Urology Case Reports 43 (2022) 102107

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Multiple penile schwannomas

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ARTICLE INFO

Keywords:
Penile tumors
Schwannoma
Multiple

ABSTRACT

Penile neoplasm is uncommon, and multiple penile schwannomas are even rarer. We report a case of a 37-year-old man with multiple schwannomas on the left side of the penis, which had been present for more than 10 years without significant enlargement during erection and had recently been associated with mild pain. Ultrasonography revealed several subcutaneous heterogeneous hypoechoic of penile, the larger of which was approximately 1.9 × 0.9 cm. The patient underwent penile mass excision, and pathology and immunohistochemistry confirmed that it was schwannoma. The patient was followed up for 3 years without recurrence or metastasis.

1. Introduction

Schwannomas are benign tumors derived from Schwann cells of peripheral nerve sheaths, commonly occurring in cranial nerves, followed by peripheral nerves in the head, face, and tongue.[1] They rarely occur in the genitourinary system, and multiple nerve sheath tumors of the penis are even rarer, making clinical diagnosis more difficult and more likely to be misdiagnosed.

2. Case report

A 37-year-old male patient presented with a progressively enlarging left penile mass for more than 10 years, which was not significantly enlarged during erection and was recently associated with mild pain. The patient was in good health with no history of penile surgery or trauma and no family history of a genetic nerve sheath tumor. During physical examination, a hard, smooth, fixed mass with a size of about 2 × 3 cm and no obvious pressure pain can be palpated on the left side of the penis. Blood test and urine chemistry findings were within normal ranges. CT of the chest and ultrasonography of the inguinal lymph nodes showed no significant abnormalities. Ultrasonography suggested the presence of several hypoechoic under the skin of the left penis, the larger of which was about 1.9 × 0.9 cm in size, with a regular morphology, clear borders, uneven internal echogenicity, slightly enhanced posterior echogenicity, and dotted blood flow signal visible (Fig. 1). In view of the size and the intensive nature of the tumor, The decision was made to surgically remove the lesion.

During the operation, the skin of the distal penis is circumferentially incised and the penis is degloved until the swelling is exposed, followed by complete dissection of the swelling from the penis. Two pieces of tissue were seen intraoperatively, measuring 2 × 1.5 × 1 cm and 1 × 0.8 × 0.3 cm, the larger of which had an intact envelope and a grayish-white cut surface. Haematoxylin and eosin photomicrograph showed Tumor cells show nuclear palisading with tapered ends interspersed with collagen fibers (Fig. 2). Immunohistochemistry showed tumor cells CD56 (+), S100 (+), Desmin (-), CD34 (-), SMA (-), Ki67 (+,5%), EMA (-), CK (-) (Fig. 3). Pathology combined with immunohistochemistry supported the diagnosis of nerve sheath tumor.

The patient was followed up for 3 years after surgery with normal penile erectile function and no recurrence or metastasis.

3. Discussion

Schwannomas are tumors that originate mainly from Schwann cells and are mostly found in young and middle-aged adults between the ages of 30 and 50 years old, and are mostly solitary, slow-growing benign tumors. The pathogenesis is mainly related to mutation or deletion of NF2 gene and its encoded Merlin protein reduction.[2] Schwannomas are commonly found in the head and extremities, but can also be present in the prostate, spermatic cord, testes, bladder, and seminal vesicles.[3] This case is a rare multiple schwannomas present in the penis.

Schwannomas often present as gradually enlarging painless nodules, mostly occurring on the dorsal side of the penis and the penile body,[1] and produce corresponding symptoms, such as pain, urinary tract irritation, urinary tract obstruction and sexual dysfunction, as the masses gradually grow to compress the adjacent organs. Because it has no

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https://doi.org/10.1016/j.eucr.2022.102107
Received 6 April 2022; Received in revised form 30 April 2022; Accepted 4 May 2022
Available online 7 May 2022

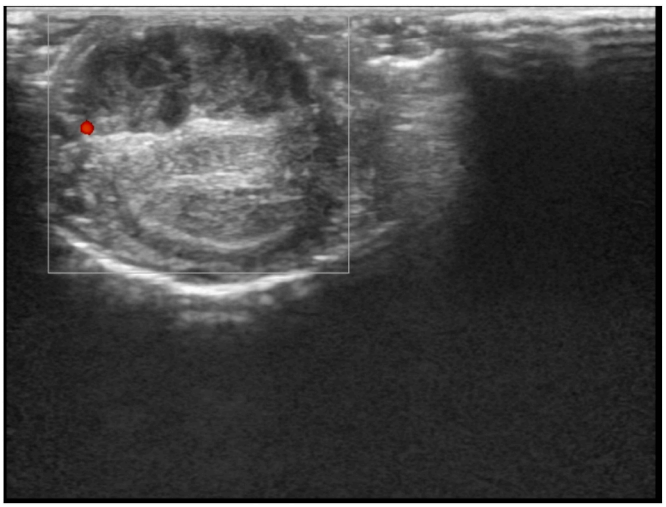

Fig. 1. Ultrasonography suggested the presence of several hypoechoic, the larger of which was about 1.9 × 0.9 cm in size, with a regular morphology, clear borders, uneven internal echogenicity, slightly enhanced posterior echogenicity, and dotted blood flow signal visible.

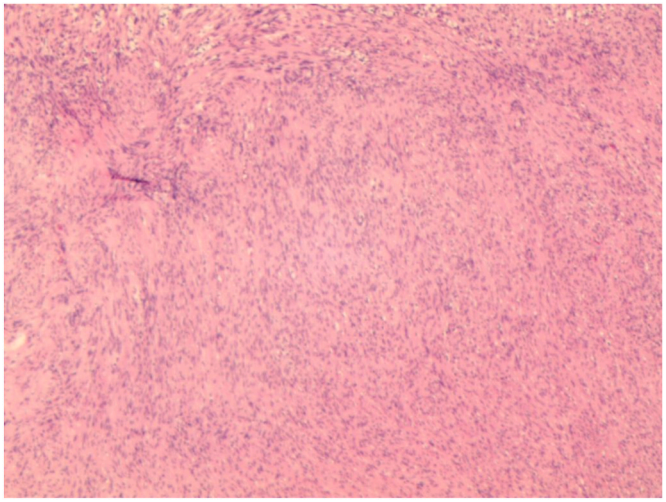

Fig. 2. Haematoxylin and eosin photomicrograph showed Tumor cells show nuclear palisading with tapered ends interspersed with collagen fibers.

specific symptoms, it is more likely to be clinically misdiagnosed as lipoma, fibroma, sclerosis, etc.

Imaging can assist in the diagnosis of nerve sheath tumors, but is not very specific and mainly reflects the benignity or malignancy of the tumor to some extent. Ultrasound of nerve sheath tumors mostly presents as hypoechoic masses with posterior echogenic enhancement.[1] Although most nerve sheath tumors are benign, CT and diffusion-weighted MRI should be performed to further rule out malignancy.[3,4]

The histopathologic finding was mainly composed of spindle-shaped cells, often palisading, with a mixture of Antoni A and Antoni B patterns. Immunohistologically, all variants of nerve sheath tumors are diffusely and strongly S100 and SOX10 positive, with a few expressing GFAP and cytokeratin.[5] S100 protein positivity is a specific diagnostic indicator, and in benign lesions, it usually shows diffuse distribution of strong positive expression, while in malignant nerve sheath tumors S100 expression is weak and concentrated, so it can be a guide to the benignity and malignancy of the tumor and its prognosis.

Complete resection of the tumor is the preferred method for the

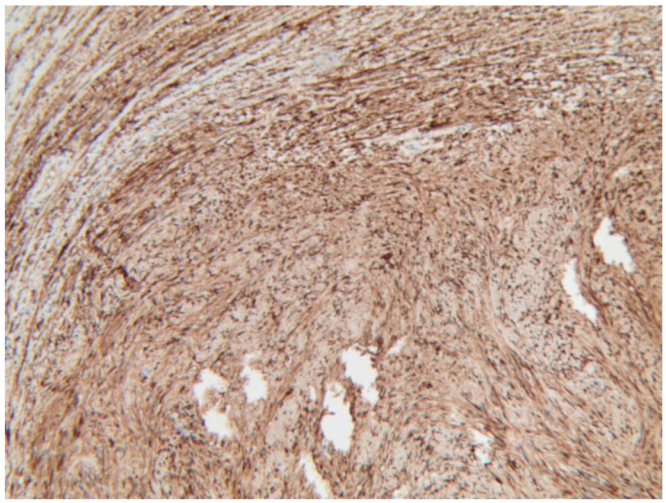

Fig. 3. Immunohistochemistry showed tumor cells CD56 (+), S100 (+), Desmin (-), CD34 (-), SMA (-), Ki67 (+,5%), EMA (-), CK (-).

treatment of benign nerve sheath tumors.[1] Intraoperative care should be taken to protect the surrounding tissues, avoid damage to blood vessels and nerves, and minimize the impact of surgery on the patient's sexual function. For rapidly expanding or painful malignancies, radiotherapy, chemotherapy or combination therapy should be considered.

4. Conclusion

Schwannomas are mostly benign tumors that rely on pathology and immunohistochemistry to confirm the diagnosis, and the preferred treatment is surgical excision. The prognosis of nerve sheath tumors is good, but there is still a risk of recurrence and malignancy[5] and long-term follow-up is necessary.

Author contributions

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Drafting of manuscript: Zhen Song, Zhiyu Zhang, Yifan Qiu.
Critical revision of the manuscript: Zhen Song, Zhiyu Zhang, Shuang Xu, Jun Ouyang.

Funding source

This work was supported by the Suzhou Science and Technology Project (grant numbers SLJ201906).

Informed consent form

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

Data statement

The data were obtained from the Department of Urology, the Department of Imaging and the Department of Pathology of the First Affiliated Hospital of SU.

Declaration of competing interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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