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Authors
Bansal, Riya
Shirkhoda, Layla
OConnell, Ryan
et al.

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Case Report

Incidental solitary fibrous tumor involving the seminal vesicle: A case report ☆,☆☆

Riya Bansal, BS[a], *Layla Shirkhoda, MD*[b], *Ryan O'Connell, MD*[c], *Roozbeh Houshyar, MD*[b,*]

[a] *University of California Irvine School of Medicine, Irvine, CA, 92617, USA*
[b] *Department of Radiology, University of California Irvine School of Medicine, Irvine, CA, 92617, USA*
[c] *Department of Pathology, University of California Irvine School of Medicine, Irvine, CA, 92617, USA*

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ABSTRACT

Solitary fibrous tumors are rare mesenchymal neoplasms that can range from slow-growing to aggressive tumors. This report presents a unique case of a young male patient with a solitary fibrous tumor involving the seminal vesicle, a rare location, and reinforces incidental discovery of these tumors on imaging and physical exams. Detection of these tumors is imperative to identify and treat malignancy. In our case, a 39-year-old previously healthy Asian male presents to the emergency department as a trauma admission post bicycle crash and is incidentally found to have a pelvic mass on computed tomography imaging of the pelvis. The patient underwent trans-anal biopsy which showed spindle epithelioid cells positive for CD34 and STAT6 markers, with a morphological and immunohistochemical profile consistent with a solitary fibrous tumor. The patient underwent surgery with a robotic-assisted laparoscopic pelvic mass resection and now follows up annually with imaging for observation.

Case report

A 39-year-old previously healthy Asian male presents to the emergency department as a trauma admission post bicycle accident. Past medical history is unremarkable. The patient was presented with pain on the left side of his ribs and shoulder. His physical exam showed chest contusions and normal abdominal exam. Laboratory values were in normal ranges. The patient underwent Computed Tomography (CT) with contrast of the chest, abdomen, and pelvis as part of routine trauma workup.

CT of the pelvis showed a lobulated, hypodense, heterogeneous lesion in the mid pelvis measuring 8.4 × 8.3 × 6.3 cm

Abbreviations: SFTs, solitary fibrous tumors; CTA, computed tomography angiogram; MRI, magnetic resonance imaging; CT, computed tomography; FDG PET-CT, fluorodeoxyglucose positron emission tomography- computed.

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* Corresponding author.
E-mail address: rhoushya@hs.uci.edu (R. Houshyar).

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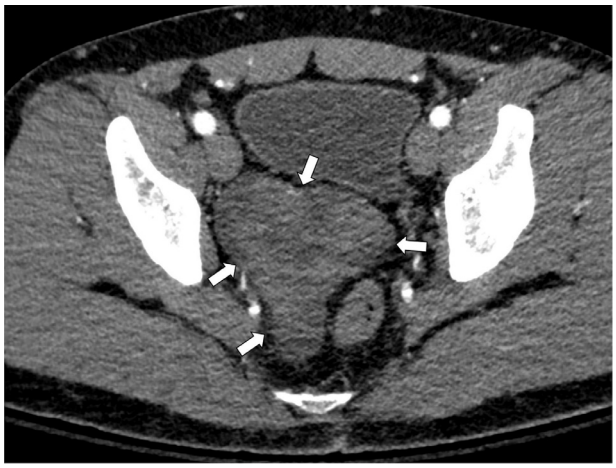

Fig. 1 – Thirty-nine year old male with solitary fibrous tumor. Findings: Axial contrast enhanced CT of the pelvis shows a heterogeneously enhancing lobulated mass (white arrows) posterior to the bladder measuring 8.4 x 8.3 x 6.3 cm. [Technique: Axial CTA of the abdomen and pelvis mA 259, kVp 120, 3 mm slice thickness, Isoview 370 100cc IV contrast at 4 cc/sec.]

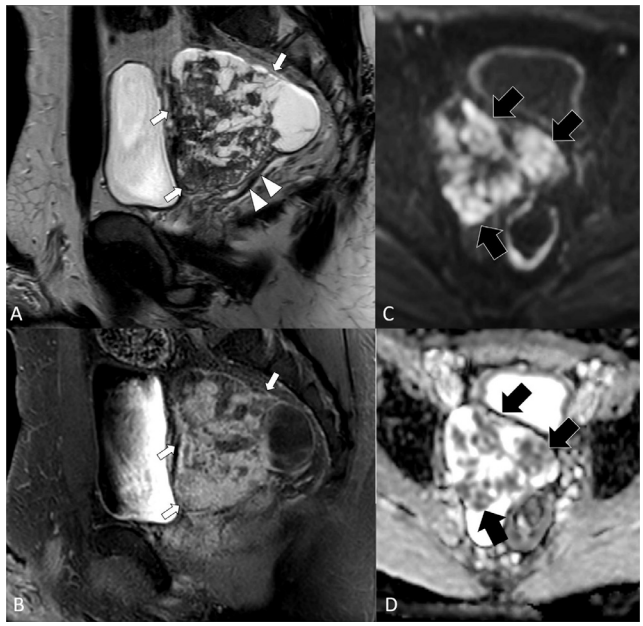

Fig. 2 – Thirty-nine year old male with solitary fibrous tumor. Findings: 3 Tesla MRI of the pelvis. Sagittal T2WI (A) shows a lobulated solid and cystic mass (white arrows) posterior to the bladder closely abutting the seminal vesicles (white arrowheads)[Technique: Sagittal 2D T2WI Spin Echo, TR 4395, TE 100ms, 3 mm slice thickness]. Sagittal post contrast T1WI (B) shows enhancement of the solid components within the mass (white arrows) [Technique: Sagittal fat saturated T1WI Gradient Echo TR 3.18, TE 1.54 ms, 3 mm slice thickness, 10cc Multihance IV contrast]. Diffusion weighted imaging (C) and apparent diffusion coefficient map (D) show restricted diffusion in the solid components of the mass (black arrows) [Technique: Axial b1000 Diffusion weighted imaging TR 932, TE 58.88 ms, 5 mm slice thickness. Axial Diffusion coefficient map TR 932, TE 58.88, 5 mm slice thickness.]

(Fig. 1). To evaluate this lesion, patient was promptly referred to general surgery and magnetic resonance imaging (MRI) of the pelvis with and without contrast was performed, revealing a heterogeneously enhancing solid and cystic mass in the mid pelvis with restricted diffusion (Fig. 2). The mass appeared to involve or arise from the right seminal vesicle and was separated from the prostate gland and bladder. There was no evidence of pelvic lymphadenopathy or metastatic disease. The surrounding vasculature appeared normal. There was no evidence of ascites or fluid collections in the pelvis.

Image guided transrectal biopsy of the mass was performed. Biopsies showed proliferation of spindle epithelioid cells with patchy atypia in the background of prominent vasculature (Fig. 3). There was mild nuclear atypia without mitosis. Immunostains were positive for CD34 and STAT6 (Fig. 4). The morphological and immunohistochemical profile was consistent with solitary fibrous tumor with low malignant potential.

The patient underwent surgery with a robotic-assisted laparoscopic pelvic mass resection of greater than 10 cm. Tissue pathology of the mass determined that the patient had a high-risk solitary fibrous tumor (SFT) due to the tumor exhibiting mitosis >4/10 per high power field, high cellularity with atypia, and lack of a competent capsule.

Close imaging follow-up was recommended with serial CT scans every 6 months for at least 2 years, followed by annual scans. CT pelvis 10 months later showed a small 1.5 cm nodular density in the same location of the mass but was not metabolically active via fluorodeoxyglucose positron emission tomography-computed tomography (FDG PET-CT). The mass appeared stable on later scans and was thought to represent postsurgical change. Patient thus far has been on expectant observation with annual follow-up.

Discussion

In the present study, an incidental solitary fibrous tumor (SFT) arising from the seminal vesicle was discovered via imaging in a previously healthy patient presenting for trauma. SFTs are rare mesenchymal tumors that have recently been capturing more clinical attention as these tumors are found more widespread throughout the body than previously believed. SFTs arising from the seminal vesicle are extremely rare, and to our knowledge there are less than 10 reported in the literature [1]. SFTs originate from CD34+ dendritic interstitial cells [2,3]. These tumors account for less than 2% of all soft tissue tumors and can range from slow growing to aggressive tumors [2]. These tumors can occur anywhere, including lined cavities such as the pleura, solid organs, and soft tissues [2]. They can occur at any age, but present most commonly in the fifth and sixth decades of life. Tumors in the seminal vesicle specifically typically present from ages of 46 to 65 years.

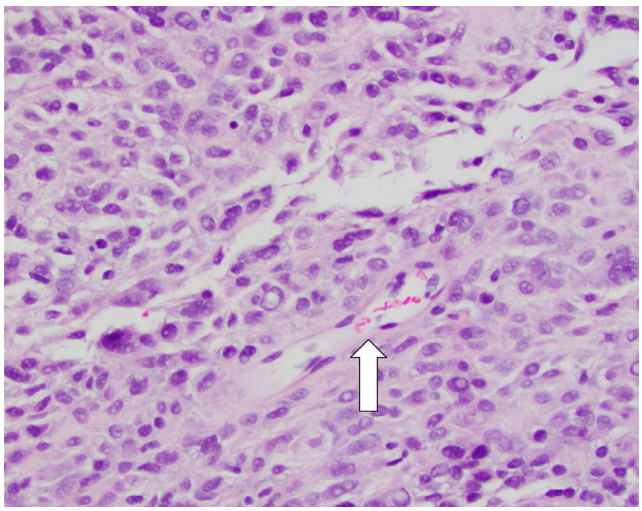

Fig. 3 – Thirty-nine year old male with solitary fibrous tumor. Findings: This H&E stain at 200x magnification shows ovoid to spindled cells in a haphazard arrangement, with indistinct cell borders and dilated vessels centrally within the image (white arrow).

SFTs typically do not cause discomfort and are usually found incidentally on physical exams or cross-sectional imaging. Tumors involving the seminal vesicle have been reported to present with hematuria, dysuria, and changes in urinary frequency and urgency [1]. Most solitary fibrous tumors are reported to be benign, but 6% are recurrent and can lead to metastatic disease. Signs of malignancy on pathological tissue assessment include high cellularity, nuclear pleomorphism, cellular atypia, and high mitotic counts per high-power field [4]. Characteristic immunohistochemical findings of SFTs include CD34 and STAT6 expression, both of which are highly sensitive for diagnosis.

About 10% of SFTs present with paraneoplastic syndromes such as hypertrophic osteoarthropathy, clubbed nailbeds, hypoglycemia, and/or galactorrhea [4,5]. These syndromes and associated symptoms often disappear after resection. Other clinical features are dependent on the aggressiveness of the tumor regardless of whether they are benign or malignant. Metastases typically affects the lungs, liver, adrenal glands, bones, brain, muscles, and gastrointestinal tract [4]. Positive margins account for 40% of recurrences and 75% of metastasis, and thus wide local excision of the tumor is recommended [2].

Radiological findings on CT and MRI typically show single, well-defined round tumors, often with compression of adjacent organs. Small tumors less than 5 cm show homogenous density with CT value of 30 to 60 Hounsfield Units or isointense on T1-weighted and T2-weighted imaging, displaying a black-and-white-mixed pattern on MRI [2,5]. For larger tumors, CT values and MRI intensity depend on the amount of collagen, vascular tissue, and myxoid and cystic degeneration [6]. The majority of tumors are hypointense on T1 and T2 due to having denser mature fibrous tissue. However, tumors with malignant components or that have focal or diffuse myxoid stroma typically appear hyperintense on T2 due to increased edema and vascularity [4]. FDG PET-CT findings show that radiotracer uptake can be found in both benign and malignant tumors and is possibly dependent on the level of cellularity of the tumor [4].

Because both malignant and benign SFTs demonstrate aggressive clinical features, patients are recommended with wide surgical excision with surgical margin of 1 to 2 cm of health tissue. Recurrences have been reported to occur anywhere from 24 months to 17 years after resection, so follow up imaging every 6 months for 2 years followed by yearly imaging is typically indicated [4].

Patient consent

Written informed consent was obtained for publication.

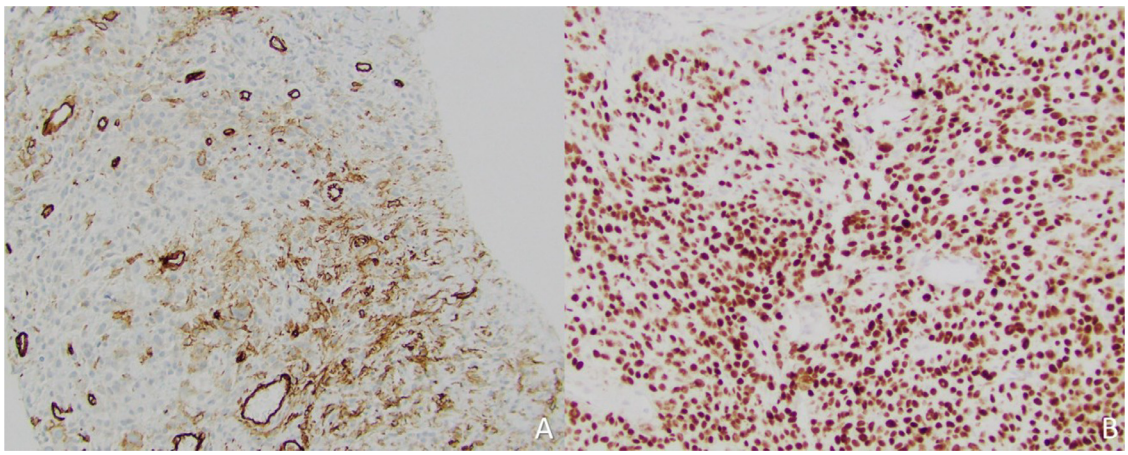

Fig. 4 – Thirty-nine year old male with solitary fibrous tumor. Findings: (A) The image shows patchy positive (brown) CD34 immunohistochemical staining seen (pictured here at 100x magnification). (B) Positive immunohistochemical staining for STAT6 (pictured at 100x magnification) is both sensitive and specific for the diagnosis of solitary fibrous tumor.

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