Detection of GIS bleeding by red blood cell scintigraphy in a gastrointestinal stromal tumor

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Abstract

Tc-99m labeled Red Blood Cell imaging is a useful technique for the early detection of gastrointestinal bleeding. A patient with gastrointestinal bleeding from an unsuspected gastrointestinal stromal tumor is presented to have negative endoscopic interventions and angiography results. The Tc-99m labeled red blood cell imaging revealed increased activity in the small bowel localization at the delayed images. Surgical exploration was performed and a hemorrhagic mass next to the terminal ileum was resected. This unusual case of bleeding due to stromal tumor in the small bowel was detected by Tc-99m red blood cell imaging.

Key words: Gastrointestinal stromal tumor, bleeding, Tc-99m RBC scan.

Figure 1. A 53 years old man was administered to the emergency room with a complaint of hematochesia. Gastroscopy, colonoscopy, enteroclysis and angiography techniques had been performed respectively however, the source of bleeding could not be determined in these modalities. Eventually, Tc-99m red blood cell (RBC) scintigraphy was performed in which, the localization of the bleeding could not be detected with the dynamic images (A1) obtained within 1 hour after injection and in the second hour static image (A2). (Continued page 146).
(Continues from page 143). However, the fourth hour image, revealed an increased radioactivity in the right side of the iliac bifurcation, at the region of the small intestines (B). Subsequently, static image at fifth hour demonstrated a significantly increased radioactivity when compared with the forth hour image in the same region (C). Finally, the patient underwent surgical exploration based on the scintigraphic findings suggestive of small intestine bleeding.

Angiography is capable of giving high resolutions and vascular anatomy in the definitive localization of the focus of point of the bleedings but it is unsuccessful in showing the areas of bleedings in the intermittent bleedings. Moreover, in comparison with the angiography, scintigraphy is a diagnostic method with high tolerability, does not require preparation of the patient and is able to show bleedings over 0.05 ml/min with high sensitivity (1-2).

Figure 2. Surgical exploration demonstrated a 3x2.7 cm mass localized at tenth cm proximal to terminal ileum (A). This involved part of the intestine was resected (B). Gross examination of the ileal resection revealed an intraluminal tumor measuring 3 cm in greatest diameter. No complications occurred in the post-operative period. Gastrointestinal Stromal Tumors (GIST) are more common in the stomach (60-70%) and the small intestine (25-35%), with a minority of lesions occurring in the colon, rectum, appendix and esophagus. A review of published cases showed that 87% of duodenal GIST’s and 64% of other small bowel GIST’s present with bleeding. On the other hand, gastric, colonic, and rectal tumor locations have been associated with less than 50% incidence of bleeding (3-8).
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Figure 3. Tumor was consisted of spindle cells without showing any mucosal invasion. There was no necrosis and the mitotic index was 4/HPF.

Figure 4. Positive immunoreactivity to CD-117 (c-KIT), CD-34 and smooth muscle actin confirmed the diagnosis of gastrointestinal stromal tumor with low-grade malignancy (9).

References