous transformation of the ejaculatory duct]. *Actas Urol Esp* 2011;35:304–9.
- Mizuno N, Fujikawa N, Hayashi N, *et al*. [A case of primary seminal vesicle cancer detected by FDG-PET/CT]. *Nihon Hinyokika Gakkai Zasshi* 2012;103:704–7.
- Eken A, Izol V, Aridogan IA, *et al*. An unusual cause of hematospermia: Primary adenocarcinoma of the seminal vesicle. *Can Urol Assoc J* 2012;6:259.
- Campobasso D, Fornia S, Ferretti S, *et al*. Primary bilateral seminal vesicle carcinoma: description of a case and literature review. *Int J Surg Pathol* 2012;20:633–5.
- Kinjo T, Nonomura D, Yamamoto Y, *et al*. [Primary adenocarcinoma of the seminal vesicle difficult to differentiate from rectal carcinoma : a case report]. *Hinyokika Kiyo* 2013;59:597–601.
- Dalgaard JB, Giertsen JC. Primary carcinoma of the seminal vesicle. *Acta Pathologica Microbiologica Scandinavica* 1956;39:255–67.
- Katafigiotis I, Sfoungaristos S, Duvdevani M, *et al*. Primary adenocarcinoma of the seminal vesicles. A review of the literature. *Arch Ital Urol Androl* 2016;88:47–51.
- Kreiner B, Denzinger S, Ganzer R, *et al*. Neuroendocrine carcinoma of the seminal vesicles presenting with Lambert Eaton syndrome: a case report. *J Med Case Rep* 2010;4:320.
- Guindalini RS, Mak MP, Takahashi TK, *et al*. Multiagent chemotherapy for metastatic adenocarcinoma of the seminal vesicle. *Anticancer Drugs* 2014;25:115–9.
- Thiel R, Effert P. Primary adenocarcinoma of the seminal vesicles. *J Urol* 2002;168:1891–6.
- Benson RC, Clark WR, Farrow GM. Carcinoma of the seminal vesicle. *J Urol* 1984;132:483–5.
- Lee BH, Seo JW, Han YH, *et al*. Primary mucinous adenocarcinoma of a seminal vesicle cyst associated with ectopic ureter and ipsilateral renal agenesis: a case report. *Korean J Radiol* 2007;8:258–61.
- Ormsby AH, Haskell R, Ruthven SE, *et al*. Bilateral primary seminal vesicle carcinoma. *Pathology* 1996;28:196–200.
- Guindalini RS, Mak MP, Takahashi TK, *et al*. Multiagent chemotherapy for metastatic adenocarcinoma of the seminal vesicle. *Anticancer Drugs* 2014;25:115–9.
- Thyaviahally YB, Tongaonkar HB, Gupta S, *et al*. Primary seminal vesicle adenocarcinoma presenting as isolated metastasis to penis responding to chemotherapy and hormonal therapy. *Urology* 2007;69:778.e1–778.e3.
- Egevad L, Ehrnström R, Håkansson U, *et al*. Primary seminal vesicle carcinoma detected at transurethral resection of prostate. *Urology* 2007;69:778.e11–778.e13.
- Sollini M, Silvotti M, Casali M, *et al*. The role of imaging in the diagnosis of recurrence of primary seminal vesicle adenocarcinoma. *World J Mens Health* 2014;32:61–5.
- Lee BH, Seo JW, Han YH, *et al*. Primary mucinous adenocarcinoma of a seminal vesicle cyst associated with ectopic ureter and ipsilateral renal agenesis: a case report. *Korean J Radiol* 2007;8:258–61.
- Davis NS, Merguerian PA, DiMarco PL, *et al*. Primary adenocarcinoma of seminal vesicle presenting as bladder tumor. *Urology* 1988;32:466–8.
- Ohmori T, Okada K, Tabei R, *et al*. CA125-producing adenocarcinoma of the seminal vesicle. *Pathol Int* 1994;44:333–7.

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