Case Report

Seminal Vesicle Schwannoma: Transrectal and Intraoperative Sonographic Findings

CME Credits

Chih-Yu Shen[1], Nan-Haw Chow[2], Yuh-Shyan Tsai[1]*

[1]Department of Urology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, [2]Department of Pathology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Abstract

Schwannomas, namely neurilemmomas, are benign nerve sheath tumors and comprise the myelin sheaths around the peripheral nerves. Schwannomas commonly occur in the head and neck, or extremities, less found in the mediastinum and retroperitoneum, and rarely in the pelvis. We report a 40-year-old male presenting with an 18-month history of nocturia and urinary frequency. Transrectal ultrasound revealed a well-defined, 2.81 cm × 3.77 cm in size, homogeneous, hypoechoic mass in the tail of the left seminal vesicle, compatible with the finding of a well-demarcated mass at the left seminal vesicle with homogeneous contrast enhancement on computed tomography. He underwent laparoscopic excision of the mass via da Vinci robotic surgical system. Intraoperative sonography showed that the mass exhibited the majority of hypoechoic density with some hyperechoic spots inside. Pathology reveals schwannoma. Both of erectile and ejaculatory functions were claimed postoperatively. Our case report highlights the potential of either intraoperative or preoperative sonography in the assessment of the seminal vesicle schwannoma.

Keywords: Schwannoma, seminal vesicle, transrectal sonography

Introduction

Schwannomas, namely neurilemmomas, are benign nerve sheath tumors and comprise the myelin sheaths around the peripheral nerves.[1] They comprise 5% of all benign soft tissue tumors.[2] Most schwannomas are sporadic and present between the ages of 20 and 50 years. Schwannomas commonly occur in the head and neck, or extremities, less found in the mediastinum and retroperitoneum, and rarely in the pelvis.[3] We reported a male patient with left seminal vesicle schwannoma treated with laparoscopic excision with the aid of da Vinci robotic surgical system and reviewed the literature.

Case Report

A 40-year-old male was referred to our hospital for the evaluation of the left seminal vesicle mass, presenting with an 18-month history of nocturia and urinary frequency and intermittent left lower quadrant pain. He denied having constitutional symptoms, including fever, chills, voiding difficulty, or hematuria. The patient's medical history was otherwise healthy and family history was negative for neoplasm. He is an unmarried nonsmoker and works as a computer engineer.

An elastic and smooth mass separated from the prostate was palpated by digital rectal examination. Transrectal ultrasound revealed a well-defined mass, measuring 2.81 cm × 3.77 cm in size, homogeneous, hypoechoic lesion in the tail of the left seminal vesicle [Figure 1a-d], exhibiting a well-demarcated mass at the left seminal vesicle with homogeneous contrast enhancement on computed tomography (CT) [Figure 2a and b]. Transrectal ultrasound-guided mass biopsy initially yielded chronic inflammation. Both of the urine and blood laboratory tests were within normal limits, except mild elevation of serum squamous cell carcinoma antigen level (3.4 ng/ml; normal range, 0.5–2.7 ng/ml). The serum prostate-specific antigen level was

Received: 27-04-2020 **Revised:** 14-06-2020 **Accepted:** 01-07-2020 **Available Online:** 09-01-2021

Access this article online

Quick Response Code:

Website: www.jmuonline.org

DOI: 10.4103/JMU.JMU_68_20

Address for correspondence: Dr. Yuh-Shyan Tsai, Department of Urology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, No. 138, Sheng-Li Road, Tainan, 704302, Taiwan.
E-mail: youh@mail.ncku.edu.tw

How to cite this article: Shen CY, Chow NH, Tsai YS. Seminal vesicle schwannoma: Transrectal and intraoperative sonographic findings. J Med Ultrasound 2021;29:123-5.

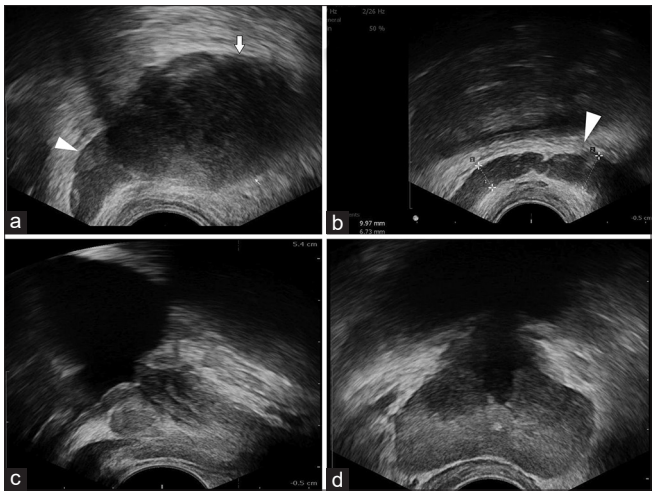

Figure 1: Transrectal ultrasound imaging. (a) A hypoechoic mass (arrow) in the tail of the left seminal vesicle (arrowhead) and posterior acoustic enhancement (blue arrow). (b) Bilateral seminal vesicles in the transverse view of the prostate base (c) The sagittal view of the prostate. (d) Transverse view of the mid-prostate

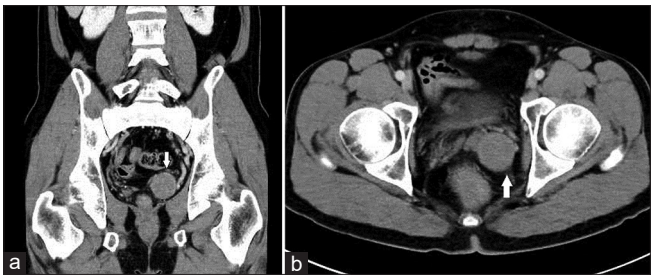

Figure 2: Computed tomography scan imaging. The preoperative coronal (a) and axial (b) pelvic contrast-enhanced computed tomography scan revealed a well-demarcated solid mass (arrow) at left seminal vesicle, size about 3.8 cm, with homogeneous contrast enhancement

0.87 ng/ml. He underwent laparoscopic excision of this mass with the aid of da Vinci robotic surgical system [Figure 3a]. Intraoperative sonography was utilized to identify the seminal vesicle mass and the mass showed the majority of hypoechoic density with some hyperechoic spots inside [Figure 3b]. To be concise, it is a well-demarcated mass featuring heterogeneous hypoechoic density with scattering hyperechoic sheets. The mass was closely adjacent with the left seminal vesicle which was carefully dissected free from the ureter and vas deferens. Grossly, a yellow-white, elastic, and encapsulated mass on cut was found [Figure 3c]. The pathological result demonstrated a benign schwannoma, comprising fascicles of compact spindle tumor cells with nuclear palisading, and less cellular areas with haphazardly arranged spindle cells in loosely textured matrix. In addition, there are thick-walled hyalinized blood vessels, some neurons, and a positive S-100 expression on immunostaining [Figure 3d]. The patient was discharged on the fifth postoperative day and claimed no impairment on both penile erection and ejaculation at follow-up visits.

Discussion

Seminal vesicle tumor is rare and schwannoma contributes even less among this entity. The differential diagnosis includes papillary adenoma, cystadenoma, fibroma, and leiomyoma.[4] Besides benign tumors, seminal vesicle malignancies involved by contiguous spread from adjacent organs (prostate, bladder, or rectum) or disseminated malignancies (melanoma, renal cell carcinoma, testicular tumors, and hepatocellular carcinoma) have been described.[5] To our knowledge, only about 9 cases of seminal vesicle schwannoma had been documented and only one case was managed with a robotic-assisted laparoscopic approach.[6]

Schwannomas are usually asymptomatic until they achieve a significant size, causing mass effect to the adjacent tissues or by nerve compression. Symptoms of seminal vesicle tumors vary and are usually nonspecific. Previous reported cases presented with symptoms consequent to organ or nerve compression such as bladder, intestinal, or ejaculatory obstruction along with/without pelvic or perineal pain.[7]

Differentiating benign from malignant seminal vesicle tumors could be a real challenge. Both benign peripheral nerve sheath tumors (schwannomas and neurofibromas) and malignant peripheral nerve sheath tumors have variable sonographic features; thus, diagnosis of seminal vesicle tumor cannot be made solely by sonography examination but rather by pathologic review.[8] Despite being variable, most peripheral nerve sheath tumors share the common sonographic features of being hypoechoic and homogeneous, with posterior acoustic enhancement and peripheral nerve continuity. With regard to internal echogeneity, Reynolds Jr., *et al.* reported that four (67%) of six schwannomas were homogeneous and two (33%) had a heterogeneous appearance.[8] Our intraoperative sonography demonstrated majority of hypoechoic density with scattering hyperechoic sheets, which might be compatible with the fascicles of compact spindle tumor cells with nuclear palisading noted during histology review. The grossly whitish scar-like tissue comprised the haphazardly arranged spindle cells in loosely textured matrix. This finding highlights the potential of both preoperative and intraoperative sonography in the evaluation of seminal vesicle tumor.

Although both of transrectal ultrasound and CT scan can provide anatomical information determining size, location, local involvement, and distant spread of the tumor, the final diagnosis still relies on histologically. On sonography, neurilemoma and neurofibroma are usually well-defined, solid, hypoechoic soft tissue masses and have faint distal acoustic enhancement. These tumors may be indistinguishable from other soft tissue masses.[9] The treatment of seminal vesicle mass mainly requires surgical intervention; however, its deep location in an anatomically complex region raises issues how to do surgical excision. There is no consensus on the route for surgical approaches. Retrovesical, transvesical, transperineal, transcoccygeal, and laparoscopic were described[10] and the first choice of approach should be tailored according to the

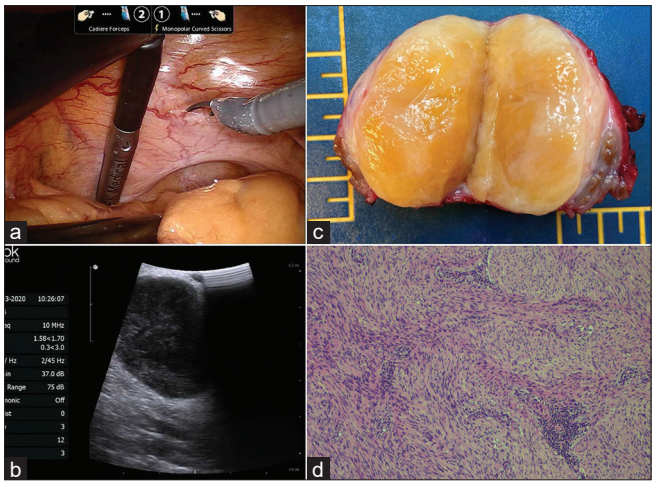

Figure 3: Left seminal vesicle Schwannoma. (a) The use of intraoperative ultrasound in robotic-assisted excision. (b) Intraoperative sonography showed a well-demarcated mass, presenting with the majority of hypoechoic density and some hyperechoic spots inside. (c) Cross-section view revealed a yellow, encapsulated appearance with some white scar-like lesions inside. (d) Histological section confirmed a benign schwannoma and composed of fascicles of compact spindle tumor cells

surgeon's expertise. We utilized laparoscopy with the aid of da Vinci robotic surgical system to minimize the risk of bleeding and to ensure preservation of the neurovascular bundle. With magnification lens, robotic surgery potentially offers the advantages of better visualization of anatomical structures with minimal invasiveness and faster postoperative recovery. Together with the sonographic finding, we provide the clinic presentation, diagnostic modality, and the surgical outcome of the seminal vesicle schwannoma.

Conclusion

Seminal vesicle schwannoma is rare, usually a benign neoplasm that may produce significant symptoms requiring surgical intervention. Preoperative diagnosis is a challenge. Not only anatomical and tumor characteristics, both of transrectal ultrasound and intraoperative sonography can provide some important sonographic findings that may be helpful during surgery. Our case showed the majority of hypoechoic density with some hyperechoic spots inside which is compatible with the histological section. We herein reported this case and made the literature review.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Sawhney R, Carron MA, Mathog RH. Tongue base schwannoma: Report, review, and unique surgical approach. Am J Otolaryngol 2008;29:119-22.
2. Rodriguez FJ, Folpe AL, Giannini C, Perry A. Pathology of peripheral nerve sheath tumors: Diagnostic overview and update on selected diagnostic problems. Acta Neuropathol 2012;123:295-319.
3. Mazzola CR, Power N, Bilsky MH, Robert R, Guillonneau B. Pudendal schwannoma: A case report and literature review. Can Urol Assoc J 2014;8:E199-203.
4. Smith RP, Turek P. Netter Collection of Medical Illustrations: Reproductive System E Book. Plate 4-21, pp,96. Elsevier Health Sciences; 2011.
5. Hsu YL, Lin IC, Tung CL. 18F-FDG PET/CT of seminal vesicle metastasis from ascending colon adenocarcinoma. Clin Nucl Med 2017;42:138-9.
6. Arun G, Chakraborti S, Rai S, Prabhu GG. Seminal vesicle schwannoma presenting with left hydroureteronephrosis. Urol Ann 2014;6:363-5.
7. Furtado AM, Carrasquinho E, Ferreira M, Afonso A, Ferrito F. Schwannoma, a rare tumor of the seminal vesicle. Cent European J Urol 2011;64:44-6.
8. Reynolds DL Jr., Jacobson JA, Inampudi P, Jamadar DA, Ebrahim FS, Hayes CW. Sonographic characteristics of peripheral nerve sheath tumors. AJR Am J Roentgenol 2004;182:741-4.
9. Beggs I. Sonographic appearances of nerve tumors. J Clin Ultrasound 1999;27:363-8.
10. Graham SD, Keane TE, Glenn JF. Glenn's Urologic Surgery. Ch. 54, pp, 361-363. Lippincott Williams & Wilkins; 2010.