SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Medicine and Pharmacy

Bladder Invasion or Not: A Case Report of a Massive Small Bowel GIST

Laila Merghat[1*], Yousra Mhande[1], Youssef M'hamdi[1], Amal Hajri[1,2], Driss Errguibi[1,2], Saad Rifki El Jai[1,2], Farid Chehab[1,2]

[1]Faculty of Medicine and Pharmacy, Hassan II University, Casablanca, Morocco
[2]Surgical Department of Cancerology and Liver Transplantation, University Hospital Center, Casablanca, Morocco

DOI: https://doi.org/10.36347/sasjs.2025.v11i07.003 | **Received:** 23.05.2025 | **Accepted:** 30.06.2025 | **Published:** 03.07.2025

***Corresponding author:** Laila Merghat
Faculty of Medicine and Pharmacy, Hassan II University, Casablanca, Morocco

Abstract **Case Report**

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract, with the small intestine being the second most common site. Our case involves a 37-year-old male with a chronic smoking history weaned 13 years ago, reported to our department with vomiting and right iliac fossa pain without gastrointestinal bleeding. The physical examination revealed a bulky mass on the right flank. CT scans revealed a large process with increasing measurements, where the mass was in contact with the anterior abdominal wall invading the bladder. The MRI showed the process encompassing the bladder dome. Surgical removal of the 16cm mass and a portion of the detrusor muscle was performed, followed by histopathological exam confirming the GIST diagnosis without real bladder invasion.

Keywords: GIST, gastrointestinal stromal tumor, bladder, small bowel, case report.

BACKGROUND:

Gastrointestinal stromal tumors (GISTs) are rare sarcomas that can develop anywhere in the digestive tract, with the small intestine being the second most common site [1]. At diagnosis, the median tumor size is above 5cm, with multiple nonspecific symptoms [1,2]. Imaging plays a key role in detecting the lesion and evaluating disease spread, but GISTs are usually diagnosed through immunohistochemistry.

Prognosis of small bowel GISTs depends on two key factors: tumor size and mitotic activity [3]. We present the case of a young man with a massive 16cm tumor, initially appearing to invade the bladder on imaging and surgical exploration, yet revealing no real invasion upon anatomopathological analysis.

CASE DESCRIPTION:

A 37-year-old male presented 4 months before his admission to the department of visceral surgery at IBN Rochd University Hospital Center with a progressive onset of right iliac fossa pain, associated with late postprandial vomiting evolving in a context of altered general condition. The patient had a history of chronic smoking 3 Pack-year weaned 13 years ago, and occasional cannabis use, without any significant surgical or familial history.

On physical examination, his vital signs were normal, and the abdominal assessment revealed a mass on the right flank, measuring 6 cm in its long axis, fixed to the deeper plane, with a firm consistency. The digital rectal exam was unremarkable. The rest of the clinical evaluation showed no significant findings**.** Routine blood investigations were within normal limits**.**

An initial imaging evaluation by ultrasound showed a large process**,** laterally displaced to the right, with a tissue-like echostructure, compressing the bladder, and containing areas of cyst formation. It appeared hypervascular on color Doppler flow imaging, with lobulated contours measuring 10cm x 7 cm.

An abdominopelvic CT scan and MRI enterography further evaluated the abdominal mass. The abdominopelvic CT scan was performed, demonstrating a bulky tumor process of the right iliac fossa, spontaneously hypodense, enhanced after injection contrast with large cystic areas, measuring 14.2 x 8.4 cm, extending to 13.7 cm, with distension of the upstream bowel measuring 35 mm. It comes into contact with the bladder as well as the lumbar ureter and the anterior abdominal wall (Figure 1). The solid part is hypodense and enhances with contrast. The mass has lobulated borders, measures 13.2 x 12.4 x 8.2 cm, appears to be continuous with a small bowel loop, and is associated with upstream small bowel dilatation.

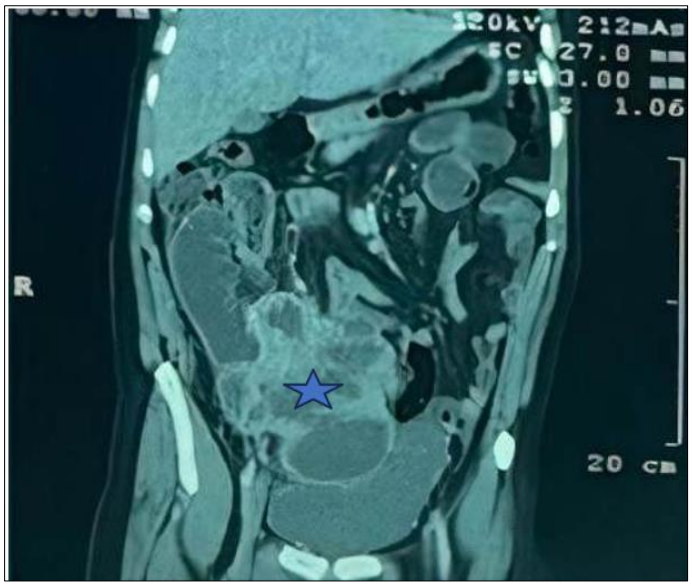

Figure 1: Frontal CT scan showing a right iliac fossa mass with both solid and cystic components.

MRI reveals a solid-necrotic abdominopelvic mass located in the hypogastric region and right iliac fossa. The mass closely abuts and partially encompasses the dome of the bladder (Figure 2).

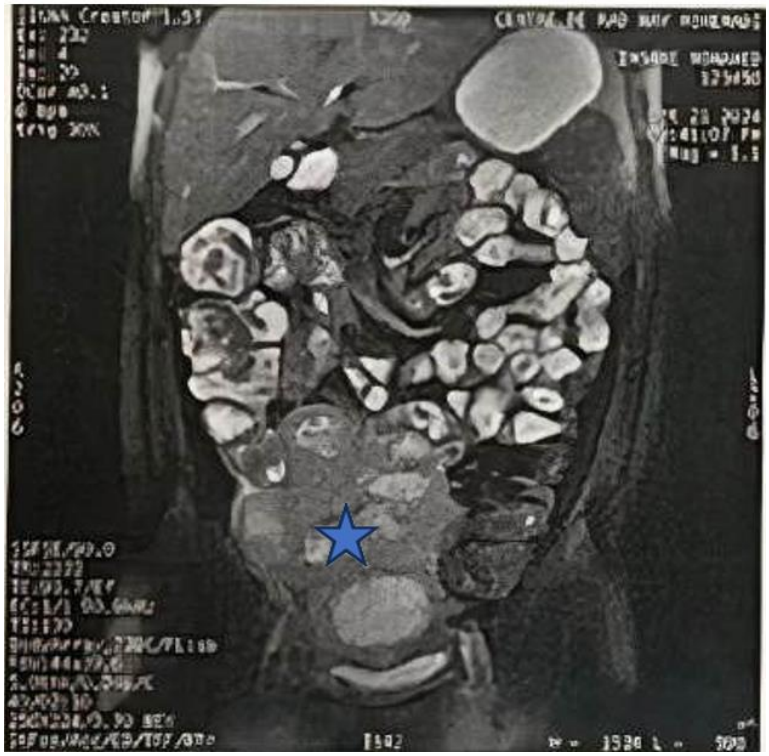

Figure 2: Frontal entero-MRI showing a solid-necrotic process of 14 x 13 x 8 cm starting at the level of the bladder dome and rising upwards towards the hypogastrium and the FID seeming to communicate with the digestive loops.

Median laparotomy was performed after an exploratory laparoscopy revealed a 16 cm mass located 2 meters away from the duodenal-jejunal angle, adherent to the abdominal wall and invading the bladder dome. An oncological segmental resection of the small bowel was performed to remove the tumor, along with a portion of the detrusor muscle, without involving the bladder mucosa (Figures 3 and 4). The intraoperative frozen section examination of the bladder wall biopsy did not reveal any evidence of malignancy.

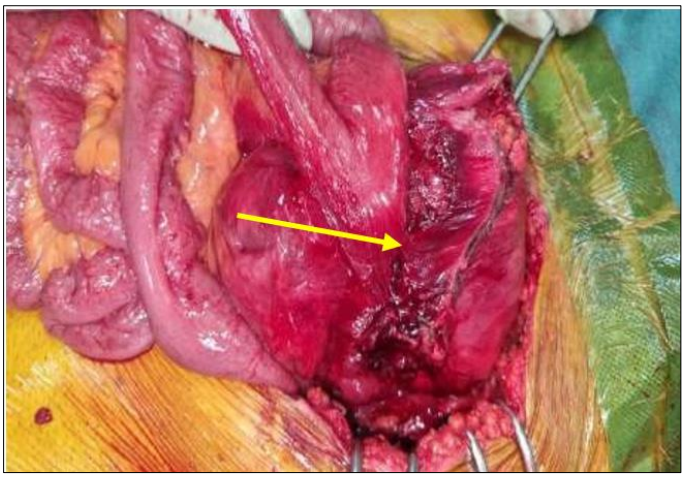

Figure 3: The small bowel mass invading the bladder dome.

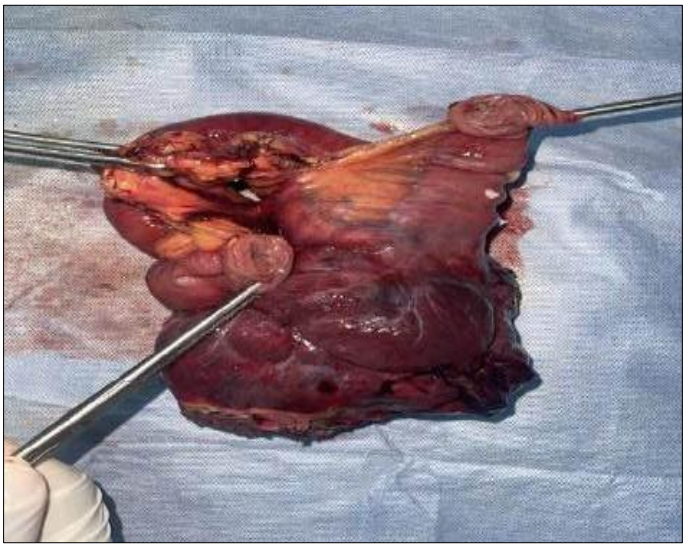

Figure 4: Resected specimen of small bowel segment containing the intestinal mass and bladder muscle collar.

The operative specimen afterward was sent for histopathology, which confirmed the diagnosis of GIST and identified the expression of CD114 and kit with a mitotic index of 14/50 HPF (Figure 5).

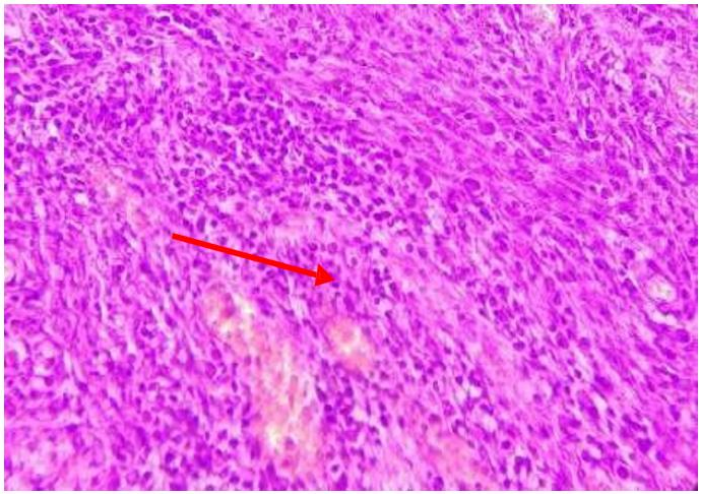

Figure 5: Histopathological Image highlighting Spindle Cell Proliferation.

After the surgery, the patient's condition showed significant improvement; he was discharged on the 8th day without any immediate complications.

DISCUSSION:

Although they account for less than 1% of all gastrointestinal tumors, GISTs are the most common malignant mesenchymal neoplasms of the gastrointestinal tract, with varying clinical behavior, defined by their differentiation into interstitial cells of Cajal [2]. GIST can occur in individuals from 10 to 100 years of age, with an average onset in the mid-60s. The condition affects both sexes equally. The most frequent sites for GISTs are the stomach (55.6%) and small intestine (31.8%), while the colon (6.0%) and esophagus (0.7%) are rarely involved [1].

GISTs often remain asymptomatic until they grow beyond 6 cm [4]. Gastrointestinal bleeding is the most commonly reported and potentially life-threatening symptom, followed by other common symptoms, including abdominal pain, obstruction, along with various nonspecific complaints noted across studies [1]. At diagnosis, the majority of GISTs originating in the small intestine measure over than 5cm. However, approximately 20% of patients already have metastases, typically affecting the liver, abdominal cavity, and lymph nodes [2].

GIST's appearance in imaging varies depending on the technique used, the tumor size, location, and growth pattern. CT scans are the most accurate imaging method, particularly for small bowel tumors. GISTs over 5cm usually appear hypervascular and exophytic compared to the small tumors that are presented as endoluminal polypoid masses. It is also crucial for evaluating the local invasion and metastasis [5]. PET scans are highly effective on GISTs, as they show strong uptake of 18F- fluorodeoxyglucose. On MRI, smaller GISTs appear as round tumors with uniform arterial enhancement, whereas larger GISTs, on the contrary, show lobulated with mild heterogeneous enhancement often accompanied by intratumoral cystic changes [2,5].

Diagnosis is confirmed through biopsy and immunohistochemistry with GISTs characterized by positive staining for CD117 (c-KIT) in 95% of cases and CD34 in 60-70% with additional markers including DOG- 1, desmin, and vimentin [6].

The main factors that independently affect the prognosis of GIST are the mitotic index, the size of the tumor, its location, and its rupture [7].

Surgical resection generally has low morbidity for most tumors under 10 cm that are limited to the stomach or intestine, and extensive surgery is usually unnecessary. However, when GISTs are tightly adherent to nearby organs, en bloc resection should be performed. Since GISTs rarely spread to lymph nodes, lymphadenectomy is not routinely required [8]. Management of a positive microscopic margin after an otherwise complete resection is still uncertain, with possible approaches including re-excision, close monitoring, or postoperative imatinib therapy [9].

This case illustrates the challenging diagnosis of a small bowel GIST in a young adult patient who was admitted to our department with a large, painful mass without any GI bleeding. Whose imaging initially suggested bladder invasion, with surgical exploration revealing that the mass was adherent to the abdominal wall and bladder dome, while histopathological analysis later confirmed there was no actual invasion.

CONCLUSION:

Small bowel GIST is a rare tumor, and making an accurate diagnosis requires a high index of suspicion along with appropriate imaging techniques like CT scan or MRI. Always consider the risk of recurrence for patients with a history of GIST, and ensure appropriate follow-up through the use of proper chemotherapy and imaging to detect any signs of recurrence or metastasis.

REFERENCES:

1. Søreide, K., Sandvik, O. M., Søreide, J. A., Giljaca, V., Jureckova, A., & Bulusu, V. R. (2016). Global epidemiology of gastrointestinal stromal tumours (GIST): A systematic review of population-based cohort studies. *Cancer epidemiology*, *40*, 39-46.
2. Mantese, G. (2019). Gastrointestinal stromal tumor: epidemiology, diagnosis, and treatment. *Current opinion in gastroenterology*, *35*(6), 555-559.
3. Verde, F., Hruban, R. H., & Fishman, E. K. (2017). Small bowel gastrointestinal stromal tumors: multidetector computed tomography enhancement pattern and risk of progression. *Journal of computer assisted tomography*, *41*(3), 407-411.
4. Wakamatsu, K., Lo Menzo, E., Szomstein, S., Seto, Y., Chalikonda, S., & Rosenthal, R. J. (2018). Feasibility of laparoscopic resection of gastrointestinal stromal tumor of the stomach. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, *28*(5), 569-573.
5. Vernuccio, F., Taibbi, A., Picone, D., La Grutta, L., Midiri, M., Lagalla, R., ... & Bartolotta, T. V. (2016). Imaging of gastrointestinal stromal tumors: from diagnosis to evaluation of therapeutic response. *Anticancer research*, *36*(6), 2639-2648.
6. Wu, C. E., Tzen, C. Y., Wang, S. Y., & Yeh, C. N. (2019). Clinical diagnosis of gastrointestinal stromal tumor (GIST): from the molecular genetic point of view. *Cancers*, *11*(5), 679.
7. Joensuu, H., Vehtari, A., Riihimäki, J., Nishida, T., Steigen, S. E., Brabec, P., ... & Rutkowski, P.

(2012). Risk of recurrence of gastrointestinal stromal tumour after surgery: an analysis of pooled population-based cohorts. *The lancet oncology*, *13*(3), 265-274.

8. Combined Surgical and Molecular Therapy: The Gastrointestinal Stromal Tumor Model - PMC [Internet]. [cité 4 avr 2025]. Disponible sur: https://pmc.ncbi.nlm.nih.gov/articles/PMC1602162/
9. McCarter, M. D., Antonescu, C. R., Ballman, K. V., Maki, R. G., Pisters, P. W., Demetri, G. D., ... & Intergroup Adjuvant Gist Study Team. (2012). Microscopically positive margins for primary gastrointestinal stromal tumors: analysis of risk factors and tumor recurrence. *Journal of the American College of Surgeons*, *215*(1), 53-59.