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CASE REPORT

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An unusual case of multiple gastrointestinal stromal tumors in the small bowel presenting as occult and overt gastrointestinal bleeding

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Abstract

We present a case report of a 59-year-old woman with multiple gastrointestinal stromal tumors as a cause of gastrointestinal bleeding. She initially presented with recurrent iron deficiency anemia and subsequent gastrointestinal bleeding over 10 years. An initial angiodysplastic lesion was identified, treated, and spot tattooed. Recurrent symptoms occurred leading to repeat investigations with a further subepithelial lesion with ulceration being identified. Computerized tomography enterography subsequently revealed an ileal intraluminal enhancing lesion, and she was referred to surgery. Surgical resection was ultimately performed, and multiple lesions were found to be present with histology revealing multiple gastrointestinal stromal tumors.

KEYWORDS

anemia, case report, gastrointestinal stromal tumors, occult bleeding

1 | INTRODUCTION

Gastrointestinal stromal tumors (GIST) are the most common form of mesenchymal gastrointestinal (GI) tumors. They are most commonly found in the stomach and proximal small bowel, however, may occur anywhere within the GI tract, as well as the omentum and mesentery.[1] They are responsible for approximately one percent of all GI cancers and the estimated incidence is 10–15 per million per year. The median age of diagnosis is approximately 59; however, it can range from 10–100 years old, and gender distribution is approximately equal.[1–3] GIST are classically solitary tumors. Multiple GISTs are usually associated with familial syndromes and sporadic multiple GISTs are rarely reported.[3–6]

2 | CASE REPORT

The patient was a 59-year-old woman who presented initially with iron deficiency anemia (IDA) and subsequent episodes of GI bleeding. Other medical history included a posterior-lateral thoracotomy for a benign schwannoma, cholecystectomy, hypercholesterolemia, migraines, and factor V Leiden deficiency with no history of clots. Her only regular medication was rosuvastatin and she had zopiclone, metoclopramide, sumatriptan, and paracetamol as required. She had no significant family history, particularly of GI bleeding or GI malignancy.

She initially had treatment for her IDA 10 years prior and required a further iron infusion two and a half years before diagnosis. Her nadir hemoglobin was 79 g/L at

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this point. She underwent a gastroscopy, colonoscopy, and capsule endoscopy (CE) followed by small bowel enteroscopy (SBE) to treat an angiodysplastic lesion in the proximal jejunum which was SPOT tattooed for localization. She responded well initially; however, over the following 3 months developed melena with recurrent IDA. Another CE was performed which demonstrated a submucosal lesion at approximately 15% of small bowel transit (Figure 1A,B) adjacent to her previous tattoo. A repeat SBE revealed a discrete single area of ulceration 3-4 cm beyond the tattooed point. Histology showed active enteritis. She underwent computerized tomography enterography (CTE) one month later which revealed an intraluminal, enhancing lesion of approximately 32 × 21 mm within the ileum (Figure 2A,B). No lymphadenopathy or hepatic lesions were seen. She was then referred to an upper gastrointestinal tract surgeon for surgical management.

An open small bowel resection was carried out to resect the ileal tumor. At initial laparoscopic inspection, seven lesions, concerning for multiple tumors macroscopically, were seen extending from jejunum to ileum and the procedure was converted to an open laparotomy. A small jejunal nodule was excised and confirmed microscopically as GIST on frozen section due to the presence of serosal spindle cells and the absence of overt atypia/malignancy. The largest two lesions were 250mm apart with the tattoo between them; this 310mm section of bowel was resected. Additional smaller lesions were taken by serosal excision (3-12mm each). Formal histology revealed nine GISTs microscopically due to the presence of spindle cell neoplasms throughout the small bowel, ranging from 3-32mm (predominantly 3-7mm). Although multiple, they were all small and low-risk lesions. There were two mitoses per 50 high-powered fields in the largest lesion and none in the smaller lesions. Immunostains on all neoplastic cells were strongly positive for CKIT and DOG1. Alpha smooth muscle actin immunostain of all lesions showed diffuse weak to focally moderate immunoreactivity. S100, sox10, and CD34 immunostains were negative, all of which microscopically confirmed the diagnosis of GIST. Resection margins were benign, and no lymph nodes were identified. The surgeon treating her determined a positron emission tomography scan was not required and she did not require systemic therapy. She has remained well throughout regular follow-up in the following 24 months, including no signs of further GISTs on follow-up computerized tomography scanning.

3 | DISCUSSION

IDA is a common problem worldwide, with occult bleeding from the GI tract being one of the common causes in developed nations.[7] GIST symptoms tend to vary depending on tumor size and location. Most GISTs present with upper GI bleeding given the majority arise from the stomach or small bowel.[8] Small bowel GISTs most commonly present as intestinal obstruction or are otherwise found as incidental findings.[1] Others are initially misdiagnosed as other forms of tumor including gastric carcinoma or adenocarcinoma, pancreatic cancer, hepatoblastoma, and some gynecological cancers such as ovarian and uterine tumors.[8] As our patient had a 10-year history of IDA, it is possible her GISTs had been present for many years prior.

Classically, GIST is singular.[4,5] Few cases of sporadic multiple GISTs have been reported in the literature[5,6]; whereas multiple GISTs have familial links, such as from a germline KIT or PDFGR mutations.[5] Multiple GISTs are also related in pediatric cohorts due to neurofibromatosis type 1, familial GIST syndrome or Carney's syndrome.[3] In our patient, there was no known family history of GI malignancy or genetic predispositions. This patient was diagnosed at what has been documented as the median age of diagnosis,[1] although she had presented initially several years earlier. No known risk factors exist for sporadic GISTs.[1]

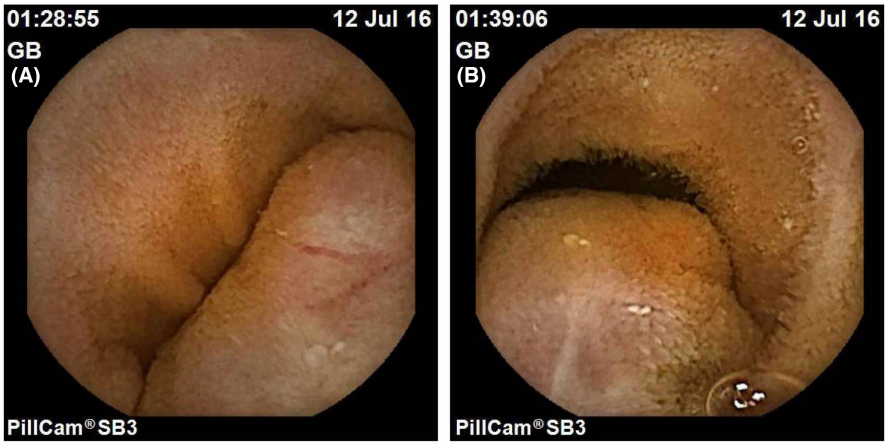

FIGURE 1 (A) Submucosal lesion with prominent vessels on CE. (B) Submucosal lesion with small ulceration on CE. Abbreviation: CE, Capsule Endoscopy. Credit: David Hugo Romero

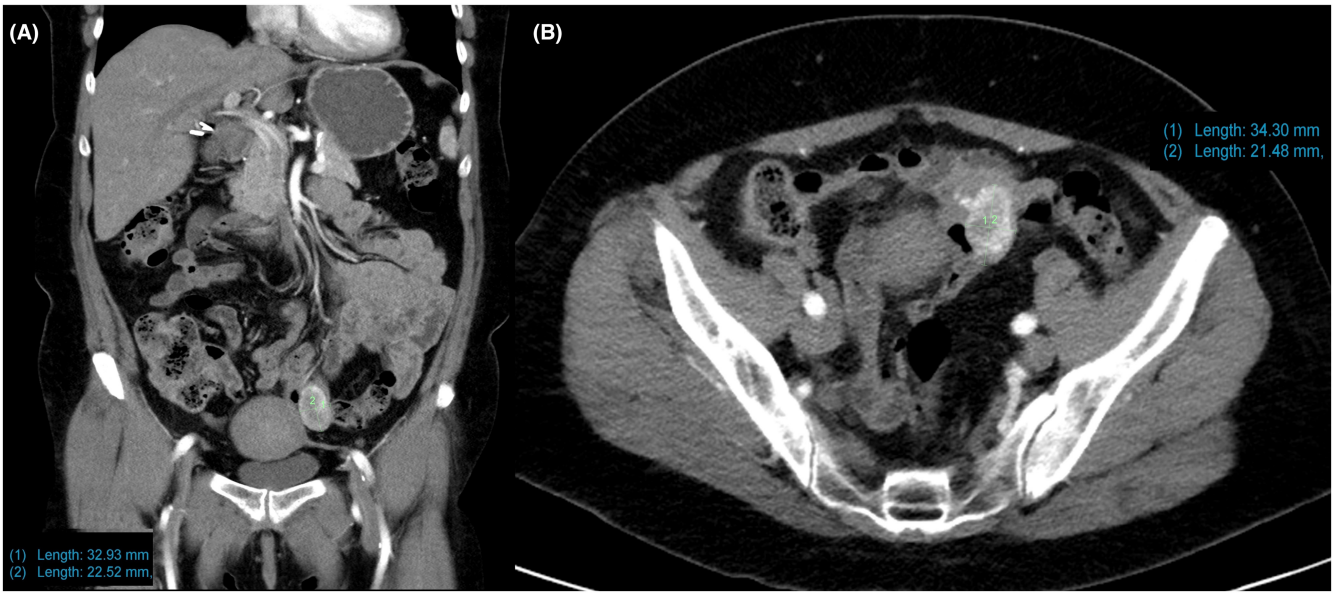

FIGURE 2 (A) Coronal CT showing GIST in ileum. (B) Axial CT showing GIST in ileum. Abbreviations: CT, Computerized Tomography. GIST, Gastrointestinal Stromal Tumors. Credit: David Hugo Romero

CTE may often be used in initial workup.[9] CE is then useful to further characterize identified lesions and is better for diagnosing smaller tumors. One study reported 25 of 42 patients with negative CTE, but a positive diagnosis on CE.[10] In our patient, CTE partially assisted in the diagnosis, but even after CE and follow-up repeat SBE the diagnosis remained unclear. Contrary to that study, but in keeping with existing practice,[7] CTE provided better information regarding the diagnosis, especially in detecting larger GISTs.

The diagnosis of GIST was initially missed in this case. It was subsequently suspected from endoscopic and computerized tomography appearances in our case from repeat investigations once she had recurrent symptoms; however, superficial biopsy remained negative until histological confirmation at small bowel resection. GIST is a rare tumor form, which despite clinical suspicion, can be difficult to diagnose. Although GIST are often single tumors, it is important to note that multiple synchronous lesions can occur. Further monitoring, experience, and consistent reporting of cases of GIST in the future will likely assist with earlier diagnosis. GIST has only become a formal diagnosis in the 1990s.[1]

4 | CONCLUSION

GIST symptoms tend to vary depending on tumor size and location. Most GISTs present with upper GI bleeding and should remain as a differential diagnosis in recurrent IDA. We present this case to highlight the importance of obtaining both radiological and direct imaging to assist in the diagnosis of GISTs and to demonstrate that although GISTs are classically singular, there may also be multiple present, particularly in the situation of recurrent symptoms.

AUTHOR CONTRIBUTIONS

All authors have contributed to the manuscript in terms of concept, writing, and editing. FY, PV and MS were primarily responsible for the concept and design and were part of the treating team. FY and JA were responsible for the draft of the manuscript. All authors were responsible for critical revision of important intellectual content and editing of the manuscript and have given final approval of the article for publication. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this study. Not previously presented.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

DATA AVAILABILITY STATEMENT

None at available

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