

# Acute urinary retention due to solitary fibrous tumor of the abdominal wall

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## ABSTRACT

Solitary fibrous tumor (SFT) is a slow-growing neoplasm that affects both sexes equally but middle-aged patients more frequently. The course of the disease is unpredictable. SFT has been described in multiple locations. We present the case of a 62-year-old patient who went to the emergency room suffering from acute urinary retention due to solitary fibrous tumor of the abdominal wall. An arteriogram was performed with the decision make embolization before surgery. The SFT is a low-grade, potentially benign tumor. But the patient must be kept under strict oncological surveillance due to its uncertain behavior.

**Keywords:** Arteriography; neoplasm; solitary fibrous tumor; urinary retention.

## Introduction

Solitary fibrous tumor (SFT) was first described in 1931 by Klempner and Rabin as a new type of pleural tumor<sup>[1]</sup>. Recently, it has been classified as a mesenchymal fibroblastic tumor. According to the WHO classification, it belongs to the group of myofibroblastic tumors.

Clinically, it is a slow-growing neoplasm that affects both sexes equally but middle-aged patients more frequently. The course of the disease is unpredictable. The most frequent location is the pleura but the SFT has been described in multiple locations as in this present case report.<sup>[1]</sup>

## Case presentation

We present the case of a 62-year-old patient with no relevant medical history who went to the emergency room due to acute urinary retention. After performing urethral catheterization and evacuating approximately two liters of clear urine without pathological products, the physical examination revealed a painful supra-

pubic mass on palpation. After interviewing the patient, he reported a slight discomfort at the hypogastric level lasting for approximately three months.

A computerized tomography (CT) was performed and an oval mass was observed in the pelvis, occupying the right iliac fossa and hypogastrum, with lobulated edges of 20x14x9 cm, heterogeneous enhancement and cystic lesions of liquid content (Figure 1a). It was identified as a possible sarcoma without excluding the possibility that the origin was intestinal type Gastro-Intestinal Stromal Tumor (GIST). A biopsy of the tumoral mass guided by ultrasound was also performed. The resulting pathological anatomy already suggested the diagnosis towards the SFT, although the definitive diagnosis could not be confirmed until the complete immunohistopathological analysis of the surgical piece. In this sample, the high immunohistochemical positivity for signal transducer and activator of transcription (STAT-6) was highlighted, so it was decided to perform an arterial arteriography to rule out the tumor hypervascularity as well as the origin of its nu-

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tritional vessels and a possible vascular relationship with adjacent structures (Figure 1b).

A scheduled arteriogram was performed which identified that the irrigation of the neoplasm came from both epigastric arteries, so it was decided to embolize them before the surgery, thus reducing the risk of bleeding and diminishing the final size of the tumor mass. We do not find any case in the English literature describing this preparatory step prior to excision of the tumor.

During laparotomy, a tumor with a smooth, lobulated surface occupying the pelvis and arising from the parietal peritoneum in close contact with the abdominal wall was found. The tumor was encapsulated so the dissection was done respecting the capsule and ligating the previously embolized vessels that were responsible for its perfusion (Figure 1c, d). The bladder was not infiltrated and a complete resection of the tumor was achieved.

The macroscopic findings described a spheroid solid whitish multinodular spheroid mass with cystic areas of liquid content and a smooth external surface with necrotic areas of 5 cm weighing 1110 grams and measuring 17x13x10 cm. The anatomo-pathological examination showed a fusiform cell proliferation compatible with a solitary fibrous tumor, a mitotic index of 1x50 CGA, and necrotic areas occupying more than 50% of the tumor (Score 1) with free surgical margins. Its immunohistochemical profile, which is determinant for its diagnosis, was positive for CD34, CD99, B-catenin, B-c12, vimentin and focal STAT-6i, while negative for cytokeratin, actin, desmin, caldesmon, S100, Hmb45, EMA, CD117, DOG-1, CD10 and CD31. After a postoperative period of five uneventful days, the patient was discharged. He is still remaining disease-free and asymptomatic after six months of medical follow-up.

## Discussion

The SFT is located mainly at the pleural level, although more than one-third of the cases are located outside the thoracic cavity, including the respiratory tract, head and neck, spinal cord, pelvic and abdominal cavity and soft tissues, among others. The clinical manifestations of SFT of extrapleural localization will depend on the affected area and the tumor size. The symptoms are caused mostly by the compression of adjacent structures by the tumor.<sup>[2]</sup>

Solitary fibrous tumor can also present paraneoplastic systemic symptoms that include hypoglycaemia (due to IGF tumor secretion), arthralgia, or osteoarthropathy.<sup>[3]</sup>

Apparently, in our case, acute retention of urine was caused by the extrinsic compression of the tumor on the urinary bladder, affecting the trigone and causing this clinical manifestation.

Both Kubota et al.<sup>[4]</sup> and Dozier et al.<sup>[5]</sup> describe similar cases, although the clinical symptoms of the patients are frequent and progressive dysuria over a year and not acute urinary retention, as in our case, which did not allow the bladder catheter to be removed until the intervention.

The SFT requires a differential diagnosis with respect to several pathological entities such as hemangiopericytoma, leiomyoma, fibrous histiocytoma, schwannoma and neurofibromas. Due to its morphological similarity, hemangiopericytoma and SFT are the most difficult entities to differentiate.<sup>[4]</sup>

The immunohistochemical study plays a decisive role in the final diagnosis of SFT. The tumor cells are usually positive for vimentin, CD34, BCL-2 and beta-catenin, and negative for cytokeratin, p63, calretinin, SMA, desmin, S100, CD31, CD117, DOG1, EMA, STAT6, GRIA2 and WT-1 (Figure 2).<sup>[5]</sup>

Generally, the SFT present several types of cells, with an abundance of spindle cells with an irregular growth pattern detected during histopathological examination.<sup>[6,7]</sup> In our case, the tumor

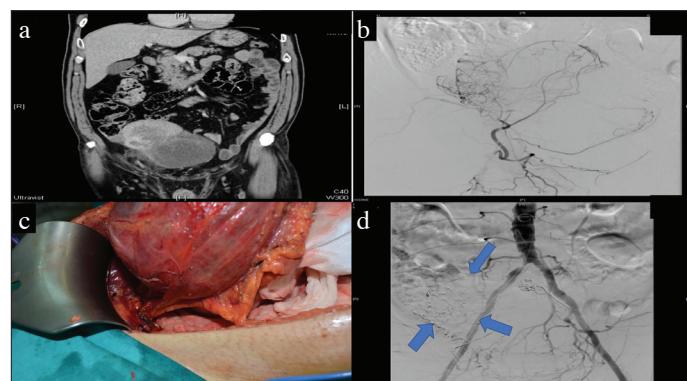


Figure 1. a-d. (a) Coronal section TAC. (b) Arteriogram showing nutrient vessels of the tumor. (c) Neoplasm in situ. (d) Aortography after embolization of nutritional vessels

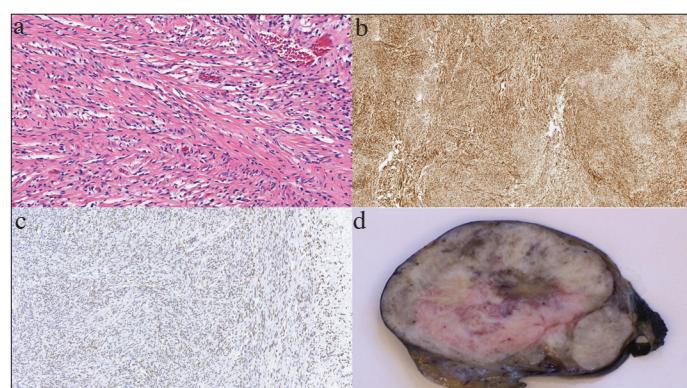


Figure 2. a-d. (a) Hematoxylin-Eosin stain. (b) CD34. (c) STAT-6. (d) Surgical specimen

had both histological and immunohistochemical characteristics that confirmed the diagnosis of SFT.

Criteria for malignancy for SFT include a tumor size of  $> 10$  cm, hypercellularity, high mitotic index (4 mitosis per 10 HPF), pleomorphism and presence of hemorrhage and necrosis.<sup>[8]</sup>

The SFT is a low-grade, potentially benign tumor, but there is not a sufficiently evaluated malignancy conversion rate that predicts the appearance of metastasis or the risk of local recurrence. After a complete resection of a SFT with confirmed aggressiveness, the patient must be kept under strict oncological surveillance due to its uncertain behavior.

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