

A case of soft tissue hematoma detected incidentally on 99m TC-labelled RBC gastrointestinal bleeding SPECT/CT

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ABSTRACT

We report an incidental finding on 99mTc-labelled RBC gastrointestinal bleeding scintigraphy of a 49-year-old female patient referred to our clinic in order to localize the bleeding site. The patient has also been suffering from chronic renal insufficiency and received several interventions of femoral catheterization. During the follow-up, an intense uptake was observed at the right inguino-femoral area which is evaluated as a large soft tissue hematoma and confirmed by SPECT/CT subsequently. On the 24th h delayed image an activity accumulation along the bowel trace on the right side of the abdomen was seen as evidence of lower gastrointestinal bleeding.

Keywords: 99mTc RBC scintigraphy; gastrointestinal bleeding; incidental finding; soft tissue hematoma.

INTRODUCTION

Gastrointestinal bleeding is a medical emergency and is a major cause of morbidity and mortality. Many diagnostic tools have been used for the detection and localization of the source of gastrointestinal bleeding. Scintigraphy is a commonly used method of detecting sites of acute gastrointestinal hemorrhage. However, there have been numerous case reports of non-hemorrhagic abnormalities incidentally found during scintigraphic studies performed with technetium 99m-(Tc-99m) pertechnetate labeled red blood cells (RBCs).^[1,2]

CASE REPORT

A 49 y/o female patient with the recent finding of hematochezia at the rectal examination was referred to the nuclear medicine department for gastrointestinal bleeding scintigraphy. The modified in vivo technique for RBC labeling was performed. After the intravenous injection of 1 mg stannous pyrophosphate and allowed for 20 min for circulation, blood was drawn to label erythrocytes with 20 mCi (740 MBq) Tc99m and reinjected to the patient. A hybrid single-photon

emission computed tomography and transmission computed tomography (SPECT/CT) system (Mediso Anyscan SC-Hungary) was used to confirm for diagnosis. The patient is placed in a supine position and imaged anteriorly with a gamma camera that has a large field view. Dynamic images of Tc99m labeled RBC scintigraphy revealing no evidence of abnormal activity accumulation in the extravascular area (Fig. 1a) and on the delayed image of the 24th h a diffuse activity accumulation was seen that conforms to ascending colon at the right side of the abdomen was noted (Fig. 1b). An incidental increased activity was detected at the right inguino-femoral area on CT (Fig. 2a), SPECT (Fig. 2b), fused SPECT/CT (Fig. 2c) and on the 3rd h of the planar image (Fig. 2d). SPECT/CT image findings were interpreted as deep soft tissue hematoma which was due to several attempts of catheterization because of renal insufficiency.

DISCUSSION

In the determination of the localization of bleedings in the GIS, scintigraphic methods have been used over the last 20 years. 99mTc-labeled RBC is relatively non-invasive, easy to perform, and requires no patient preparation. This method

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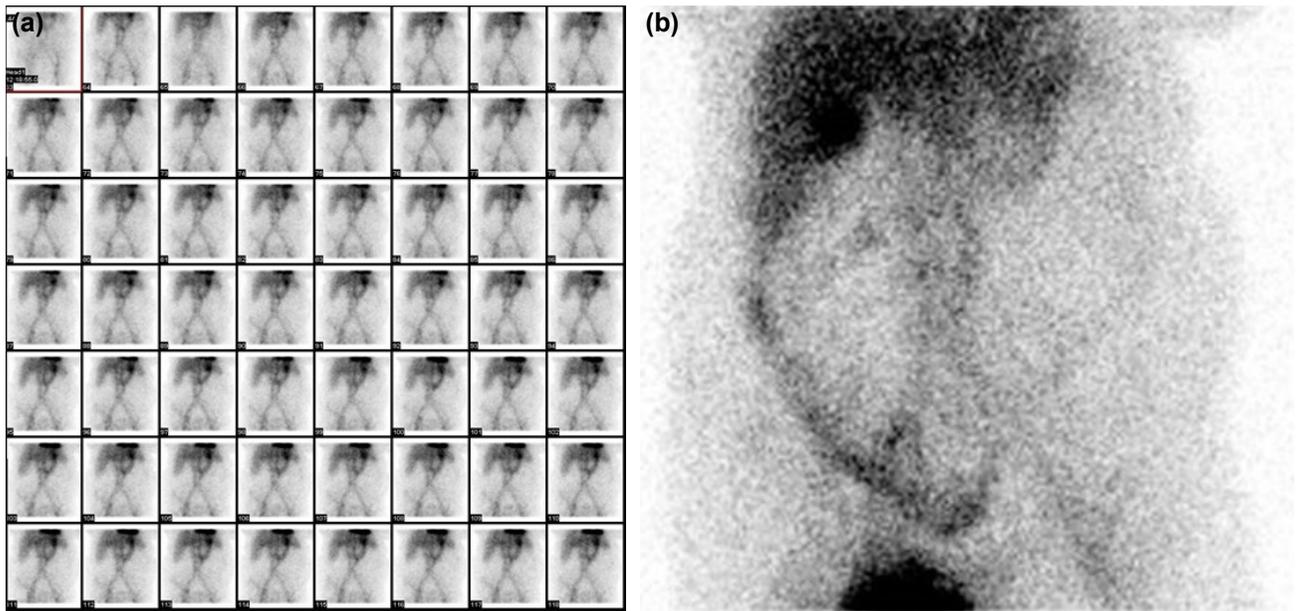


Figure 1. Dynamic images of Tc99m labeled RBC scintigraphy revealing no evidence of abnormal activity accumulation in the extravascular area (a) and on the delayed image of the 24th h a diffuse activity accumulation was seen that conforms to ascending colon at the right side of the abdomen was noted (b). Tc-99m: Technetium 99m, RBC: Red blood cell.

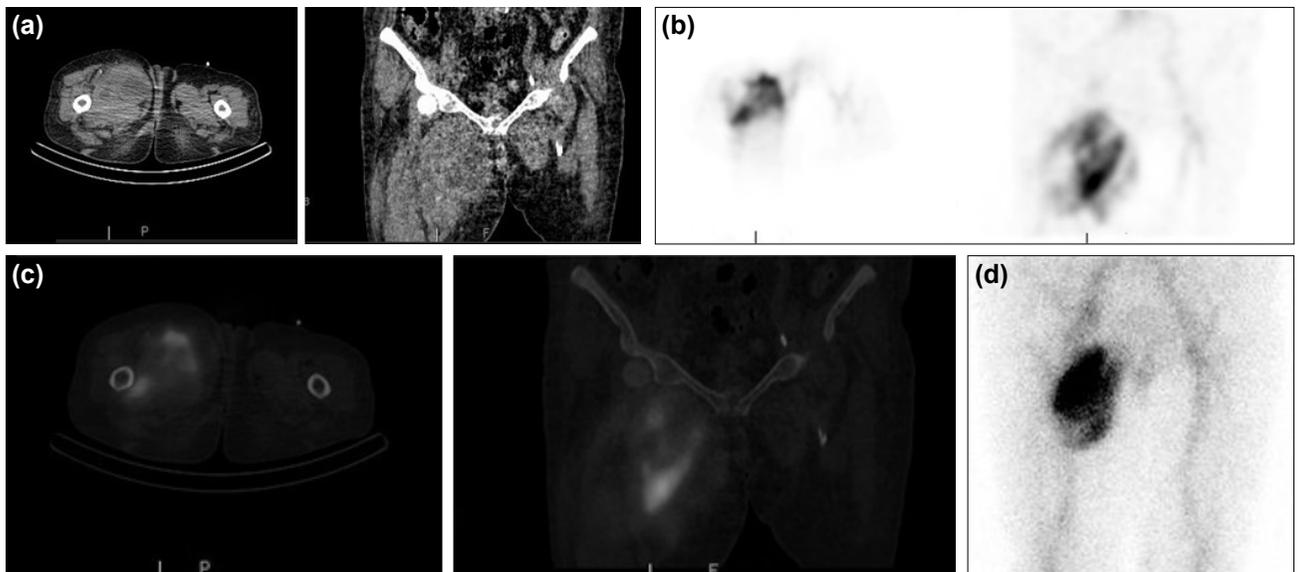


Figure 2. An incidental increased activity was detected in the right inguinofemoral area on CT (a), SPECT (b), fused SPECT/CT (c) and on the 3rd h of the planar image (d). SPECT: Single-photon emission computed tomography; CT: Computed tomography.

is highly sensitive as it can demonstrate active extravasation of blood at a rate as slow as 0.3 mL/min. In addition to the detection of GIS bleeding, numerous case reports have been reported about non-hemorrhagic abnormalities found by chance in scintigraphic studies with Tc-99m labeled RBCs. In the literature, many false-positive findings are reported such as splenosis, pancreatic pseudocysts, non-enteric bleeding/hematoma, horseshoe kidney, transplanted kidney, urinary diversion, abdominal aortic aneurysm, angiodysplasia, post-surgical hyperemia. In addition, inflammatory bowel disease, a diverticular abscess, and hypervascular neoplasms can cause misinterpretation on GI bleeding scintigraphy.^[1-4] This case

shows a rare incidental finding during gastrointestinal bleeding scintigraphy. SPECT/CT images contribute a precise localization of positive enteric or non-enteric findings to the scintigraphic study.^[5-7]

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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Materials: M.O.T., R.E., Ö.V.T; **Data:** M.O.T., R.E., Ö.V.T; **Analysis:** M.O.T., R.E., Ö.V.T; **Literature search:** M.O.T., R.E.; **Writing:** M.O.T., R.E., Ö.V.T; **Critical revision:** M.O.T., R.E.

Conflict of Interest: None declared.

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REFERENCES

1. Zuckier LS, Patel YD. Incidental abnormalities detected during scintigraphy for gastrointestinal bleeding. *Radiographics* 1990;10:467–81. [CrossRef]
2. Zink SI, Ohki SK, Stein B, Zambuto DA, Rosenberg RJ, Choi JJ, et al. Noninvasive evaluation of active lower gastrointestinal bleeding: Comparison between contrast-enhanced MDCT and 99mTc-labelled RBC scintigraphy. *AJR Am J Roentgenol* 2008;191:1107–14. [CrossRef]
3. Chen PN, Brown RK. False positive GI bleed on Tc-99m RBC scintigraphy due to ileal varices. *J Radiol Case Rep* 2012;6:23–8. [CrossRef]
4. Angelides S, Gibson MG, Kurtovic J, Riordan S. Abdominal wall hematoma and colonic tumor detected on labeled red blood cell scintigraphy: Case report. *Ann Nucl Med* 2003;17:399–402. [CrossRef]
5. Tamam M, Mintz A. Pseudoaneurysm of a pancreas allograft artery detected by 99mTc red blood cell SPECT/CT. *Clin Nucl Med* 2015;40:e241–4. [CrossRef]
6. Bentley BS, Tulchinsky M. SPECT/CT helps in localization and guiding management of small bowel gastrointestinal hemorrhage. *Clin Nucl Med* 2014;39:94–6. [CrossRef]
7. Schillaci O, Spanu A, Tagliabue L, Filippi L, Danieli R, Palumbo B, et al. SPECT/CT with a hybrid imaging system in the study of lower gastrointestinal bleeding with technetium-99m red blood cells. *Q J Nucl Med Mol Imaging* 2009;53:281–9.

OLGU SUNUMU - ÖZ

Teknesyum-99m işaretli RBC gastrointestinal kanama SPECT/CT ile rastlantısal yumuşak doku hematomu tespit edilen olgu

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Bu çalışmada, kliniğimize başvuran 49 yaşında bir kadın hastanın kanama yerinin lokalize edilmesi amacıyla 99mTc işaretli RBC gastrointestinal kanama sintigrafisindeki rastlantısal bir bulgu sunuldu. Hastanın ayrıca kronik böbrek yetersizliği olup ve femoral kateterizasyon için çeşitli müdahaleler yapılmıştı. Takip sırasında sağ inguinofemoral bölgede büyük bir yumuşak doku hematomu olarak değerlendirilen ve daha sonra SPECT/CT ile doğrulanan artmış aktivite tutulumu gözlemlendi. Yirmi dördüncü saatte alınan geç görüntüde, karın sağ tarafındaki bağırsak hattı boyunca bir aktivite birikimi, alt gastrointestinal kanamanın kanıtı olarak görüldü.

Anahtar sözcükler: Gastrointestinal kanama; rastlantısal bulgu; teknesyum-99m işaretli RBC sintigrafisi; yumuşak doku hematomu.

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