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## Case Report

# Gastrointestinal stromal tumor of the small intestine with lung metastasis ☆,☆☆,★

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## ABSTRACT

Gastrointestinal stromal tumours (GISTs) represent 1% of primary gastrointestinal cancers. These tumors most frequently metastasise to the liver and peritoneum and rarely to the lungs. We report the case of a 79-year-old woman with gastrointestinal stromal tumor of the small intestine and pulmonary metastases. Contrast-enhanced computed tomography (CT) revealed a focal mass centered around the last intestinal loop associated with pulmonary bilateral masses. The diagnosis of gist of the small bowel was confirmed by histopathological and immunohistochemical analyses of bioptic material obtained from CT guided biopsy of pulmonary lesions. To the best of our knowledge, only few cases had been reported in medical literature as This mode of presentation is unusual, with computed tomography (CT) playing a significant role in the diagnosis and management.

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## Introduction

Gastrointestinal stromal tumours (GISTs) represent 1% of primary gastrointestinal cancers.

The stomach is the site of greatest incidence, followed by the small intestine .

Metastatic spread of GIST can occur via haematogenous and lymphatic routes .

Liver and peritoneum are typical sites for metastases. They rarely metastasise outside the abdominal cavity especially the lung.

The purpose of this work is to report a case of a gastrointestinal stromal tumor of small intestine with pulmonary localizations as it is an inhabitual presentation.

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★ Patient Consent has been obtained.

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## Case presentation

A 79-year-old woman who had a history of several years of episodes of abdominal pain associated with constipation. She also suffered from asthenia and cough. She had multiple outpatient appointments. She was referred to our institution to investigate. Routine blood examination showed Normocytic normochromic anemia with hemoglobin (Hb) 12.8g/dL, mean cell volume (MCV) 89 FL, normal white blood cell counts 6860/mm<sup>3</sup> with normal platelet counts 276,000/mm<sup>3</sup>. The other laboratory results were normal. Colonoscopy had already been performed at another institution, which could not find any cause. Therefore, clinicians requested abdominal Contrast-enhanced computed tomography (CT) due to the patient complaining about constipation.

It showed a focal mass centered around the last intestinal loops with well-circumscribed borders, exophytic development and mildly homogeneous enhancement and small adenomegaly around (Fig. 1).

GIST was given as the first diagnosis, lymphoma and adenocarcinoma as other differential diagnoses. A total body computed tomography(CT) was required for initial staging, which revealed multiple and bilateral pulmonary masses (Fig. 1). The patient underwent CT guided pulmonary biopsy. The histological and immunohistochemical findings were consistent with metastatic lesions of GIST. During the investigations, the patient showed symptoms of intestinal occlusion, which led to patient surgery. Ileo-coecal resection was performed, including the adjacent mesentery and the mesenteric lymph nodes. The histopathologic examination of the excised tumoral mass proved to be GIST. The intestinal continu-

ity was ensured by a mechanical latero-lateral entero-enteric anastomosis.

Imatinib was introduced with a favorable evolution of the metastatic pulmonary lesions.

## Discussion

GISTs are common mesenchymal neoplasms that represent a part of gastrointestinal malignancies. Over 50%–70% of GIST arise in the stomach, with about 20% coming from the small intestine and 1%–5% percent originating in the colon and esophagus. They originate from interstitial cells of Cajal that were abnormally dispersed during embryogenesis [1]. the term “GIST” includes neoplasms displaying c-kit (CD117) immunopositivity with very rare exceptions [2].

The liver and peritoneum are the most frequent metastatic sites of gastrointestinal stromal tumors (GISTs), but lung metastases from GISTs are relatively rare accounting for 7% of all lesions [3,4].

Pulmonary metastases are asymptomatic Clinically due to their small size and intra-parenchymal distribution. Computed tomography (CT) plays an important role in the detection.

These lesions shows as micronodules or nodules that grows slowly or stay stable over longer periods without pathological mediastinal or hilar lymph nodes. They are characterized by a regular profile, were extremely hyperdense after contrast uptake, and had no intralesional areas of necrosis [4].

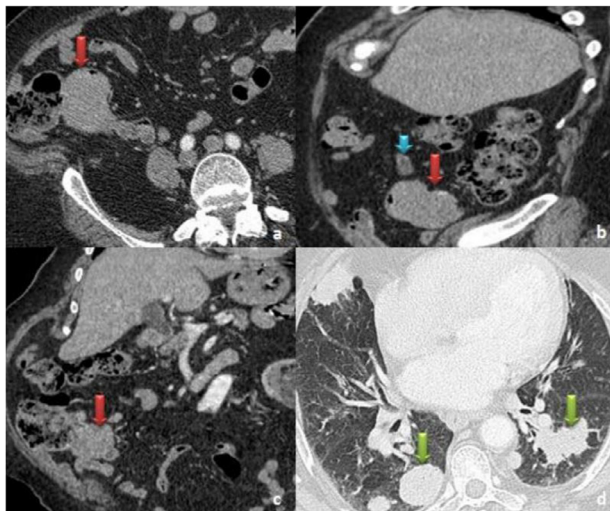
GIST lung metastases have a low intrinsic metabolism and a low biologic aggressiveness compared with the primary tumors that’s why CT/PET scans may not be the optimal method to diagnose and stage GISTs related to lack of FDG uptake [5].

In our patient, the accurate diagnosis was made by CT guided biopsy because of the atypical dissemination in the lung.

Surgical resection of a localized GIST is the key of therapy [6]. Any patient with locally advanced or metastatic disease GIST should first receive imatinib mesylate [7]. lung metastases did not affect the initial tumor response in patients with an external confirmation of GIST diagnosis.

Tumor response evaluation is based both on intralesional density variation and changes in tumor diameter. In general, lung metastases were more stable throughout tyrosine kinase inhibitor treatment, which was most likely due to the indolent behavior of these tumors [8].

Since our patient was a complicated case, we performed surgery and planned to initiate imatinib with a favorable evolution of the metastatic pulmonary lesions.



**Fig 1 – Contrast-enhanced CT scans in axial (A), sagittale (B) and coronal (C) planes demonstrate a focal mass centred around the last intestinal loops with exophytic development, well circumscribed borders and mildly homogeneous enhancement (Red arrow) associated with intra-abdominal adenomegaly (blue arrow). (D) Bilateral Lung metastasis**

## Conclusion

Lung metastases are relatively rare in patients with GIST, they become more prevalent because of increased patient life expectancy. There is no specific molecular profile that can predict if the patient had a risk to develop lung metastases. Large retrospective multicenteric molecular studies are needed to

precise the best treatment for patients with lung metastases of GISTs. We report, to the best of our knowledge, a very rare case of gastro intestinal stromal tumor with metastatic pattern involving the lung to share this atypical presentation. 2

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## Declarations

**Availability of data and material:** Data available within the article

**Code availability:** (N/A).

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