Oncology

Seminal Vesicle Leiomyoma Mimicking Extra-prostatic Extension of Prostatic Adenocarcinoma

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A R T I C L E   I N F O

Article history:
Received 22 January 2016
Accepted 29 January 2016

Keywords:
Seminal vesicle
Leiomyoma
Prostate cancer
Robot assisted laparoscopic prostatectomy

A B S T R A C T

Leiomyomas are common smooth muscle neoplasms; however, leiomyomas of the seminal vesicles are extremely rare. We report a case of seminal vesicle leiomyoma in a 55-year-old African American male who underwent robot assisted laparoscopic prostatectomy (RALP) for Gleason 8 (4+4) adenocarcinoma. An incidental nodule arising from the left seminal vesicle was discovered during surgery, complicating the surgical dissection and suggesting extra-prostatic extension. The histologic findings in this case raised the possibility that this seminal vesicle leiomyoma may have arisen from a remnant of the mid-portion of the Müllerian duct; however, a thorough immunohistochemical (IHC) workup disproved this theory.

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Introduction

Most often found in the uterus and GI tract, leiomyomas are common benign smooth muscle neoplasms. In contrast to the high incidence of these tumors in the female genital tract, smooth muscle tumors of the male genitourinary tract are relatively uncommon with leiomyomas of the seminal vesicle being exceedingly rare, with around a dozen cases reported in the literature.1-3 The presentation of these lesions ranges from entirely asymptomatic to symptoms including pelvic pain, lower urinary tract symptoms, or tenderness.

Here we present a case of an incidentally discovered seminal vesicle leiomyoma in a 55-year-old male during RALP, and discuss the clinical and pathologic findings.

Case report

The patient is a 55-year-old African American male who was found to have an elevated prostate specific antigen (PSA) of 6.05 ng/mL. Given his ancestry and a family history of prostate cancer, he was referred to urology for evaluation.

Digital rectal examination (DRE) revealed an approximately 20 g prostate with median furrow preserved. The left side was slightly enlarged, rubbery in texture and firm, with no bundles, induration or tenderness.

Trans-rectal ultrasound guided prostate needle biopsy was performed with double sextant (12) cores: two cores each from the base, middle, and apex of the right and left. Pathology revealed adenocarcinoma with Gleason scores: 4+4 left base, 3+4 right apex, and 4+3 right middle. Given the patient’s high risk stratification, he underwent additional studies including CT A/P with IV contrast and TC-99M medronate bone scan for metastatic evaluation. No evidence of metastatic disease or seminal vesicle abnormality was demonstrated on the CT or bone scans.

Given the choices of active surveillance, radiation therapy, or surgery, after discussion of the risks and benefits of each the patient wished to proceed with surgery and elected for RALP. Preoperative evaluation was performed without significant concerns.

We approached the RALP using the standard Hasson technique to gain access into the peritoneum just below the umbilicus. Appropriate laparoscopic ports were placed and the da Vinci robotic system was docked in the usual fashion. Surgery progressed without difficulty until the posterior dissection during the exposure of the ampulla of the vas deferens, which was initiated in the antegrade fashion. The tissue planes were not clear and key structures were unidentifiable. Intraoperatively, there was concern for extra-prostatic extension of adenocarcinoma. We altered our
dissection by switching to a retrograde approach, allowing us to dissect along Denonvillier’s fascia and free the prostate, ampulla of vas defeneris, and seminal vesicles en bloc. The remainder of the surgery was without complication. The patient had an uneventful post-operative course and PSA values have been undetectable.

On receipt of the gross 49.5 g radical prostatectomy specimen, a 1.5 × 1.5 × 1.2 cm firm, well circumscribed nodule was found, involving the left seminal vesicle. This nodule was not in continuity with the prostate gland proper, but was located toward the distal aspect of the seminal vesicle. The nodule revealed homogenous tan, whorled cut surfaces with a dominant central cystic space filled with brown-tinged serous fluid and smaller peripheral cystic spaces.

H&E staining revealed intervening fascicles of bland, spindled cells abutting unremarkable seminal vesicle. The cells displayed eosinophilic cytoplasm with cigar-shaped nuclei. No mitotic activity, nuclear atypia, or necrosis was identified. The central cystic space was lined with attenuated low cuboidal epithelium and contained macrophages (Figs. 1 and 2). The peripheral cystic spaces were lined by a more complex epithelium with variation in thickness from single to multiple cell layers and pigment consistent in appearance with lipofuscin. IHC staining demonstrated positivity of the spindled cells for the mesenchymal markers actin, vimentin, and desmin (Fig. 3). The nuclei of the epithelial lining cells in both the central and peripheral cystic spaces stained strongly, diffusely positive with PAX8 along with the normal adjacent seminal vesicle epithelium. There was patchy, apical membranous CD10 staining in the epithelium of all cystic spaces and normal seminal vesicles.

Discussion

Leiomyomas arising in the male genitourinary system are uncommon, and can originate anywhere smooth muscle is found. There are reported cases of leiomyomas involving many sites in the genitourinary system including kidney, renal pelvis, prostate, and urethra; however, seminal vesicle leiomyomas are exceedingly rare. It is thought that the tumor may arise either from proliferation of the intrinsic smooth muscle of the seminal vesicle or blood vessels, or from a remnant of the mid-portion of the Müllerian duct.

In 1944, Plaut and Standard reported a similar lesion of the seminal vesicle. They described a proliferation of smooth muscle fibers with intervening connective tissue and a central fluid filled cavity lined by a single layer of epithelium, believed to have originated from the mid-portion of the Müllerian duct. While other reports of seminal vesicle leiomyomata have been reported infrequently in the literature, to our knowledge there have been none described having a cystic cavity since the 1944 publication.

IHC staining was performed in an attempt to elucidate the origin of this tumor, specifically looking for proof of Müllerian origin. PAX8 stains both mesonephric and paramesonephric ductal derivatives and, as such, cannot differentiate between wolffian derived structures and Müllerian remnants. With reported high sensitivity and some specificity, studies have shown that CD10 may be useful in making a distinction between structures of wolffian and Müllerian origin. The tumor showed apical membranous staining of all cystic spaces with CD10 suggesting that the cyst spaces were dilated, attenuated portions of seminal vesicle. We postulate that this leiomyoma arose from the smooth muscle of the seminal vesicle, not from a Müllerian remnant.

The small size of this incidentally discovered leiomyoma likely accounted for its asymptomatic course and its non-detection by CT or DRE. Only at the time of surgery was the tumor noted, resulting in a more challenging dissection with concern for tumoral extension of adenocarcinoma. While leiomyomata of the seminal vesicle are uncommon, it is important to include them in the differential when a lesion of the posterior-superior prostate is identified as they may alter surgical management.
Conflicts of interest
The authors have no conflicts of interest to disclose.

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