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Solitary Fibrous Tumor of the Rectum: A Case Report Exploring Radiological and Pathological Findings

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Abstract **Case Report**

Solitary fibrous tumors (SFTs) are rare mesenchymal neoplasms, especially in the rectum. We report an incidental rectal SFT in a 29-year-old male undergoing MRI for complex anal fistulas. Imaging revealed a large, well-defined latero-rectal mass. Diagnosis was confirmed by biopsy and STAT6 immunohistochemistry. This case highlights the role of MRI and pathology in identifying rare pelvic tumors.

Keywords: Solitary fibrous tumor (SFT), Rectum, Incidental finding, MRI, Complex anal fistula.

INTRODUCTION

Solitary fibrous tumors (SFTs) are rare mesenchymal neoplasms initially described in the pleura but now recognized in extrapleural locations, including the retroperitoneum, pelvis, soft tissues, and the central nervous system,especially the meninges [1,2]. Intracranial forms, once labeled as hemangiopericytomas, are now classified as SFTs due to shared NAB2–STAT6 gene fusions [3]. Although commonly seen in the thorax and CNS, pelvic SFTs—particularly those involving the rectum remain exceptionally rare [4]. We report a case of an incidentally discovered rectal solitary fibrous tumor in a young male patient undergoing MRI for complex anal fistulas. MRI plays a crucial role in the preoperative assessment.

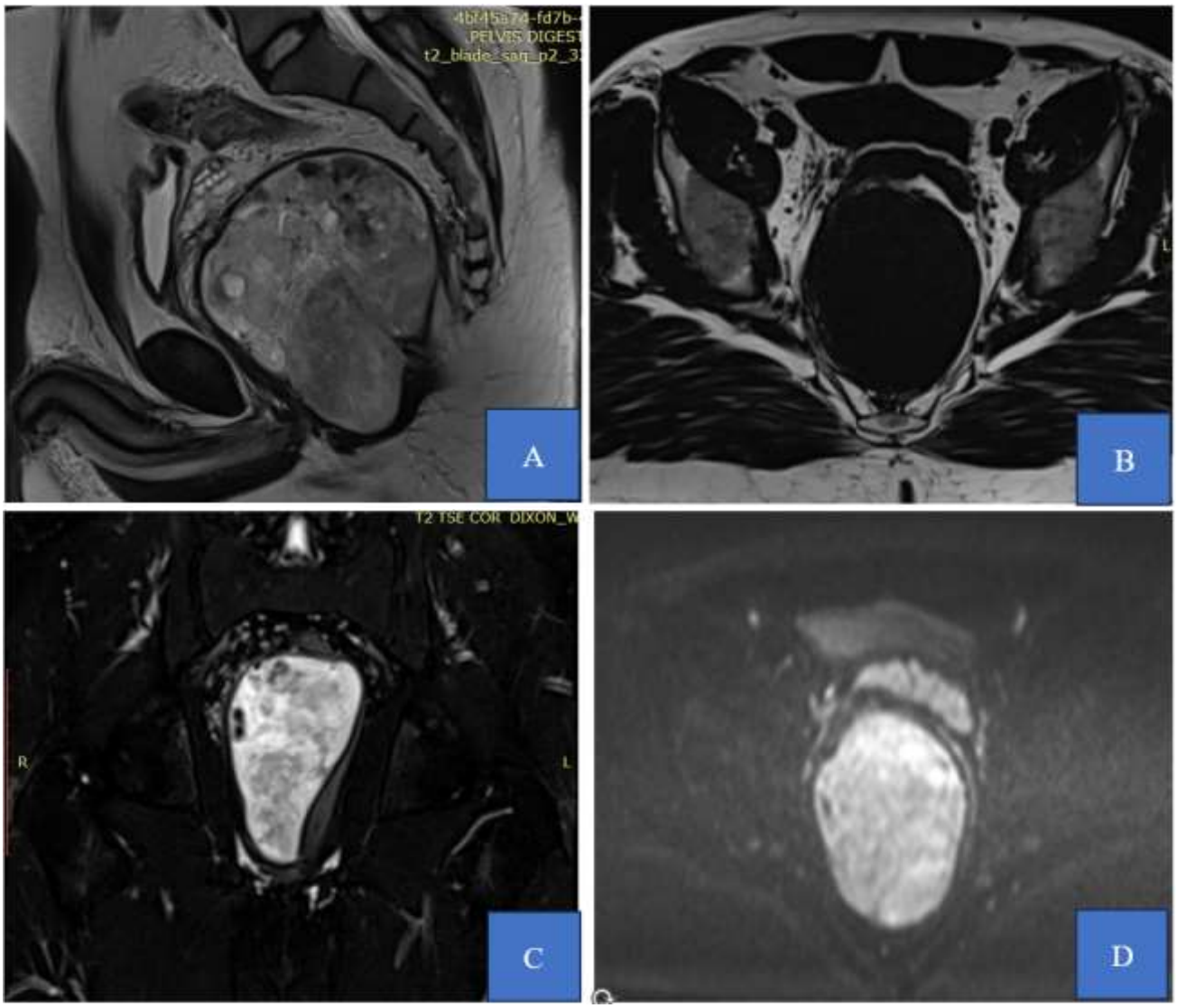
CASE PRESENTATION

A 29-year-old male presented with recurrent complex anal fistulas. On clinical examination, two external openings were identified at the 7 o'clock and 10 o'clock positions. A pelvic MRI was performed for mapping the fistulous tracts and revealed an incidental finding of a large right latero-rectal and supra-levatorian mass. Laboratory investigations were unremarkable, with normal inflammatory markers (CRP and WBC) and negative tumor markers (CEA, CA 19-9). A biopsy of the mass was performed and histopathology was suggestive of a solitary fibrous tumor (SFT), later confirmed by immunohistochemistry.

Imaging findings

The initial MRI revealed an incidental finding of a large, right-sided latero-rectal and supra-levatorian mass. It showed a complex trans- and inter-sphincteric fistula with multiple right-sided orifices. The fistulous tracts communicated with a voluminous collection measuring approximately 9 × 7 × 11.4 cm, located laterally to the rectum and above the levator ani. The mass demonstrated hypo signal on T1-weighted images, heterogeneous hyper signal on T2, and marked hyperintensity on diffusion-weighted imaging (DWI) with restricted ADC, suggesting a solid or cellular lesion rather than a simple abscess.

A follow-up MRI performed for biopsy planning, confirmed the presence of a well-limited latero-rectal right-sided mass measuring 10 × 7 × 12 cm, with similar signal characteristics (hypo on T1, hetero hyper on T2, and DWI restriction). The lesion was in close contact with the rectal wall, displacing it anteriorly, but without signs of infiltration. Seminal vesicles were preserved. A residual fistulous tract extending toward the left buttock was also noted.



Sagittal T2WI (A), Axial T1WI (B), Coronal T2 with injection of gadolinium (C), and axial diffusion on T1-weighted images present a large, right-sided latero-rectal and supra-levatorian mass heterogeneous in hyper signal on T2, and marked hyperintensity on diffusion-weighted imaging (DWI) with restricted ADC measuring approximately 9 × 7 × 11.4 cm.

Biopsy Suggestive of SFT with Immunohistochemical Validation:

A biopsy of the mass was performed and histopathology was suggestive of a solitary fibrous tumor (SFT), later confirmed by immunohistochemistry

DISCUSSION

Solitary fibrous tumors (SFTs) of the rectum are exceedingly rare and often present as well-circumscribed, non-infiltrative pelvic masses on MRI [5,6]. In this case, the lesion demonstrated typical imaging features of SFT, including low signal intensity on T1-weighted images, heterogeneous high signal on T2, and marked diffusion restriction, suggesting a solid and hypercellular tumor. Although SFTs are generally associated with low T2 signal due to abundant collagen, variability can occur depending on cellularity and necrosis [5,6]. The absence of rectal wall infiltration, despite the mass displacing the rectum anteriorly, is consistent with the usually indolent behavior of these tumors. Differential diagnoses include gastrointestinal stromal tumors (GISTs), which are typically more hyperintense on T2-weighted images and exhibit earlier, more homogeneous contrast enhancement [7]; desmoid-type fibromatoses, which tend to be infiltrative and poorly defined [8]; and leiomyomas or leiomyosarcomas, which often show restricted diffusion and more uniform signal characteristics [9]. Histological confirmation is essential, with identification of the NAB2–STAT6 gene fusion and nuclear STAT6 expression on immunohistochemistry being highly specific for SFT [10]. Although most SFTs are benign, features such as large tumor size, high mitotic activity, necrosis, and cellular atypia are associated with aggressive behavior, underscoring the importance of long-term imaging surveillance [2].

CONCLUSION

Rectal solitary fibrous tumors, though rare, should be included in the differential diagnosis of well-defined rectal or perirectal masses with low T2 signal and strong post-contrast enhancement. MRI plays a crucial role in lesion characterization, while histopathology with STAT6 immunostaining confirms the diagnosis.

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