Localization of Upper GI Bleed on Delayed Imaging with 99mTc tagged RBC angiogram

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Gastrointestinal bleeding is a frequently encountered clinical entity, the incidence of which has remained relatively constant at approximately 70 episodes per 100,000 population per year.1 Although the treatment of gastrointestinal bleeding is often straightforward, the identification and localization of the source of bleeding is more challenging. Due to intermittent nature of bleeding, detection efficiency depends upon the active bleeding during the diagnostic procedure like contrast angiography or nuclear medicine studies. Radionuclide imaging with tagged RBC study has an advantage of sequential imaging up to 24 hours after the injection and hence increases the detection efficiency without extra radiation exposure to the patient, at the same time being cost effective and non-invasive.

We are presenting an interesting case of recurrent upper GI bleeding detected by sequential imaging with tagged RBCs.

Case Report

An 80 years old male presented with recent history of malena and severe anemia. Past history documented a CABG in1996. His initial hemoglobin was 5.4 mg/dl and upper GI endoscopy revealed no bleeding focus and lower GI endoscopy showed clots of altered blood in the ascending colon. He was managed conservatively with transfusions. Next day he again dropped his hemoglobin with passage of malenetic stool. A Tc-99m tagged RBC study was performed which revealed no evidence of active

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intra-abdominal bleeding till 4 hrs after the injection (Figure 1a). Again patient was transfused and managed conservatively. After 2 days he had another episode of hemoglobin drop and malena and a repeat tagged RBC study was performed. The initial study till 2 hours after the tracer injection showed no active bleeder (Figure 1b). However, sequential images at 4 hours after tracer injection revealed abnormal tracer accumulation in the left hypochondrium with progressive increase in tracer intensity and distal and medial traveling (Figure 1c-d). These findings were consistent with bleeding from the duodeno-jujenal region. Immediately patient was transferred to catheterization laboratory. Selective angiogram of duodenal artery revealed extra-vasation of the contrast into the second part of the duodenum (Figure 2a). Embolization of the bleeder was performed with platinum coil and poly-vinyl alcohol (PVA) with complete disappearance of spill (Figure 2b). Patient stayed in hospital for 5 more days with no further episode of malena.

Discussion

Recent advances in red blood cell labeling have made scintigraphy a sensitive test for detecting both acute and intermittent GI bleeding.2 Another important advantage is that bleeding rates as low as 0.1 ml/min can be detected with scintigraphy, as compared with higher rates of 0.5 ml/min detected by angiography.3 Localization of GI bleeding is a real diagnostic dilemma as detection depends

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upon the active bleeding at the time of procedure. Contrast angiogram is the most accurate method with added advantage of therapeutic embolization but it is invasive, expensive and false negative study if bleeding is not active during the angiographic procedure. Radionuclide tagged RBC study is a very sensitive technique and has an advantage of sequential imaging till 24 hours with single tracer injection. Therefore, if the first study is negative, intermittent bleeder can be detected using the sequential imaging with less radiation burden to the patient and cost effective as well.

References

1. Peter D, Dougherty J. Evaluation of the patient with gastrointestinal bleeding: an evidence based

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approach. Emerg Med Clin North Am 1999;17:239-61.
2. Winzelberg CG, McKussick KA, Froelich JW, et al: Detection of gastrointestinal bleeding with 99m Tc-labelled red blood cells. Semin Nucl Med 1982;7:139-46.
3. Alavi A, Ring EJ. Localization of gastrointestinal bleeding: superiority of 99m Tc sulfur colloid compared with angiography. Am J Roentgenol 1981;137:741-8.