Solitary Fibrous Tumor of the VaginaMimicking Leiomyoma: ARare Case Report

ABSTRACT

Background:Solitary fibrous tumor (SFT) is an uncommon mesenchymal neoplasm, most frequently arising from the pleura. Involvement of the female genital tract is rare, and vaginallocalization is exceptionally uncommon, posing significant diagnostic challenges.

Case summary:A 20-year-old girl presented with dysuria, haematuria, lower back pain, fever, and vaginal bleeding. Examination revealed a 6×8 cm firm, fixed, non-tender mass in the right lateral vaginal wall. Imaging suggested a vascular heterogeneous mass consistent with vaginal leiomyoma. She underwent complete surgical excision. Histopathology showed a well-circumscribed spindle-cell tumor with hyalinized collagen, lymphocytic infiltration, and characteristic staghorn vasculature, without mitosis or necrosis, confirming a solitary fibrous tumor. The postoperative course was uneventful.

Conclusion: Vaginal SFT should be considered in the differential diagnosis of spindle-cell vaginal tumors. Accurate diagnosis relies on characteristic histomorphology and confirmatory immunohistochemistry, particularly STAT6. Complete surgical excision and long-term follow-up are essential.

KEYWORDS: Solitary fibrous tumor; vagina; mesenchymal tumor; STAT6; spindle cell tumor.

INTRODUCTION

Solitary fibrous tumor(SFT)is a rare fibroblastic mesenchymal neoplasmthat was originally described in the pleuraand subsequently identified at a wide range of extra pleurallocationsincluding the meninges,orbit,retroperitoneum, pelvis, and rarely,the vagina.SFTs are extremely rare with an overall incidence of approximately 1-2 cases per million individuals. In the female genital tract, SFT's are infrequently encountered, and in large series of genital SFT's, only a single vaginal case was identified among 25 reported tumors.To date, very few cases of primary vaginal SFT have been documented in the English literature, highlighting its exceptional rarity. Most SFT's are benign; however, approximately 10-20% demonstrate malignant potential.Clinically and radiologically, vaginal SFTmay closely mimic leiomyoma, making preoperative diagnosis challenging. Clinical manifestations depend on the anatomical site and may includedyspareunia, dysuria,bleeding per vagina in women of reproductive age. Diagnosis is primarily based on clinicalevaluation and supported by imaging modalities such asthree-dimensional ultrasound or Magnetic resonance imaging. Definitive diagnosis is established by Histopathological examination and immunohistochemistry.

Surgical excision with complete removal of the tumor and negative margins is the cornerstone of management for vaginal SFT. At present, there is no established role for

adjuvant radiotherapy or chemotherapy in histologically benign vaginal SFT's. Although rare, SFT should be considered in the differential diagnosis of vaginal masses, frequently misdiagnosed as leiomyoma, fibroma, or angiomyofibroblastoma preoperatively due tosimilar presentation. Awareness of this rare tumor is important to ensure accurate diagnosis, appropriate surgical management, and adequate follow-up.

CASE REPORT

A 20-year-oldadolescent girl, presented with complaints ofdysuriafortwo month and haematuria for one week associated with lower back pain, fever and bleeding per vagina forone week, she attained menarche at the age of 12 years and had regular menstrual cycles with an average flow. There was no history of known comorbiditiesor chronic illness.She had history of urinary tract infection eight-monthprior, for which she received treatment. Local examination revealed a 6x8 cm firm, well-defined, smooth, non-tender, fixed massinvolving the right lateral wall of the vagina, approximately 6 cm proximal to the introitus,no palpable lymphadenopathy, per rectal examination revealed normal findings. Based on the clinical examination findings a provisional diagnosis of vaginal leiomyoma was made.

Ultrasonography was suggestive of a heterogenous mass with internal vascularity, raising the possibility of a cervical fibroid orvaginal leiomyoma. MRI findings revealed a large heterogenous mass measuring approximately 6*6.6*8.4 cm, involving the right lateral wall of the vagina and extending into the vaginal vault. Anteriorly the mass was compressing the posterior aspect of the urinary bladder and displacing the urethra to the left. Fat planes were maintained, supporting the diagnosis of vaginal leiomyoma. The patient underwent complete surgical excision of the mass. Intraoperative period was uneventful. Definitive diagnosis of SFT was confirmed by histopathological examination which revealed a well-circumscribed tumor composed of oval-to spindle cells and spindle-to-oval shaped nuclei. The cells were arranged haphazardly in short fascicles with areas of hyalinised collagenous stroma and focal streaming of cells. The tumorexhibited a prominent staghorn vasculature pattern. Areas of lymphocytic infiltration were noted. Mitosis and necrosis were absent. Postoperative period was uneventful.

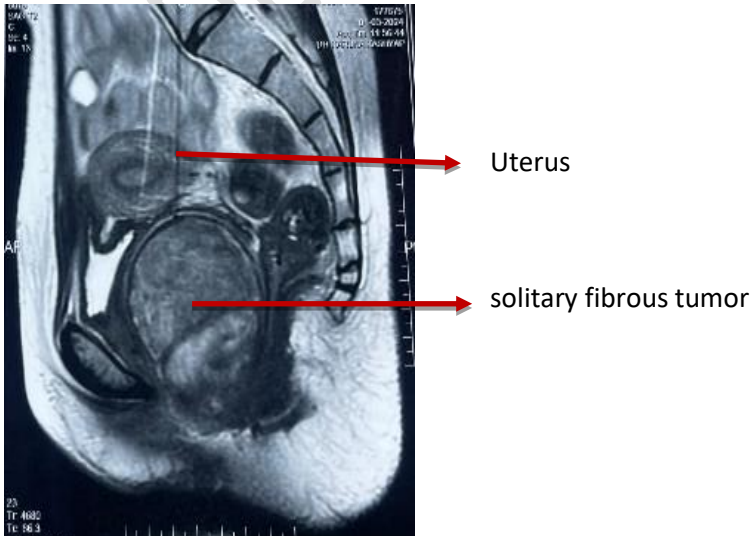

Figure1-MRI (T2 weighted image): Heterogenous iso to hyperintense bilobed lesion involving right lateral vaginal wall – possibly suggestive of large vaginal leiomyoma

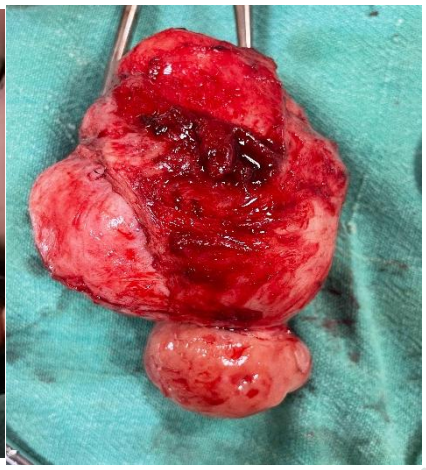

Figure 2- Intraoperative picture**Figure 3**-Gross specimen: capsulated, bosselated mass mass with areas of haemorrhage

DISCUSSION

SFT of the vagina is an exceptionally rare mesenchymal neoplasm, with only sporadic cases reported in the literature. Owing to its rarity and nonspecific clinical presentation, vaginal SFT is frequently misdiagnosed preoperatively as leiomyoma or other benign stromal tumors. Most patients present with a slow-growing, painless vaginal mass, and imaging findings are often inconclusive, underscoring the importance of histopathological and immunohistochemical evaluation.Microscopically, SFT is characterized by a so-called "pattern less pattern" of bland spindle cells embedded in a variably collagenous stroma with prominent staghorn-shaped vessels. Immunohistochemistry plays a pivotal diagnostic role; strong positivity for CD34, BCL-2, and especially nuclear STAT6 expression confirms the diagnosis and distinguishes SFT from other vaginal spindle-cell lesions. In contrast, vaginal leiomyomas show smooth muscle differentiation with desmin and smooth muscle actin positivity and lack STAT6 expression.

Although the majority of vaginal SFTs follow a benign clinical course, malignant behaviour has been reported in extra pleural sites, including the female genital tract. Features such as increased cellularity, mitotic activity, necrosis, and infiltrative margins may predict aggressive behaviour. Therefore, complete surgical excision with clear margins remains the treatment of choice, and long-term follow-up is advisable due to the potential for late recurrence.

Feature	**Solitary Fibrous Tumor**	**Vaginal Leiomyoma**
Origin	Mesenchymal fibroblastic	Smooth muscle

Gross Appearance	Well circumscribed, firm	Well circumscribed, whorled
Histology	Pattern lessspindle cells, staghorn appearance	Interlacing smooth muscle bundles
CD34/ STAT 6	positive	negative
SMA/DESMIN	negative	Strongly positive
Recurrence	Possible with incomplete excision	rare

Table 1: Difference between Solitary Fibrous Tumor and Vaginal leiomyoma

Each additional report of vaginal SFT contributes meaningfully to the limited evidence base, helping refine diagnostic pathways, risk assessment, and follow-up strategies. Heightened awareness among gynaecologists and pathologists will improve recognition of this rare tumor and ultimately optimize patient outcomes.

CONCLUSION

From a gynaecological perspective, this case reinforces three key clinical messages.

First, rare mesenchymal tumors like SFT should remain in the differential diagnosis of atypical or large vaginal masses, particularly when imaging features are not entirely characteristic of leiomyoma. Differential diagnosis of vaginal masses includes vaginal leiomyoma, cervical fibroid, gastrointestinal stromal tumor (GIST), schwannoma, Bartholin cyst, aggressive angiomyxomas both clinically and radiologically.

Second, definitive diagnosis hinges on thorough histopathologic and immunohistochemical evaluation, with STAT6 serving as a decisive marker.

Third, long-term surveillance is essential irrespective of apparently benign histology,but malignant transformation possible in 10- 20%cases. Complete surgical excision with negative margin is the classic treatment modality. Vaginal SFTs though rare, should be followed up periodically every 6-12 months for first 2-3 years and then annually.

DECLARATIONS

Ethical approval and consent to participate- Not applicable.

Informed consent –Informed consent was obtained from the patient.

Conflict of Interest-The authors declare that they have no competing interests.

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