

Solitary fibrous tumor of the seminal vesicle

A case report

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Abstract

Rationale: Solitary fibrous tumor (SFT) is an unusual neoplasm, especially when it originates from the seminal vesicle. Herein, we describe a case of SFT that arises from the seminal vesicle.

Patient concerns: A 66-year-old man presented to our hospital complaining of a huge irregular tumor in his pelvis during a health checkup. He was worried that the tumor could be a malignant tumor and hence wanted to undergo further examination and therapy.

Diagnosis: An inhomogeneous, mixed soft tissue tumor in the pelvis was found during computed tomography (CT) and magnetic resonance imaging. The tumor showed heterogeneous and delayed enhancement during contrast-enhanced CT. The tumor was diagnosed as a cystadenoma originated from the seminal vesicle due to its imaging features. But the pathological diagnosis was SFT that originated from the seminal vesicle.

Interventions: Laparoscopic seminal vesicle tumor resection was performed.

Outcomes: There was no evidence of recurrence at the 6-month follow-up.

Lessons: SFT in the seminal vesicle is extremely rare. It is very difficult to distinguish SFT in the seminal vesicle from the primary tumors as both have similar imaging features. We describe the tumor with SFT being considered as a differential diagnosis when the tumor is found in the seminal vesicle.

Abbreviations: CT = computed tomography, MRI = magnetic resonance imaging, SFT = solitary fibrous tumor, T₁WI = T1-weighted imaging, T₂WI = T2-weighted imaging.

Keywords: computed tomography, magnetic resonance imaging, pathology, solitary fibrous tumor

1. Introduction

Solitary fibrous tumor (SFT) is an uncommon neoplasm and was first described in the pleural tissue in 1931 by Klemperer.^[1] SFT can be found in many parts of the body and generally appears in the visceral pleura. Additionally, SFT is also observed in the head and neck region,^[2] bones,^[3,4] breasts,^[5] the abdominal pelvic cavity,^[6] and retroperitoneum. However, SFT arising from the seminal vesicle is exceedingly rare. According to the previous literature, less than 10 cases of SFT originating in the seminal vesicle were reported, with only 1 case of malignant tumor.^[7]

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The patient has provided informed consent for the publication of the case.

The authors report no conflicts of interest.

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2. Case report

A 66-year-old man presented to our hospital with a complaint of pelvic tumor detected during health check-up. He felt no discomfort related to the pelvic tumor during his daily life and also had no other medical history. He was worried that the tumor could be a malignant tumor and hence wanted to undergo further examination and therapy at our hospital. All routine laboratory test results were normal.

Pelvic plain scan and contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI) scan were performed at our department, revealing a multicystic tumor measuring 12.1 × 10.1 × 7.4 cm in the pelvis with a well-circumscribed margin and a compression on the adjacent rectosigmoid colon (Fig. 1). The solid part of the tumor showed heterogeneous enhancement in the arterial phase and delayed reinforcement in the delayed phase on contrast-enhanced CT (Fig. 1B and C). No clear indication of bilateral seminal vesicle was found. A clear boundary could be seen between the bladder and the tumor. This cystic-solid tumor showed a mixed signal on T1-weighted imaging (T₁WI) and T2-weighted imaging (T₂WI) (Fig. 2). The solid part of the tumor exhibited with heterogeneous isointensity on T₁WI and heterogeneous hypointensity on T₂WI, respectively. The cystic part of the tumor exhibited with uniform hypointensity on T₁WI and uniform hyperintensity on T₂WI, respectively. The prostate was normal in shape, with no obvious abnormal signals (Fig. 2C and D). Obviously enlarged lymph nodes or pelvic metastases were not observed. The tumor originated from the seminal vesicle and hence, was diagnosed as a cystadenoma.

Laparoscopic seminal vesicle tumor resection and postoperative pathology were performed a week later. A huge multicystic tumor in the pelvis, which slightly adhered to the prostate, rectum, and bladder, was observed during surgery. The seminal

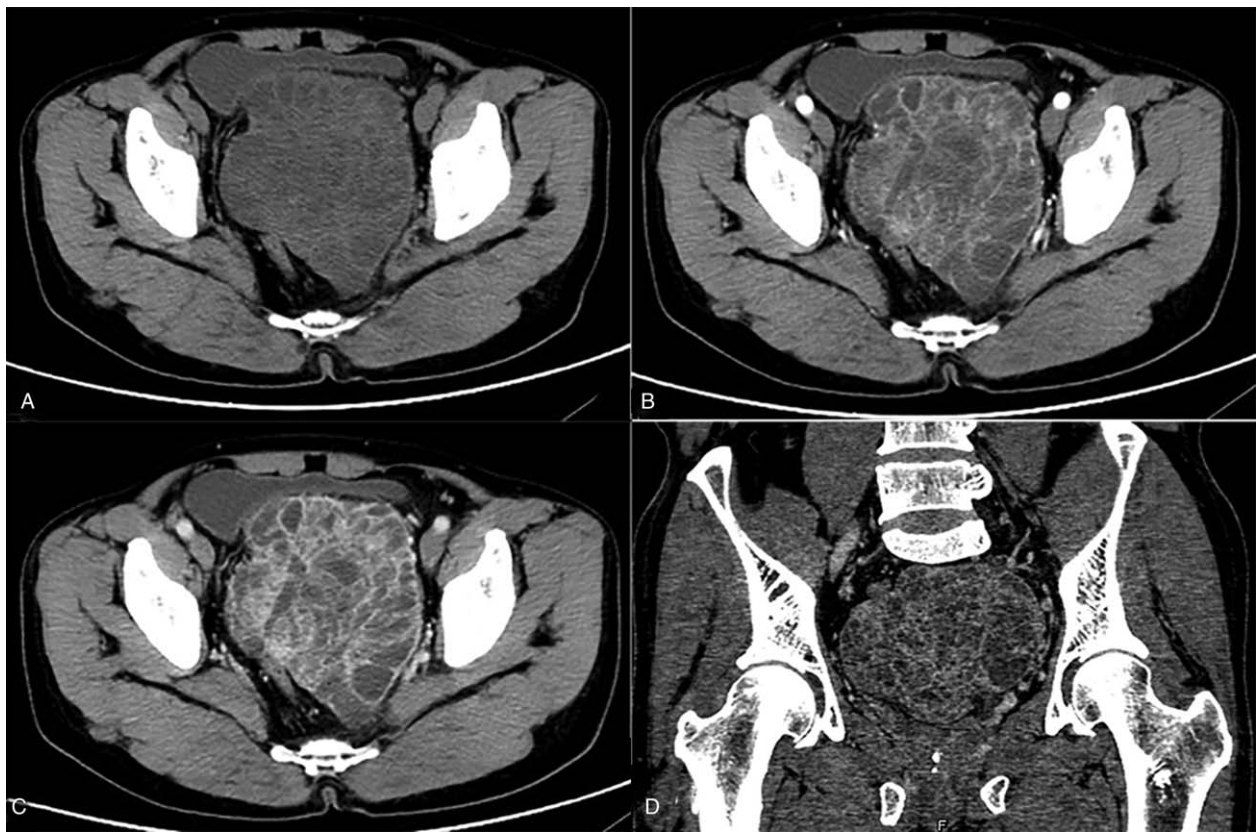


Figure 1. Computed tomography images of the pelvis (A. axial image of plain CT scan, B. axial image of the arterial phase, C. axial image of the delayed phase, D. coronal image of the delayed phase) show an irregular solid-cystic tumor with an obvious inhomogeneous enhancement and delayed reinforcement. Coronal image shows the clear boundary between the tumor and the prostate. A calcification is observed in the prostate.

vesicle was in its natural shape. No lymphadenopathy was found around the tumor. The bilateral seminal vesicle and the tumor were completely resected.

The tumor was a well-demarcated, gray-white, cystic-solid tumor measuring $11.0 \times 7.0 \times 5.0$ cm in size with an enclosed envelope. The postoperative pathology revealed hypocellular and hypercellular areas (Fig. 3A), rich blood vessels, hyaline degeneration on the vesicular wall, and interstitial fibrosis. The tumor cells were round, ovoid, and short spindle shaped. Immunohistochemical analysis revealed the tumor cells were positive for CD34 (Fig. 3B), CD99, vimentin, and Bcl-2 and negative for CKpan, CD117, S-100, EMA, and F8, respectively. On the basis of these morphological and immunohistochemical results, the tumor was diagnosed as SFT of the seminal vesicle.

The patient was discharged from our hospital after the operation, but he was required to undergo routine laboratory tests and radiologic examinations every 3 months. No clinical or radiological evidence of recurrence of the tumor was found in the 6-month follow-up.

3. Discussion

SFT is an uncommon mesenchymal tumor that originated from the CD34-positive dendritic interstitial cells and was used to be considered as mesothelioma for it was initially described to be located in the thoracic cavity. However, recently, it is classified as fibroblastic/myofibroblastic tumor and subclassified as an intermediate tumor, which is locally aggressive and rarely metastasizes. SFT can affect almost all age groups, from 5 to

86 years, and has no gender predilection. SFT originating from the seminal vesicle affects the age range of 46 to 65 years (mean, 52 years) according to the previous findings.^[7] SFT that is found in the seminal vesicle generally causes no discomfort and is usually occasionally found in physical examinations. SFTs are reported to be benign tumors in most cases, but approximately 6% of them have shown to be recurrent and/or lead to metastatic diseases.

SFTs often present as single, well-defined round or oval tumors with large volumes and usually cause compression on the adjacent organs. You et al^[8] reported small SFTs (< 5 cm) exhibit homogeneous intensity, similar to a muscle, with a CT value of approximately 30 to 60 HU or homogeneous isointensity on T₁WI and T₂WI, respectively. The CT values and MRI signal intensity of the giant tumors vary depending on the amount of the collagen, vascular tissue, and myxoid and cystic degeneration.^[9] The case report revealed a mixed multicystic tumor with heterogeneous enhancement on CT scans and heterogeneously mixed signals on T₁WI and T₂WI sequences. It is very difficult to distinguish this from the seminal vesicular adenoma or cystadenocarcinoma because they have similar imaging features. Other differential diagnoses also include malignant fibrohistiocytoma, fibrosarcoma, leiomyosarcoma, and benign and malignant nerve sheath tumors. Additionally, SFT found in the seminal vesicle is infrequent; hence, we may not consider this site when establishing the diagnosis of SFT, and this increases the rate of misdiagnosis.

SFTs have “pattern less” pattern under the microscope.^[10] Morphology shows the tumor cells are monotonous and ovoid-

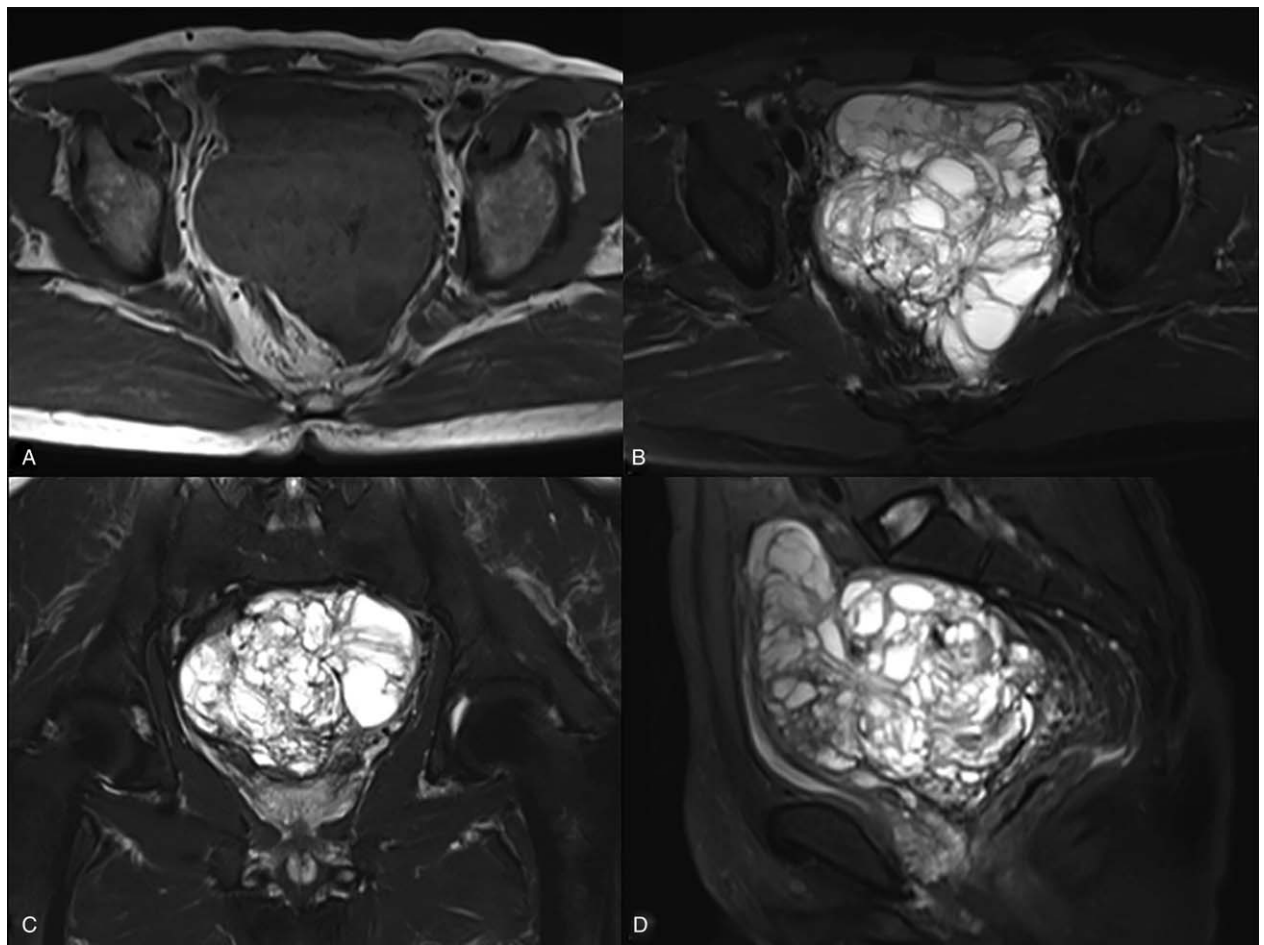


Figure 2. Conventional unenhanced pelvis during an MRI (A. axial T₁WI, B. axial T₂WI, C. coronal T₂WI, D. sagittal T₂WI). An irregular tumor with isointensity on T₁WI and hyperintensity on T₂WI is observed, and the tumor has a much low signal on T₂WI. The prostate is normal in shape and is compressed. MRI = magnetic resonance imaging, T₁WI = T1-weighted imaging, T₂WI = T2-weighted imaging.

to-spindle shaped.^[7] Alternating hypocellular and hypercellular areas, rich blood vessels, hyaline degeneration of the vesicular wall, and collagen bundles in between the cells are commonly

observed. Immunohistochemistry reveals that the tumor cells are positive for CD34,^[11] CD99, vimentin, and Bcl-2,^[12,13] which are necessary for establishing the diagnosis of SFT. However,

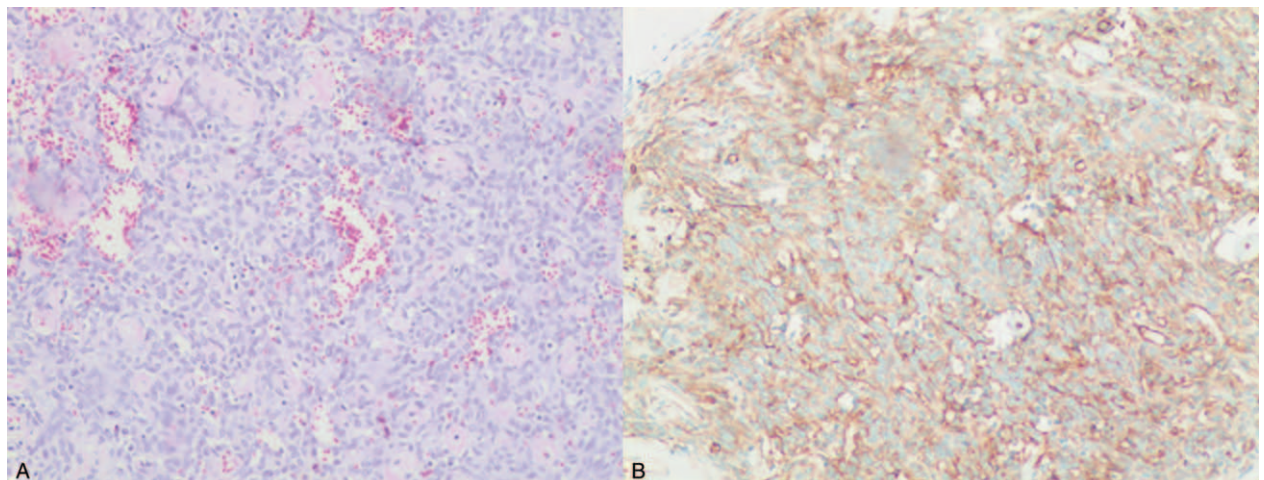


Figure 3. Pathological findings A. HE staining reveals the hypercellular areas, the rich blood vessels, and the bunch of collagen separating the cells. B. Tumor cells are positive for CD34.

tumor cells are considered to be malignant if they have the following characteristics:

- (1) presence of hypercellularity (> 4 mitoses/10 HPF),
- (2) nuclear pleomorphism,
- (3) necrosis,
- (4) tumor infiltrative growth, and
- (5) tumor size > 10 cm.^[14]

A complete surgical resection is the best therapeutic method for SFTs. However, a high recurrence rate was also observed in patients according to the previous literature. Therefore, even if SFT is diagnosed to be benign, a long-term regular follow-up visit is still necessary.

4. Conclusions

In conclusion, SFTs originating from the seminal vesicle are rare. Herein, we describe a case of SFT found in the seminal vesicle. It is necessary to note tumors that are found in the seminal vesicle with nonuniform density on CT scan and inhomogeneous and delayed enhancement on contrast-enhanced CT scans or tumors that exhibit heterogeneous signal on T₁WI and T₂WI sequences since SFT will be taken into consideration when establishing the differential diagnosis of these tumors.

Author contributions

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