

Importance of an early diagnosis in primary adenocarcinoma of the seminal vesicle

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Abstract

The prognosis of seminal vesicle (SV) adenocarcinoma is often poor due to delayed diagnosis. About 95% of the patients die in less than 3 years. Diagnosis is difficult due to the absence of early clinical signs as hematuria, hematospermia and/or dysuria. We present the case of a 61-year-old Caucasian man with a left SV mass detected by transrectal ultrasound. SV ultrasound-guided biopsy showed an adenocarcinoma. The tumor was uniformly strongly immunoreactive for cytokeratin-7 and carcinoembryonic antigen. There was no immunoreactivity for prostate-specific acid phosphatase (PSAP) and CK-20. These tumors have been reported to be also positive for CA-125. Therefore a combination of positive staining for CK-7, CEA and CA-125; with negative staining for CK-20, PSA and PSAP is the pattern of immunohistochemical findings noted for this rare tumor. The computed tomography of the abdomen-pelvis and chest X-ray was negative for metastases. The patient underwent a radical prostatectomy and lymphadenectomy. The prostate, rectum, bladder and lymph nodes were free from tumor involvement. The patient did not receive any adjuvant chemotherapy or radiation; and remains free of disease 3 years post-surgery.

Introduction

Primary tumors of the seminal vesicle (SV), which arise from the epithelial or mesenchymal elements, are very rare.¹ Handful cases of SV carcinoma have been reported in the literature. Epithelial and mesenchymal tumors have been described most often, while fibromas, myomas and sarcomas are found even less often.² Furthermore, the small number of cases published in the literature thus far is another limitation for both the diagnosis and treatment of this disease. Diagnosis is difficult due to the absence of early clinical signs as hematuria, hematospermia and/or dysuria.³ SV tumors generally present a retrovesical mass that can be identified by digital rectal examination (DRE) and transrectal ultrasound (TRUS).

Prognosis of patients with a SV neoplasm is commonly poor.⁴

Here, we report an additional case of primary adenocarcinoma of the SV with a follow-up of 3-years.

Case Report

A 61-year-old Caucasian male presented at our Department of Urology (Ferrara, Italy) with an history of dysuria, urinary frequency associated with a single episode of hematospermia. For about two weeks prior to his admission he had been taking antibiotics prescribed by his general practitioner for a presumed diagnosis of prostatitis. He was put on ciprofloxacin 500 mg orally twice a day for two weeks. Despite taking medications his symptoms persisted. His past history was remarkable for kidney stones and hypertension. On physical examination, oral temperature was 36.0°C (96.8°F), blood pressure 140/90 mmHg, heart rate 85 beats/min and pulse oximetry 98% on room air. Rectal examination revealed a regular prostate in size and consistency but with a not particularly hard fluctuant extra prostatic mass of approximately 1 cm in diameter on the left-posterior base of the gland. Full blood count, serum urea, electrolytes, liver function test, serum amylase and serum prostate specific antigen levels (PSA: 3.4 ng/mL) were within normal limits. There was no growth in his urine culture; his urine cell count determined by flow cytometry revealed: white blood cells 7 u/L, red blood cells 124 u/L, normal epithelial cells. Reviewing his medical history showed that 1 year before he underwent TRUS prostate biopsy because of his high PSA (5.8 ng/mL) detected on routine check-up. TRUS findings consisted in benign prostatic hyperplasia and the histopathological features of 14 biopsy specimens showed benign prostate tissue with elements of chronic inflammation. Transabdominal ultrasonography showed a simple right renal cyst of 3 cm in diameter. TRUS was used for the diagnosis (Figure 1) and confirmed the origin of the lesion from the left SV without infiltration of rectum, bladder or prostate. With TRUS we observed a left SV increased volume that contained inhomogeneous mass vascularized on color-Doppler sonography. The mass had irregular borders and the size was estimated by the formula: $D1=1.1\text{ cm} \times D2=1.4\text{ cm} \times D3=0.8\text{ cm}$ (D1, the transverse; D2, the anteroposterior; D3, cephalocaudal dimension of SV mass). Transrectal ultrasonography-guided biopsy of the mass lesion in left SV was performed. The pathological analysis of the biopsy specimen revealed an adenocarcinoma exhibiting papillary and tubulopapillary structures characterized by polygonal cells with pleomorphic

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nuclei, clear cytoplasm and extracellular mucin deposition (Figure 2). The cells were uniformly strongly immunoreactive for cytokeratin-7 (CK-7) and carcinoembryonic antigen (CEA). There was no immunoreactivity for PSA, prostate-specific acid phosphatase (PSAP) and CK-20. Additionally, these tumors have been reported to be also positive for CA-125. Therefore a combination of positive staining for CK-7, CEA and CA-125; with negative staining for CK-20, PSA and PSAP is the pattern of immunohistochemical findings noted for this rare tumor. The computed tomography (CT) of the abdomen-pelvis and chest X-ray was negative for metastases. A month later the patient underwent a Radical Prostatectomy and pelvic lymph nodes dissection with laparoscopic technique. The final pathology report confirmed the result of the SV biopsy. Patient did not receive other therapy in a neoadjuvant or adjuvant setting. The patient more than three years after RP has a good performance status without any symptom, and with negative imaging for metastases in the follow-up.

Discussion

Primary malignant SV tumors include a series of carcinomas, sarcomas, and an uncommon group of neoplasms with mixed epithelial and stromal elements.⁵ Although rare, adenocarcinoma is the most common primary histotype. Because involvement of SV by prostatic adenocarcinoma is a common event (approximately in 12% of patients underwent RP for low stage cancer),² since 1956 Dalgaard and Giertsen applied criteria to diagnose pri-

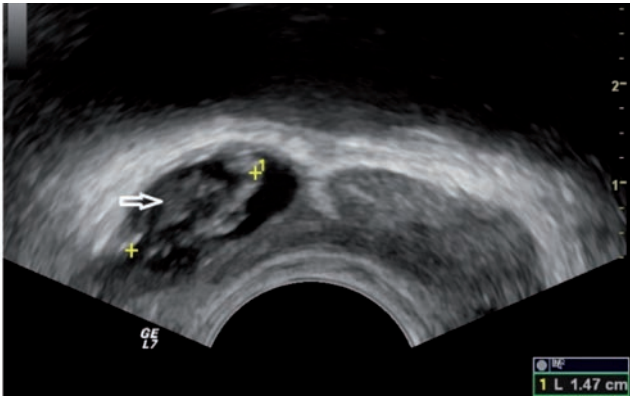


Figure 1. Transrectal ultrasound shows in longitudinal scan the left seminal vesicle increased volume that contains inhomogeneous mass with irregular borders (white arrow).

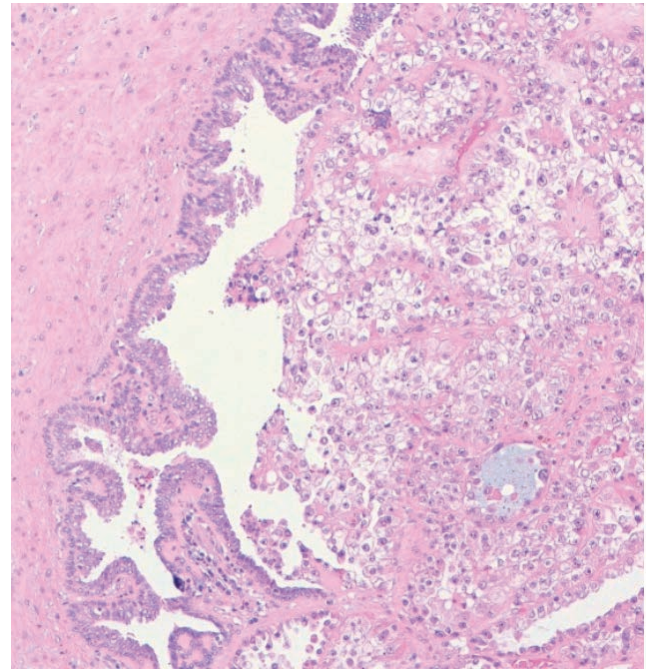


Figure 2. The biopsy of the seminal vesicle detects an adenocarcinoma exhibiting papillary and tubulopapillary structures characterized by polygonal cells with pleomorphic nuclei, clear cytoplasm and extracellular mucin deposition.

many tumors of SV.⁶ These traditional criteria for SV carcinoma include the requirement that no prostate, bladder, or rectal carcinoma be present.⁷ The criteria also include presence of mucus production in anaplastic variant and negative immunohistochemistry staining for PSA, and PSAP.⁸ Adenocarcinoma of the SV is also usually negative for CEA and positive for CK 7. Normal serum levels of PSA and CEA rule against invasion of the prostate or rectal carcinoma. However, increased serum CEA levels can also be observed in rare cases of SV adenocarcinoma, as our patient. The diagnosis of SV tumors is impeded by the generally asymptomatic nature of these lesions. The symptoms of SV tumors are nonspecific including hematospermia, hematuria, urinary infection, dysuria and pelvic pain.⁹ On DRE an enlarged seminal vesicle is usually not palpable. The area above the prostate, however, can be enlarged and compressible if the seminal vesicle is dilated or solid if the gland contains tumor.¹⁰ TRUS and CT scan are important diagnostic methods to improve the capability of identifying lesions of the SV.¹¹ Imaging is nonspecific and high-grade cytologic features may be present on microscopic evaluation. However, differentiation between a benign and a malignant neoplasm is very difficult. Various studies showed that needle biopsy findings compared to those of surgical and autopsy specimens may present a diagnostic challenge because benign characteristics on a histopathology exam does not rule out the absence of a carcinoma in a retrovesical mass.¹² Dahms *et al.*¹³ shown in a retrospective multi-institution study with 21 male patients the difficulty in diagnosis of retrovesical masses for eleven different diagnoses. Therefore, the lesion should be completely resected and RP should be considered if high-grade elements are identified.¹⁴ The prognosis of SV adenocarcinoma is often poor due to delayed diagnosis and therefore for the small number

of cases, there is no consensus on management; local excision or radical surgery, combined with hormonal therapy, radiation therapy, or chemotherapy, all have been utilized.¹⁵ Tumors within the SV is most commonly secondary to carcinoma of the prostate, rectum, or bladder. Recent advancements in imaging of prostate with MRI using an endorectal coil have significantly valorized the sensitivity of determining SV tumor invasion, which affects the prognosis and may alter the course of the treatment.¹⁶ However, a solid retrovesical lesion with no suspicion of local invasion, found on MRI or TRUS, or a biopsy that shows a benign lesion, can be managed conservatively if the patient is asymptomatic.¹⁷ In our case, however, even the pathological analysis of the biopsy specimen revealed an adenocarcinoma of the left SV, thus orienting for RP rather than a simple vesiculectomy. Ejaculatory canals are frequently invaded; therefore, prostatectomy should also be performed. Radiotherapy in the adjuvant setting is reserved for patients with residual tumor or positive margins.⁸

Conclusions

Including seminal vesicle carcinoma patients with hematospermia and/or lower urinary tract symptoms in the differential diagnosis will improve detection. Prognosis of patients with a SV tumor is generally poor,

however an early diagnosis may result in long-term palliative or even cure. Improved imaging tools and the availability of a serum marker will undoubtedly enhance detection at the earliest stages. Radical surgery appears to offer the best chance for cure but hormonal manipulation and radiotherapy seem to be effective as adjuvant treatment modalities. To the best of our knowledge, we present the first case of a localized SV adenocarcinoma that has a full recovery and patient does not have recurrence of disease 3 years post-operatively.

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