

Incidental detection of a bleeding gastrointestinal stromal tumor on Tc-99m red blood cell scintigraphy

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ABSTRACT The role of 99m-technetium labeled red blood cell (RBC) scintigraphy in acute gastro-intestinal bleed is well-established. The authors report a case of a bleeding gastrointestinal stromal tumor (GIST) incidentally discovered on Tc-99m RBC scintigraphy.

Keywords: Bleed, gastrointestinal, stromal tumor, Tc-99m RBC

INTRODUCTION

Gastrointestinal stromal tumors (GIST) represent less than 1% of all primary tumors of the gastrointestinal tract (GIT) and commonly affect patients in the middle and older age groups with equal gender distribution.^[1] The clinical presentation is variable and depends on tumor size and anatomic site. Their sub mucosal location can produce local obstructive symptoms, particularly when arising in the esophagus or the small intestine. Most GISTs usually present with vague upper abdominal pain, fullness or gastrointestinal (GI) bleeding. Sometimes they are found incidentally during barium studies, endoscopy or abdominal scans performed for other reasons.^[2]

CASE REPORT

A 40-year-old man presented with a history of rectal bleeding for two days, with a reported loss of more than 1 liter of fresh blood. Despite intensive fluid management with whole blood and normal saline, his hemoglobin dropped to 4.2 mg/dl and he lapsed into delirium. Since oxygen saturation of blood was low, he was ventilated through endotracheal intubation. Colonoscopy was not attempted because of continuous bleeding. Tc-99m labeled red blood cell (RBC) scintigraphy [Figure 1] showed

accumulation and movement of tracer in the mid-abdomen, corresponding to the region of the jejunal loops. A diagnosis of active gastro-intestinal bleed (likely to be from the jejunum) was made, and the patient taken up for exploratory laparotomy. A polypoidal exophytic mass about 4 cm in size was found in the jejunal wall, 40 cm from the duodeno-jejunal junction. The mass along with the adjoining jejunal loops was resected, followed by end-to-end anastomosis. Gross examination of the specimen [Figure 2a and b] showed a polypoidal mass (measuring 3.2 cm in its largest dimension) arising from the serosal aspect, producing a bulge in the central part of the mucosa, which was ulcerated and could be the possible source of bleeding. Microscopic examination [Figure 2c] showed a well-circumscribed tumor in the submucosa. The mass showed a spindle cell tumor arranged in long interlacing fascicles with characteristic perivascular arrangement of tumor cells. The tumor cells were moderately pleomorphic with mitotic rate of 2/50 high power field (HPF). Focally the tumor was infiltrating mucosa causing ulceration. However, the resection limits were free of tumor. Immunoperoxidase staining [Figure 2d] confirmed a GIST. Following surgery, the patient made a satisfactory recovery and was discharged on the seventh post-operative day.

DISCUSSION

GISTs are derived from Cajal cells or their precursors and most commonly occur after the age of 50 years in the stomach (60%), jejunum and ileum (30%), duodenum (4-5%), rectum (4%), colon and appendix (1-2%), and esophagus (<1%), rarely as apparent primary extra-gastrointestinal tumors in the vicinity of the stomach or intestines.^[3] The role of labeled RBC scintigraphy in acute gastro-intestinal bleeding is well-established^[4] and its

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DOI:
10.4103/0972-3919.115405

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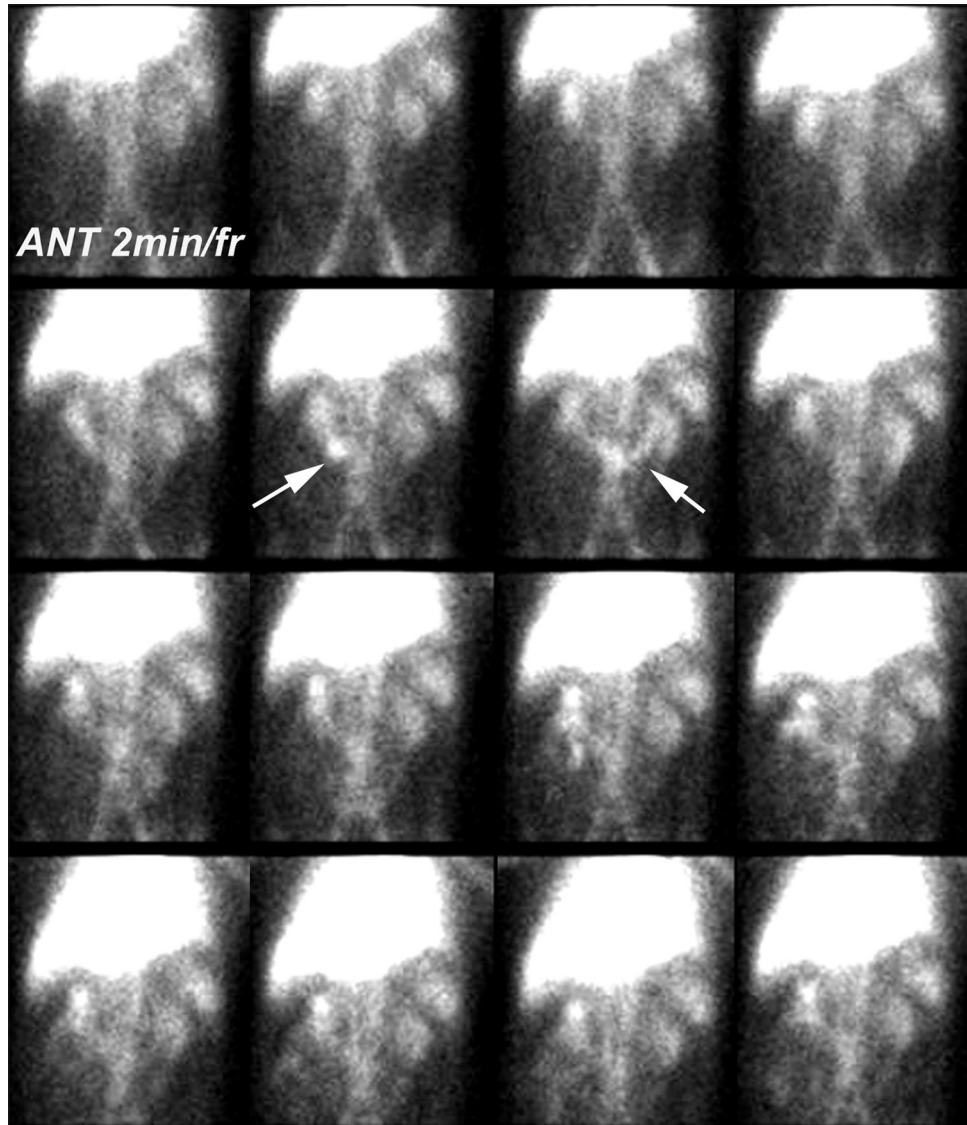


Figure 1: Dynamic scintigraphy using Tc-99m labelled red blood cells showing accumulation and movement of tracer in the mid-abdomen (arrows)

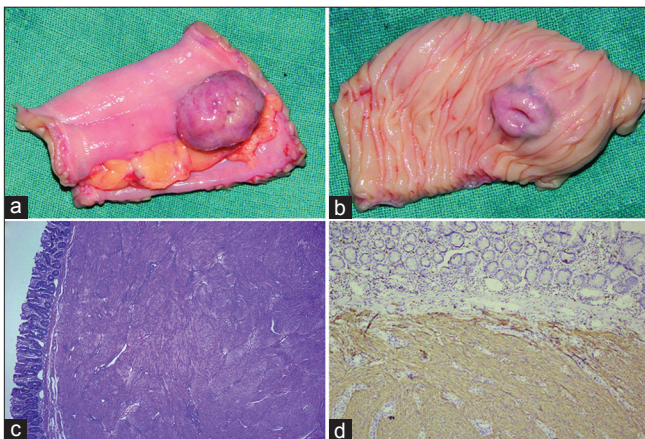


Figure 2: The resected specimen from the jejunum (a and b) a polypoidal mass arising from the serosal aspect, with an ulcerated bulge in the central part of the mucosa (c) Microscopic examination shows a spindle cell tumor arranged in long interlacing fascicles with perivascular arrangement of tumor cells (d) Immunoperoxidase staining showing CD-117 positivity

application in rare cases has also been reported.^[5,6] However, few authors have discussed the role of Tc-99m RBC scintigraphy in discovering a bleeding GIST.^[7,8] Surgery is the primary treatment of choice for patients with localized or potentially resectable GIST lesions and is recommended if bleeding is present.^[9] Patients with persistent or recurrent lower GI bleeding may require surgery. Accurate presurgical localization of the bleeding site improves postoperative morbidity and mortality.^[10] The Scottish Intercollegiate Guidelines Network (SIGN) recommends that nuclear scintigraphy should be considered to assist in localization of bleeding in patients with significant recent lower GI hemorrhage.^[11] Although colonoscopy is the initial diagnostic modality of choice to localize the bleeding site for patients presenting with acute severe hematochezia, it is difficult when patients present with profuse bleeding. In these situations arteriography or labeled RBC scintigraphy is warranted. As a non-invasive investigation that requires no specific patient preparation, the latter is an ideal choice in this

situation. There is also no need of any iodinated contrast that may cause contrast-nephropathy in acutely ill-patients. Since the risk of malignancy was low in our patient, he has been kept under follow-up with no adjuvant treatment.

This report highlights the advantage of this non-invasive investigation in hemodynamically unstable patients by detecting and localizing the site of an active GI bleed.

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How to cite this article: Santhosh S, Bhattacharya A, Gupta V, Singh R, Radotra BD, Mittal BR. Incidental detection of a bleeding gastrointestinal stromal tumor on Tc-99m red blood cell scintigraphy. *Indian J Nucl Med* 2012;27:269-71.

Source of Support: Nil. **Conflict of Interest:** None declared.