

Case Report

Seminal Vesicle Tumors

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Abstract

Purpose: To provide an overview of seminal vesicle tumors. **Material and method:** A review of the literature on seminal vesicle tumors was performed and current concepts related to the diagnosis and clinical management were described. Additionally, we report two new cases from our institution. **Results:** Benign primary tumors of the seminal vesicles are the most common. Early diagnosis is challenging and is a determinant factor for the extent of the surgical treatment applied. **Conclusions:** Seminal vesicle tumors are a rare entity which occurs in men of all ages. The ideal surgery depends on the histopathology and the size of the tumor.

Keywords: Seminal vesicle antigen; Neoplasms. Diagnosis.

Introduction

The tumors of the seminal vesicle are rare. They are generally detected as a retrovesical mass in a digital rectal examination or by image diagnostic methods. A retrovesical mass that is not related to benign prostatic hyperplasia or to prostate cancer is uncommon in men. Despite the improvements in image diagnostic methods, detection of these tumors remains a challenge. Furthermore, the small number of cases published in the literature thus far is another limitation for both the diagnosis and treatment of this disease.

Retrovesical masses have no classic clinical presentation and in most cases the symptoms are nonspecific, even in the presence of a large tumor. The common symptomatology in malignant cases is bladder outlet obstruction, hematuria, hemospermia and dysuria.¹ Those symptoms, however, are similar to prostate gland

disease, which is much more common, and makes the early diagnosis of seminal vesicle tumors even more difficult.

Material and Methods

We performed a literature review using the terms “retrovesical mass”, “seminal vesicle tumor” and “leiomyoma of the seminal vesicle” in the PubMed digital database. We describe two new cases of solid tumors in the region of the seminal vesicles and discuss the current concepts related to the diagnosis and clinical management of those retrovesical masses.

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Results

Case 1

A 46-year-old patient, with a past history of tuberculosis that was adequately treated, was admitted to our institution in a hypoglycemic coma. After initial life support measures, the patient underwent extensive investigation that included a computerized tomography (CT) of pelvis and abdomen. The CT scan revealed a large retrovesical mass with calcifications and no adjacent invasion (Figure 1). Because of the size of the mass and the possibility of it being a mesodermal tumor causing metabolic derangement, the decision was made to perform an exploratory laparotomy, during which the patient underwent a vesiculectomy. As shown by the pre-operative CT scan, no adhesions were noted between the mass of the seminal vesicle and the surrounding organs during the operation (Figure 2).



Figure 1 - Computerized tomography (CT): CT of pelvis and abdomen revealing a large retrovesical mass with calcifications and no adjacent invasion

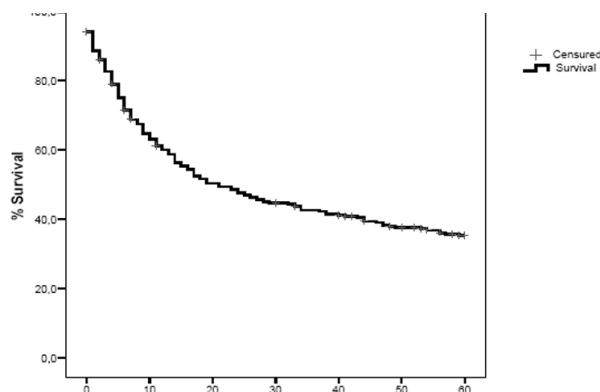


Figure 2 - Vesiculectomy: As shown by the pre-operative CT scan, no adhesions were noted between the mass of the seminal vesicle and the surrounding organs during the operation.

The patient had an uneventful hospital course and was discharged on the seventh postoperative day. Histopathology revealed a seminal vesicle leiomyoma (Figure 3).

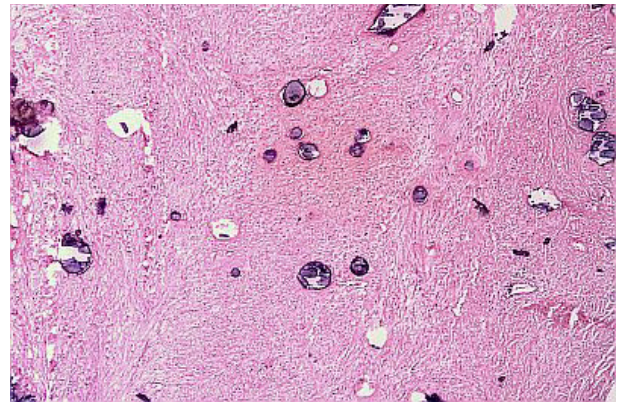


Figure 3 - Seminal vesicle leiomyoma: Histopathology revealed a seminal vesicle leiomyoma.

Case 2

A 46-year-old patient complained of erectile dysfunction and urethral pain that irradiated to the testicles. Rectal exam, ultrasonography and CT scan revealed a retrovesical tumor in the location of the seminal vesicle. The patient underwent a percutaneous biopsy of the lesion which revealed the presence of atypical cells with malignant aspect.

The patient was operated on and a cystoprostatectomy with continent urinary derivation (orthotopic neobladder) was performed. The patient had an uneventful hospital course and was discharged on the tenth postoperative day. Histopathology and immunohistochemical examination of the surgical specimen revealed a neuroendocrine tumor of the seminal vesicle. Adjuvant treatment was not necessary. A follow-up of eighteen months shows no signs of tumor recurrence.

Discussion

The presence of a retrovesical mass not related to a benign prostatic hyperplasia or a prostatic cancer is an uncommon finding in men. Masses in that location can be of congenital or noncongenital origin, as well as benign or malignant, and frequently produce no classic symptom even if they are considerably large.

To help guide the diagnosis of a retrovesical

mass, the duration of the symptoms (the chronic low urinary tract symptoms are more common in the prostatic diseases) and location of the mass can be considered. Transrectal ultrasound and the CT scan are important diagnostic methods to improve the capability of identifying lesions of the seminal vesicle.

Differentiation between a benign and a malignant tumor is very difficult even with the specimen on hand. Various studies have demonstrated that needle biopsy findings compared to those of surgical or 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.² Nonetheless, benign tumors are more common than malignant ones, among which are adenomas, fibromas and leiomyomas.³⁻⁵

Cysts of the seminal vesicles are found frequently and can present with other genitourinary anomalies. The difficulty in diagnosis of retrovesical masses can also be exemplified by the results of a retrospective, multi-institution study with 21 male patients (3 to 79-years-old) presenting with a retrovesical mass that showed eleven different diagnoses² (Table 1).

With respect to malignant tumors, adenocarcinomas are the most frequent; however, sarcomas, seminomas, mesodermal tumors, and other more rare types have been described.^{1,6-11} Determining whether the origin of the primary tumor is from the seminal vesicle or from neighboring organs is a major challenge. In the case of adenocarcinomas, a useful criterion is the exclusion of a primary tumor of the prostate due to the greater number of cases. To investigate another origin for the primary tumor, the serum levels of the prostate specific antigen (PSA) and the prostatic acid phosphatase (PAP) should be measured, as well as the carcinoembryonic antigen (CEA) to rule out colorectal carcinomas. Transrectal biopsies and CA-125 measurements also contribute to the diagnosis. Recent studies have shown that seminal vesicle carcinomas can be distinguished from carcinomas of other organs using CA-125 and cytokeratin markers.^{1,12}

CA-125 is a glycoprotein found in more than 80% of genital tract neoplasms in female patients. Even though the embryological development of the seminal vesicles is from the mesonephric (Wolffian) duct, a strict male organ without a female homologue, the presence of CA-125 positivity in seminal vesicle carcinoma provides important clues regarding its histogenesis. CA-125 can also be used as a serological marker to monitor response to treatment after surgical intervention and medical or radiation therapy.

Cytokeratin 7 is another marker of seminal vesicle neoplasm; it is positive in most of the cases. On the contrary, cytokeratin 20 is almost never positive in patients with seminal vesicle neoplasm.^{1,12}

The lack of diagnostic and treatment protocols interfere with the prognosis of seminal vesicle tumors, where in most cases the diagnosis is obtained at a late stage of the disease, thus, jeopardizing the prognosis. Treatment strategies have concentrated primarily on attempts to excise the tumor surgically. However, a solid retrovesical mass with no suspicion of local invasion, found on CT scan or ultrasound, or a biopsy that shows a benign lesion, can be managed conservatively if the patient is asymptomatic. On the other hand, large masses and a symptomatic patient should be treated surgically. Operative management includes local excision of a seminal vesicle and more aggressive procedures, such as, cystoprostatovesiculectomy with urinary diversion and pelvic exenteration. The extent of the resection ultimately depends on the degree of the involvement of adjacent organs by the tumor, as well as, the patients' age. Recently, some authors reported video laparoscopy as an alternative approach to surgical treatment in some cases.⁶

Radiotherapy is used when the tumor has reached or advanced beyond the surgical margins; however, there is scarce data available relating to its effectiveness in that situation. Chemotherapy treatment has produced disappointing results in the few cases that it was used.¹

Cancer related hypoglycemia is a common finding in insulin-producing islet cell neoplasm. However, other tumors can also provoke hypoglycemia; among them are hepatomas, mesenchymal and adrenocortical tumors. Hypoglycemia not related to islet cell tumors (insulinomas) in cancer patients are caused by substances that produce nonsuppressible insulin-like activity (insulin-like growth factors I and II, somatomedin A and C).¹³ Other possible mechanisms are excessive carbohydrate utilization by the tumor and insufficient hepatic glycogen storage.¹¹ The best treatment for hypoglycemia related to secondary solid tumors is surgical intervention; however, because of the rarity of such findings in cases of seminal vesicle tumors, no standard classification or therapeutic protocol have been established.

Conclusion

Seminal vesicle tumors are rare and bring about

Table 1 – Differential diagnose of retrovesical mass

Pt.age	Symptoms	Disgnostic procedure	Location	Diagnosis	Surgical Treatment
39	Chronic perineal pain	US	Prostate	Utricle cyst	Unroofing
47	Acute urinary retention	US, CT, MRI, exploratory laparotomy	Prostate	Myxoid liposarcoma	Cystoprostatectomy
69	Fever, perineal pain	US, CT, cystoscopy	Prostate	Abscess	Unroofing and drainage
55	Chronic painful micturition	US, MRI, cystoscopy	Prostate	Utricle cyst	Unroofing
19	Chronic perineal pain	US, MRI, cystoscopy	Prostate	Utricle cyst	Unroofing
38	Painful micturition, fever, flank pain	US, CT	Seminal vesicle	Empyema	Extirpation
60	Fever, urosepsis	US, MRI, cystoscopy	Seminal vesicle	Empyema	Extirpation
62	None	US, MRI, cystoscopy	Seminal vesicle	Cyst	None
69	Acute urinary retention	US, cystoscopy, exploratory laparotomy	Seminal vesicle	Cyst	Extirpation
50	Fever, flank pain	US, CT, MRI, radioisotope scan	Seminal vesicle	Empyema	Extirpation
50	Chronic frequency	US, CT, MRI, radioisotope scan, cystoscopy	Seminal vesicle	Hydrops	Nephroureterectomy, vesicle extirpation
25	Recurrent epididymitis	US, MRI, cystoscopy	Seminal vesicle	Hydrops	Nephroureterectomy, vesicle extirpation
03	Acute urinary retention	US, MRI	Seminal vesicle	Hydrops	Nephroureterectomy, vesicle extirpation
35	Recurrent epididymitis	US,CT, radioisotope scan, cystoscopy	Seminal vesicle	Hydrops	Nephroureterectomy, vesicle extirpation
28	Recurrent epididymitis	US,CT, radioisotope scan, MRI	Seminal vesicle	Hydrops	Nephroureterectomy, vesicle extirpation
44	None	US,CT, radioisotope scan, MRI, needle aspiration biopsy	Seminal vesicle	Hydrops	None
30	Recurrent epididymitis	US,CT, MRI, cystoscopy, exploratory laparotomy	Ureter	Ectopic ureterocele	Nephroureterectomy, ureterocele extirpation
79	Urinary incontinence	US,CT, MRI, needle biopsy, cystoscopy	Connective tissue	Malignant fibrous histiocytoma	None (died of myocardial infarction)
57	None	US, CT, MRI, cystoscopy, exploratory laparotomy	Connective tissue	Fibrous fossa obturatoria cyst	Extirpation
67	Acute urinary retention	US, CT, MRI, exploratory laparotomy	Connective tissue	Hemangiopericytoma	Extirpation
63	None	US,CT, cystoscopy, needle biopsy, exploratory laparotomy	Connective tissue	Leiomyosarcoma	Extirpation

a significant diagnostic challenge. The rarity of such tumors has precluded a standard classification and the development of therapeutic protocols. Benign cases can be managed by observation alone in asymptomatic patients. Malignant tumors require radical surgery.

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