


## Case Report

# Utility of a multidisciplinary team approach with transanal total mesorectal excision for resection of a large pelvic solitary fibrous tumor

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### Abbreviations & Acronyms

CT = computed tomography

MDT = multidisciplinary team

SFT = solitary fibrous tumor

TaTME = transanal total mesorectal excision

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**Introduction:** Solitary fibrous tumors require complete surgical resection to avoid recurrence. Large solitary fibrous pelvic tumors are difficult to resect completely with conventional surgical methods. We herein report a case in which a joint surgical approach was required for resection due to the location and size of tumor.

**Case presentation:** A 45-year-old man had a large solitary fibrous tumor in the pelvis, which extended into the left obturator foramen. The patient underwent tumor resection with vesico-prostatectomy, transanal total mesorectal excision, and opening of the foramen obturatum. The tumor was grossly resected completely. No recurrence was noted nine months after surgery.

**Conclusion:** A multidisciplinary team approach with transanal total mesorectal excision may provide complete resect of large pelvic solitary fibrous tumors.

**Key words:** multidisciplinary team approach, solitary fibrous tumors, transanal total mesorectal excision.

## Keynote message

Although complete resection is necessary for solitary fibrous tumors (SFTs), it is difficult for large pelvic SFTs. In this study, we reported a case in which a large pelvis SFT was completely resected using a multidisciplinary team approach with transanal total mesorectal excision.

## Introduction

SFTs have been reported to occur throughout the body and rarely grow to a huge size in a narrow space.<sup>1</sup> Surgical resection is indicated for localized SFTs,<sup>1</sup> but there is a risk of local recurrence in case of residual tumors. The recurrence rate of SFTs after incomplete resection is 10–20%.<sup>2</sup> Therefore, complete resection of tumors is required. Although an SFT may also develop in the pelvic cavity, the pelvis may be occasionally filled with a huge tumor that is considered difficult to resect completely using conventional surgical methods. We experienced a case in which a joint surgical approach was required for tumor resection due to the location and size of tumor.

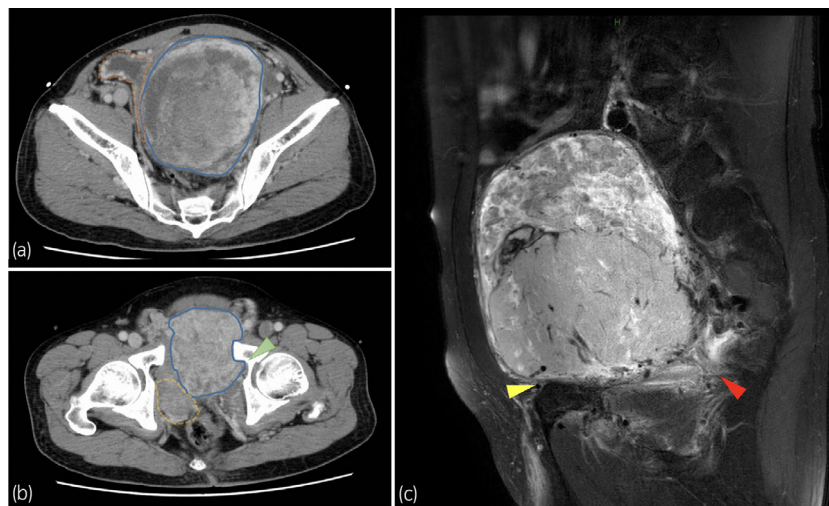
In this article, we report a case of a large SFT that arose in the pelvis and was completely resected using a MDT approach with TaTME.

## Case presentation

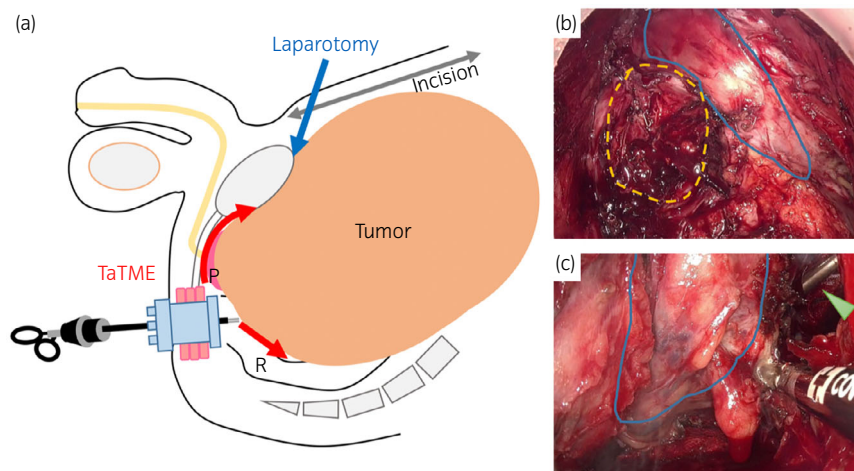
A 45-year-old man with a history of angina pectoris, but no history of abdominal surgery, presented to a hospital with a chief complaint of frequent urination. CT revealed a large pelvic tumor, which prompted referral to our hospital. The tumor was 140 × 120 × 165 mm in

size with internal heterogeneity and compressed the bladder, prostate, and rectum; however, there was no evidence of metastasis. The tumor grew in the pelvis and extended into left obturator foramen (Fig. 1). In addition, collateral feeding vessels were observed around the tumor, especially at the obturator foramen. Cystoscopy revealed edema of the bladder mucosa, suggesting bladder invasion. Colonoscopy revealed only external compression findings and no evidence of invasion. CT-guided biopsy was performed, and an SFT was suspected. We judged that it was impossible to maneuver and resect the tumor completely, especially the cut dorsal vein complex and the tumor base by conventional laparotomy approach, because the tumor was originated from the pelvic floor by rectum and stuck in pelvis (Fig. 1c). Then surgical resection with an MDT approach was planned. After three

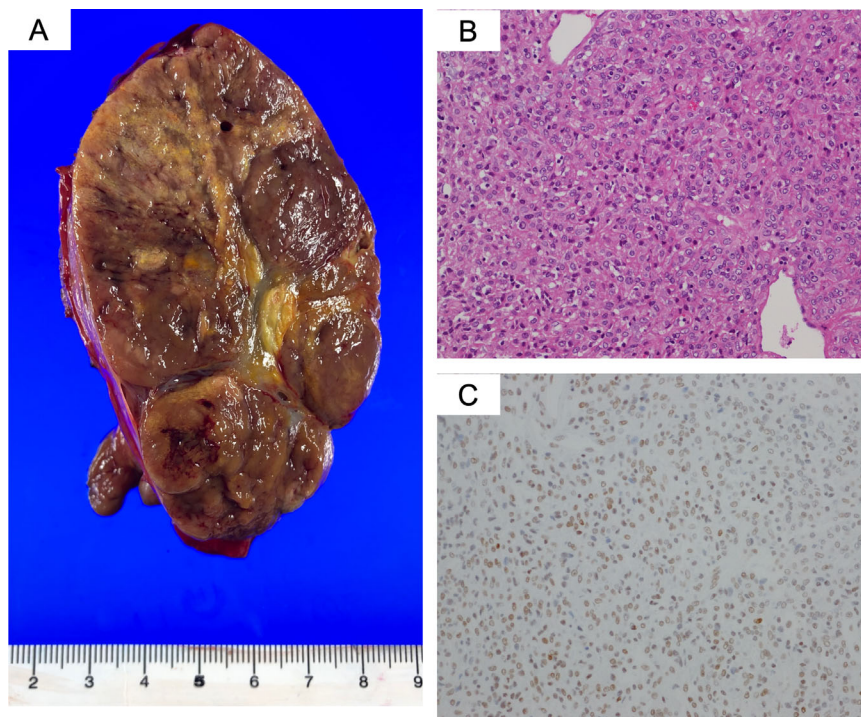
times of reviewing the approach in multiple departments (Urologists, Colorectal surgeons, Orthopedic surgeons, and Radiologists), a combined laparotomy and TaTME technique was chosen for complete and safe resection of the tumor. The patient underwent preoperative arterial embolization of left obturator artery and left medial circumflex femoral artery which mainly fed the tumor in the radiology department, laparotomy for the tumor with vesico-prostatectomy in the urology department, and TaTME and temporary ileostomy in the colorectal surgery department (Fig. 2). As assumed preoperatively, dorsal and caudal sides of the tumor could not be reached by the laparotomy approach alone because the tumor was not mobile. Because of adhesions between the tumor and rectal serosa, a part of rectum was resected together. In addition, the superior pubic ramus was resected by an orthopedic



**Fig. 1** (a) A CT scan showing a large heterogeneous tumor (solid blue circle). The bladder (orange dashed circle) was compressed to the right side by the tumor. (b) The tumor extends into the left obturator foramen (green arrowhead). The prostate (yellow dashed circle) was compressed to the right side by the tumor. (c) A magnetic resonance image (spectral attenuated inversion recovery with T2 enhanced image, sagittal section) showing that the tumor originated in pelvic floor (red arrowhead), filled the pelvic cavity and attached to the underside of the pubic bone (yellow arrowhead).



**Fig. 2** (a) The scheme of this operation. P = prostate, R = rectum. (b) Surgical field of TaTME from the anorectal view. The prostate (yellow dashed circle) was compressed to the right side by the tumor (solid blue circle). (c) The forceps (green arrowhead) from a transperitoneal approach are visible in the anorectal view.



**Fig. 3** (a) The cut surface of the specimen, which is a well-circumscribed tumor, showing lobulation and partial necrosis. (b) Histology with hematoxylin and eosin staining at 20-fold magnification. (c) Immunohistochemical staining with STAT6 showing nuclear positivity at 20-fold magnification.

surgeon in order to open left obturator foramen. The operation time was 9 h and 41 min, with a blood loss of 6632 mL. 2800 mL of red cell products and 1200 mL of plasma derivative were transfused. The tumor was completely and grossly resected without rupture. Pathological examination revealed a low-grade spindle cell neoplasm with CD34 and STAT6 immunopositivity, which led to the diagnosis of an SFT (Fig. 3). The tumor invaded the bladder but did not invade the rectum nor prostate microscopically. The resection margins were negative for malignancy. According to the risk stratification models of SFTs, the tumor was classified as an intermediate-risk tumor.<sup>3</sup> No serious complications were observed, except for Clavien–Dindo Grade II level wound infection and intestinal obstruction, and he was discharged on the 44th day after the surgery. Nine months after the surgery, imaging assessment did not show any signs of recurrence or major complications.

## Discussion

In some case series, complete resection of an SFT has been reported to reduce local recurrence rates and improve survival.<sup>2</sup> In the current case, a huge tumor originated pelvic floor and filled the pelvic cavity was attached to the underside of the pubic bone and extended into the left obturator foramen. Since complete resection using a transabdominal approach alone was expected to be difficult, we initially planned to team up with several departments. Such an MDT approach has been reported to improve the prognosis of soft tissue tumors.<sup>4</sup>

TaTME, which encompasses transabdominal laparoscopic assistance, is becoming an increasingly favored approach in

the field of rectal surgery.<sup>5</sup> Several preliminary series have demonstrated that TaTME for rectal cancer not only meets safety and feasibility markers but also achieves longer distal margin lengths and decreases operation time when performed via a two-team approach. In pelvic surgery, where the field of view and operating space are limited, TaTME provides good visualization of anatomic and surgical planes, thereby allowing safe and accurate dissection.<sup>5</sup> We fully utilized the concept of TaTME and were able to achieve complete resection of the tumor and this is the first report of the combined use of TaTME in urological surgery. Although no recurrence has been observed, careful follow-up is necessary because the tumor was considered to have an intermediate risk.

## Conclusion

We experienced a case of large pelvic SFT that was completely resected using an MDT approach with TaTME.

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## Author contributions

**Kenji Tanabe:** Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Writing – original draft. **Yasukazu Nakanishi:** Conceptualization;

Data curation; Formal analysis; Investigation; Methodology; Project administration; Supervision; Visualization; Writing – original draft; Writing – review & editing. **Shunya Matsumoto**: Conceptualization; Data curation. **Shugo Yajima**: Conceptualization; Data curation; Formal analysis. **Takashi Kuroe**: Conceptualization; Data curation; Writing – review & editing. **Reiko Watanabe**: Conceptualization; Formal analysis; Writing – original draft; Writing – review & editing. **Yasunori Arai**: Conceptualization; Formal analysis; Writing – original draft; Writing – review & editing. **Shintaro Iwata**: Conceptualization; Formal analysis; Writing – original draft; Writing – review & editing. **Masaaki Ito**: Conceptualization; Formal analysis; Writing – original draft; Writing – review & editing. **Hitoshi Masuda**: Conceptualization; Data curation; Formal analysis; Funding acquisition; Project administration; Supervision; Writing – original draft; Writing – review & editing.

## Conflict of interest

The authors declare no conflict of interest.

## Approval of the research protocol by an Institutional Reviewer Board

The protocol for this research project has been approved by a suitably constituted Ethics Committee of the institution and

conforms to the provisions of the Declaration of Helsinki. National Cancer Center Research Ethics Review Committee, Research Project No. 2018-159.

## Informed consent

Informed consent was obtained from the patient.

## Registry and the Registration No. of the study/trial

Not applicable.

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