Clinical Case Report

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Primary squamous cell carcinoma of the seminal vesicle

A case report and review of the literature

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Abstract

Rationale: Primary squamous cell carcinoma (SCC) of the seminal vesicle is extremely rare, and the clinical characteristics of this kind of malignancy are still unclear.

Patient concerns: A 62-year-old male patient presented with complaints of sensation of rectal tenesmus and dysuria.

Diagnosis: Ultrasonography suggested a hypoechoic mass behind the bladder, meanwhile, computerized tomography (CT) and magnetic resonance imaging (MRI) revealed a 40 mm × 45 mm × 48 mm mixed solid/cystic tumorous lesion in the right seminal vesicle. Postoperative histology confirmed the diagnosis of primary SCC in the seminal vesicle.

Intervention: The mass was surgically excised with a laparoscopic approach. Postoperatively, 6 cycles of chemotherapy and 50 Gy of external beam radiation were concurrently performed on this patient.

Outcomes: No local recurrence or distant metastasis was detected within 2 years after the surgery.

Lessons: Primary SCC of the seminal vesicle is a rare neoplasm with a poor prognosis. Clinically, it is crucial to establish early precise diagnosis and apply multimodality treatment.

Abbreviations: CEA = carcinoembryonic antigen, CT = computerized tomography, MRI = magnetic resonance imaging, PSA = prostate-specific antigen, SCC = squamous cell carcinoma.

Keywords: clinical characteristics, seminal vesicle carcinoma, squamous cell carcinoma

1. Introduction

Tumors originating from the seminal vesicles are rare. No more than 60 cases have been reported so far, and most of them were adenocarcinoma, cystadenoma, and benign mesenchymal tumor.[1] Primary squamous cell carcinoma (SCC) in seminal vesicle is extremely rare. The prognosis of this malignancy is usually poor, as the majority of cases are often extensive when diagnosed.[2] We herein present a case of primary SCC originating from the seminal vesicle and have given a brief literature review in order to further investigate the disease.

1.1. Case report

A 62-year-old man presented with complaints of sensation of rectal tenesmus and dysuria for 1 month. The patient was healthy before and had no history of chronic urogenital tract infection. The physical examination including digital rectal examination revealed no abnormal signs. Urinalysis revealed hematopyuria, and Escherichia coli was recognized in the urine culture. The serum tumor markers like SCC antigen (SCCA, 3.60 ng/mL) and carcinoembryonic antigen (CEA, 3.79 ng/mL) were slightly elevated, while α-fetoprotein (AFP, 3.65 ng/mL), carbohydrate antigen 19-9 (CA19-9, 23.39 U/mL), and prostate-specific antigen (PSA, 1.51 ng/mL) were within the normal range. On imageology examinations, the ultrasonography suggested a hypoechoic mass behind the bladder, computerized tomography (CT) scan and magnetic resonance imaging (MRI) demonstrated a 40 mm × 45 mm × 48 mm mixed solid/cystic tumorous lesion with nonhomogeneous density and obscure boundary in the right seminal vesicle (Fig. 1A, B). No obvious effusion or lymphadenectasis was found by CT and MRI scan of the pelvic cavity. Considering the deep location of tumor, a needle biopsy was not suggested on this patient.

After detailed preoperative discussion and adequate preparation, the mass was successfully excised with a laparoscopic approach. During the surgery, the bilateral seminal vesicles, prostate, and vesicle neck were removed en bloc. Macroscopically, the specimen consisted of a 68 mm × 65 mm × 80 mm

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LF and QH have contributed equally to this article.

Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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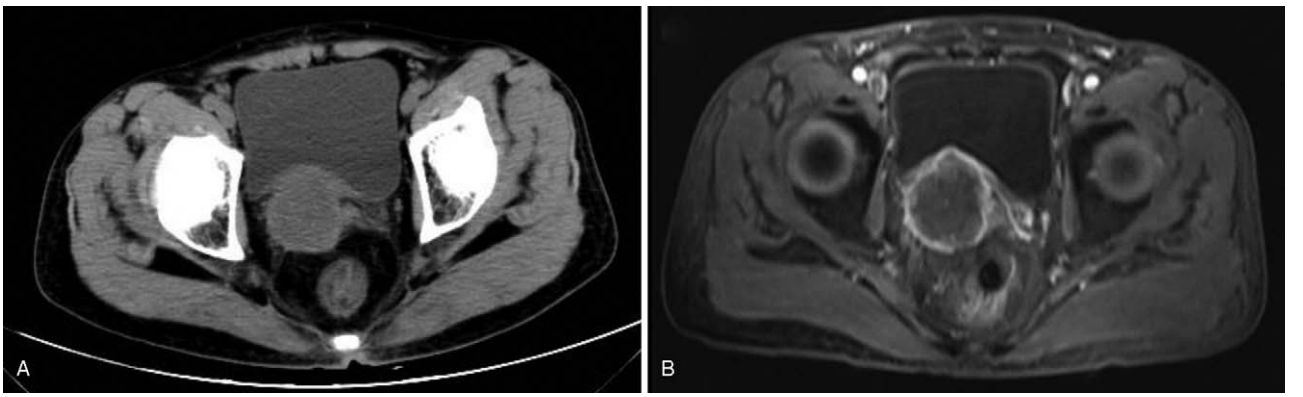

Figure 1. Computerized tomography scan (A) and magnetic resonance imaging (B) demonstrated a 40mm×45mm×48 mm mixed solid/cystic tumorous lesion with nonhomogeneous density and obscure boundary in the right seminal vesicle.

bulky mass with a gray cut surface accompanied by calcification and necrosis. The histologic examination revealed a poorly differentiated SCC arising from the right seminal vesicle with massive nuclear atypia and formation of cancer pearls. (Fig. 2A). Immunohistochemical analysis of the neoplastic cells was negative for PSA and positive for P63 and cytokeratin 5/6 (Fig. 2B, C). Postoperatively, the patient received 50 Gy of external beam radiation therapy in pelvic cavity and chemotherapy of gemcitabine and lobaplatin for 6 cycles. Although he suffered common adverse effects of the chemotherapy like slightly gastrointestinal reactions and myelosuppression, fortunately, no local recurrence or distant metastasis was detected within 2 years follow-up after the surgery.

2. Discussion

Primary SCC of the seminal vesicle is extraordinarily rare. The etiology of this malignant tumor remains unclear. It is well known that seminal vesicles are composed of 3 layers, which normally lack squamous epithelial features like lung and thyroid tissues. Prolonged chronic inflammation induced DNA damage and the induction of squamous metaplastic changes may play an important role during the pathogenesis of SCC.[3]

To date, no more than 5 cases of primary SCC arising from the seminal vesicle have been reported.[3–7] Through reviewing the literature, we summarized these cases between 2002 and 2016 (Table 1). Patient age at the time of diagnosis ranged from 26 to 69 years, with a mean age at 50 years. History or auxiliary examination exhibited a chronic urogenital tract inflammation among them. Moreover, all cases were reported from East Asia (Japan, China, and Korea), which might faintly reflect racial and regional differences in the prevalence of this malignancy. In the majority of cases published, presenting complaints were typical prostatic symptoms, including hematuria, dysuria, and difficulty in urination. Hemospermia was found in 1 patient.[3] The duration from onset of symptoms to first examination was usually brief, a few months only.

Clinically, physical examination and imaging test provide much important information for the diagnosis of patients with carcinoma of the seminal vesicle. Digital rectal examination may reveal a nontender mass superior to the prostate in some cases.[8] Pelvic CT and MRI scan could find the tumor location, its relationship with adjacent tissues, and evaluate lymph node status, which may help improve the surgical strategy. Transrectal biopsy has been proved to have definite value, but the major disadvantage is its invasiveness. So far it remains difficult to distinguish whether the tumor is a metastatic or primary one. Dalgaard et al[2] proposed and Benson et al[8] subsequently modified the criteria for the diagnosis of primary carcinoma originating from the seminal vesicle, as follows: the neoplasm was generally a papillary or

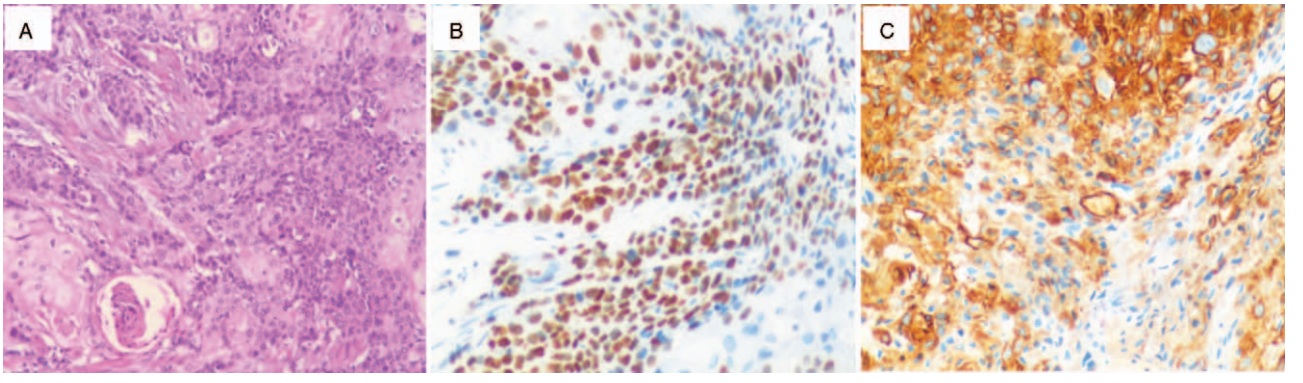

Figure 2. The histologic examination revealed a poorly differentiated squamous cell carcinoma arising from the right seminal vesicle with massive nuclear atypia and formation of cancer pearls (hematoxylin and eosin stain, magnification, 100×) (A). Immunohistochemical analysis of the neoplastic cells were strongly positive for P63 (B) and cytokeratin 5/6 (C) (magnification, 200×).

Table 1

Literature review of primary squamous cell carcinoma in the seminal vesicle.

No	Author (Ref.)	Publish time	Age	Country	Location*	Chief complaint	Past medical history	Treatment	Clinical events†
1	Yanagisawa et al[3]	2002	61	Japan	Left	Hemospermia and dysuria	Gonorrhea	Surgical excision	N.M.
2	Tabata et al.[6]	2002	69	Japan	Left	Gross hematuria and difficulty in urination	N.M.	Surgical excision radiotherapy	Alive without recurrence 2.5 years after surgery
3	Wang et al[4]	2013	54	China	Left	Gross hematuria	Hypospadias repair and resection of the right testicle	Surgical excision chemotherapy	Rectal metastasis 7 months after surgery, and died 1 year later
4	Kim et al[7]	2015	41	Korea	Right	Gross hematuria	Right seminal vesicle cyst with stones and inflammation	Surgical excision chemoradiotherapy	N.M.
5	Tang et al[5]	2016	26	China	Right	Gross hematuria and difficulty in urination	Right cryptorchidism and hypospadias	Surgical excision	Pelvic metastasis 28 months after surgery, and died 6 months later

N.M. = Not mentioned.
* Location of tumor in the seminal vesicle.
† Clinical events after primary tumor surgery.

anaplastic carcinoma localized primarily within the seminal vesicle; no other primary tumors were demonstrated elsewhere; some degree of mucin production was required in case of anaplastic prostatic tumors, and tissue staining was also recommended negative for PSA, but positive for CEA. In the present case, the final diagnosis as primary SCC in right seminal vesicle was validated by postoperative histologic findings.

Prognosis of primary SCC originating from seminal vesicle is usually poor, and there are no definitely effective treatment options for such cases. According to previous publications, surgical excision seemed to be the primary choice—either radical extirpation or local excision. Several patients also had adjuvant postoperative chemotherapy and/or radiotherapy since postoperative chemoradiation is the standard treatment for patients with high-risk head and neck SCC.[9] In this case, we performed chemoradiotherapy for the patient after surgery and obtained a relatively good outcome because no local recurrence or distant metastasis was detected within 2 years follow-up, which was similar to 1 reported case.[6] Nevertheless, the most cases exhibited a poor prognosis, the interval time of recurrence or metastasis from the surgical excision had been from a few months to 2 years.[4–5] Besides, adjuvant hormonal therapy reputedly had some effect on the patients with primary adenocarcinoma of the seminal vesicle.[8] Perhaps this approach could be tried in the treatment of primary SCC of the seminal vesicle.

In conclusion, primary SCC of the seminal vesicle is a kind of rare neoplasm which may be related to prolonged chronic inflammation. Clinically, to establish early precise diagnosis and effective treatment option mean great to improve the prognosis of this entity.

Author contributions

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Writing – original draft: Lu Fang, Qian Hong, Lei Chen.
Writing – review & editing: Dong-Dong Xie, De-Xin Yu.

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