



## Case Report

## Inferior Cava Vein Gist and Kidney Autograft

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## Abstract

Gastrointestinal Stromal Tumor (GIST) tumors are the most frequent mesenchymal tumors of the digestive tract and represent approximately 1% of all gastrointestinal malignancies. The prognosis depends of too many factors such as the tumor size, the mitotic index, the localization etc. We present the case of a 63-year-old woman with a duodenal GIST treated by local resection and later on appears on a CT scan control a tumor mass at the level of the inferior cava vein, so the surgery chosen was a prosthetic venous replacement with PTFE prosthesis and right nephrectomy with right kidney autograft.

**Keywords:** Duodenal GIST; GIST, Inferior Cava Vain; Renal Auto Transplant

## Introduction

Gastrointestinal Stromal Tumor (GIST) tumors are the most frequent mesenchymal tumors of the digestive tract characterized by the expression of the CD117 protein that acts as a growth factor for tyrosine kinase [1]. They are originated from Cajal cells and they can develop in any organ from the stomach to the anus, with a clear prevalence over the stomach (50-70%) followed by the small intestine (20-30%), the esophagus (5%), the colon or duodenum (2%) and even in a very low proportion in the omentum or mesentery [2]. They represent approximately 1% of all gastrointestinal malignancies with a peak of appearance between 50 and 60 years in both men and women.

In relation to the prognosis of the disease, there are three fundamental characteristics [2, 3]:

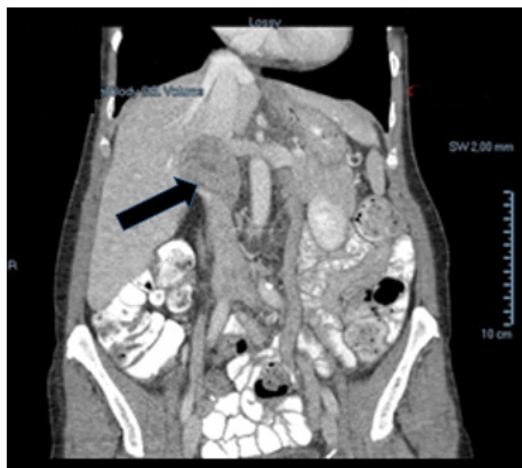
Risk	Tumor size	Mitotic index	Location	5-years survival
Very low	< 2 cm	< 5/50 HPF	Any location	50 - 65 %
Low	2 - 5 cm	< 5/50 HPF	Any location	50 - 65 %
Medium	2 - 5 cm	>5/50 HPF	Stomach	20 - 50 %
	5 - 10 cm	< 5/50 HPF	Stomach	20 - 50 %
High	Any size	Any index	Any location + tumor rupture	< 20 %
	> 10 cm	Any index	Any location	< 20 %

However, and despite of the fact that the tumor characteristics are favourable, there is a high rate of recurrences that reach 90% and it depends not only on the factors previously mentioned but also on the breakage of the capsule when the tumor was initially resected causing dissemination in the cavity or there may be a local recurrence. In these cases, the resection should be evaluated, being always the first behaviour better. The treatment of choice for the cure of GIST-type tumors is undoubtedly surgery resecting the piece with free margins and the capsule unscathed, although not all patients are candidates for it because of late diagnosis. In all cases, adjuvant treatment with Imatinib (first-line drug) at a dose of 400 mg / day is required [4, 5]. There are a large number of patients who respond

adequately with reduction in tumor mass, while others respond by stabilizing the disease by not letting it progress but not reducing the size. It has been observed that Imatinib treatment should not be interrupted because the tumor grows back. The interruption of treatment is associated with a high risk of recurrence, so it must be for life.

## Clinical Case

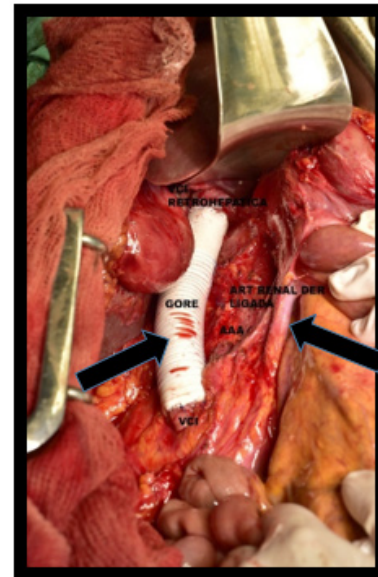
We present the case of a 63-year-old woman with a history of duodenal GIST located in the second portion treated by local resection in 2011. She subsequently receives adjuvant treatment with Imatinib for 3 years, and she suspends it. For the next two years, she was disease free, with semi-annual imaging controls. In 2016 she consulted for diffuse abdominal pain, poorly characterized, deaf that is interpreted as gastroenteritis. Due to the persistence of the symptoms and in accordance with the semi-annual control, a CT scan of the abdomen is performed in which a tumor mass of 42\*62\*35 mm is observed at the level of the inferior cava vein. It is interpreted as tumor recurrence that compromises from the birth of the renal veins to the bifurcation of the iliac veins. On physical examination, her abdomen was slightly painful with a predominance of the right flank to deep palpation, without palpable lesions, and asymptomatic for inferior cava vein syndrome. To complete the study of this patient and preoperative evaluation, Magnetic Resonance of the abdomen is requested with the same tomographic findings, without secondary images. Laboratory and excretory renogram are also requested. All studies are within normal parameters (Figure 1).



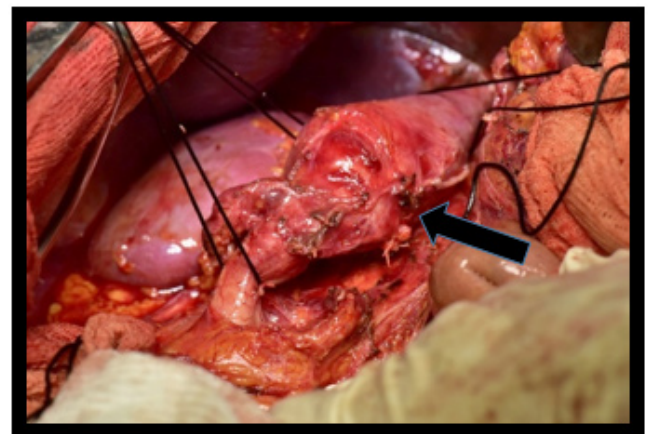
**Figure 1:** TAC, coronal section. Tumor mass of 42\*62\*35 mm at inferior cava vein.

It was decided to take surgical behavior, this being the Gold standard in patients with GIST recurrence without metastatic lesions. A prosthetic venous replacement with PTFE prosthesis and right nephrectomy with right renal autograft is performed

due to the involvement of the right renal vein. The ureter is also inserted using the technique of Lich-Greigoir (Figure 2 and 3). The patient evolves favourably with good renal function, without dialysis requirements and without complications in the immediate postoperative period. She is discharged after 15 days. She restarts treatment with Imatinib at double the previous dose (Figure 4). In relation to Pathological Anatomy, it reports a resected piece of 9\*6.2 cm, with a 5\*4 cm luminal growth tumor, and free margins. On microscopy, it presents characteristics of a gastrointestinal stromal tumor with a mitotic index of 18/50 HPF. In immunohistochemistry, she had negative CD117, CD34 and S100, with positive Desmina and Ki-67 of 25% (Figure 5). She continues with follow-up going to the service for 6 months, presenting in a tomographic control images of secondary liver disease.



**Figure 2:** Replacement of IVC by vascular prosthesis.



**Figure 3:** Tumor on IVC prior to resection.

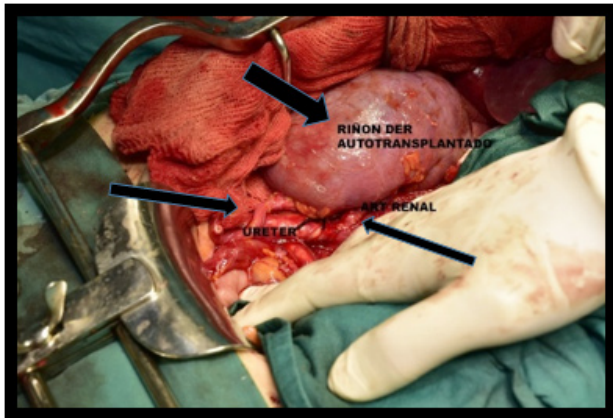


Figure 4: Autograft of right kidney.

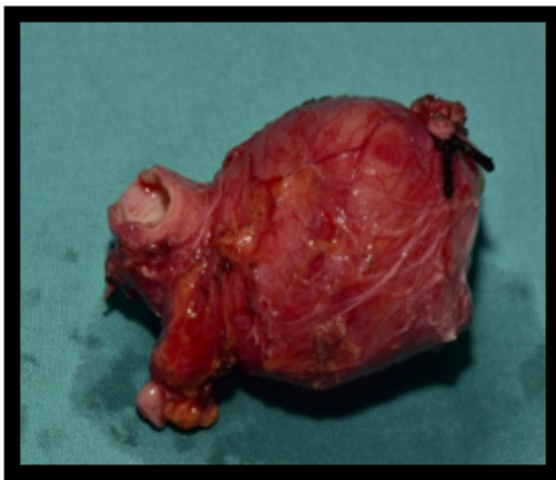


Figure 5: Vascular resection of 9x6.2cm with high-grade GIST type tumor with 5x4cm luminal growth. Mitosis 18/50 HPF. CD117-. Desmin +.

## Discussion

GIST-type tumors must always be considered malignant until there is histological confirmation, which allows us to take a quick surgical resolution if it is possible, and subsequent specific adjuvant treatment [1, 4]. The prognosis of these tumors depends fundamentally on the tumor size and the rate of mitosis per field. Usually, children under 2 cm with a mitosis rate of 5/50 HPF, are those ones with the best prognosis, although all of them have potential for malignancy. Surgery is the basis of curative treatment for these tumors provided, they are resectable tumors without metastatic lesions. Also, surgery does not exempt these patients from performing adjuvant treatment with Imatinib except in cases where the tumors are non-responders. It must be considered that

Imatinib reduces the risk of recurrence to 6% at 12 months [2, 3]. On the other hand, there is no prior GIST literature in inferior vena cava with renal vein infiltration and autograft. It must be noticed that although a casuistry greater than that obtained would be required to evaluate the prognosis and morbidity and mortality, this could be the first case to be considered with a non-negligible postoperative survival.

It must be taken into account that it is a large surgery that merits an exhausted pre-surgical evaluation to guarantee, as far as possible, the best prognosis and evolution of the patient with the lowest morbidity and mortality. As well as it is necessary to have a multidisciplinary team that actively participates in both the pre, intra and postoperative evaluation. As for the etiology, a mutation occurs in Cajal cells that involve changes in the c-KIT receptor gene that is involved in the regulation of cell proliferation [1]. Approximately 85-90% of tumors have this mutation, while the rest of them may have others as an example in the PDGFRA gene. Other often positive markers are CD34 (60-70%), smooth muscle actin (15-60%), S100 (10%), and desmin (rarely). Particularly, duodenal GIST is an unusual neoplasm with an acceptable survival after resection, with a slight prevalence in men between 55-60 years of 68%. Most of them are located in the second portion of the duodenum with an average size of 35-40 mm and a survival of 86% at 3 years with frequent subsequent relapses.

## Declaration of Conflicts of Interest

By the present I declare that there are no conflicts of interest linked to the case report.

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