Unusual association of diseases/symptoms

Unexpected Tc-99m labelled erythrocyte scintigraphy finding of a patient with suspicion of active bleeding into renal haematoma

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Summary

A 36-year-old male patient with suspicion of active bleeding into renal haematoma lobe was sent to our clinic for Tc-99m labelled erythrocyte scintigraphy. Scintigraphy showed no active bleeding to renal haematoma but coexisting active haemorrhage of stomach which was confirmed as erosive bulbitis with further endoscopy.

BACKGROUND

Tc-99m labelled erythrocyte scintigraphy is one of most important method of showing active bleeding especially in the gastrointestinal system.

CASE PRESENTATION

A 36-year-old male patient, who had a history of chronic renal failure and peritoneal dialysis for 8 years, had left flank pain and his haemoglobin level was 3.48 mg/dl at the emergency room. His peritoneal dialysis was stopped and haemodialysis was started because of an episode of peritonitis.

INVESTIGATIONS

The ultrasonography examination revealed haematoma of left kidney space and control CT showed increasing diameters of haematoma on the following day. Haemoglobin levels of the patient did not improve enough and he was sent to our clinic with suspicion of active bleeding into the renal haematoma cavity. His scintigraphy showed hypoactive renal haematoma and there was no finding of bleeding into the cavity (figure 1). Unexpectedly, there was finding of upper gastrointestinal bleeding by scintigraphy. Endoscopy of the patient showed erosive bulbitis and hiatal hernia.

DIFFERENTIAL DIAGNOSIS

Scintigraphy for haemorrhage is indicated especially for gastrointestinal system bleeding. Gastrointestinal system bleeding has high mortality for especially older patients.¹ ² Tc-99m labelled erythrocyte scintigraphy or Tc-99m sulphur colloid scintigraphy are used in patients with active gastrointestinal system bleeding. Experimental studies showed that 3 or 0.1 ml/min bleeding can be detected by means of scintigraphy whereas 0.5 ml/min can be detected with helical CT or angiography.^{3–5} A recent review of emergency indications of nuclear medicine procedures mentioned that although sensitivity of scintigraphy is high

therapeutic interventions are not possible and scintigraphy applications are limited compared with endoscopy.⁶

Our patient suffered from another bleeding source, the renal haematoma: his haemoglobin levels were dropping and CT volume of haematoma cavity was increasing with time. In order to maintain exact localisation of bleeding origin, the patient was referred to our clinic for scintigraphy. Scintigraphy showed that active bleeding was not present, which was important for patient management. Treatment

Patient insisted on not having an endoscopic procedure before scintigraphy. Although he had melena he did not mention it. After an endoscopic procedure, our patient received medical treatment for erosive gastritis.

OUTCOME AND FOLLOW-UP

Patient recovered after additional medical treatment. A follow-up of 1 year was free of any events.

DISCUSSION

Endoscopy of the gastrointestinal system is the gold standard for diagnostic and therapeutic approach to gastrointestinal bleeding. Since our patient did not accept an endoscopic procedure and did not give anamnesis of melena scintigraphy was preferred. Additionally, Tc-99m labelled erythrocyte scintigraphy or Tc-99m sulphur colloid scintigraphy are preferable methods for imaging source of gastrointestinal bleeding. These techniques are more sensitive in mostly active bleeding. Limitations of scintigraphy are attributed to false localisation rate, given a rating of 22% by Fallah *et al.*⁷ False-positive causes are free pertechnetate accumulation and lack of exact anatomic localisation data. Recent reports mention that the importance of patient selection for test brings higher diagnostic accuracy.⁸ Guidance of single-photon emission CT/CT is also recommended with some recent literature in order to give exact localisation information.⁹

Evaluation of the diagnostic capability of Tc-99m labelled erythrocyte imaging has been applied to show

Figure 1 Posterior projection dynamic images of Tc-99m labelled erythrocyte scintigraphy.

active bleeding into four patients with intra-abdominal haematoma and helped localisation of bleeding.¹⁰ A patient with previous surgical intervention who has a large retroperitoneal haematoma was diagnosed with scintigraphical guidance previously.¹¹ Our patient also had a growing large retroperitoneal haematoma but scintigraphy showed no intracavitary radionuclide accumulation. Probably the waiting period between bleeding and scintigraphy caused organisation of periphery tissues to limit active bleeding. In normal circumstances, endoscopy of gastrointestinal system is the main method for the diagnosis and management of gastrointestinal bleeding; scintigraphy helped with localisation of bleeding site in this special situation. Additional gastrointestinal bleeding was discovered and treated by means of scintigraphy. To our knowledge, this case report is the first to describe this unusual presentation.

Learning points

- ▶ Tc-99m labelled erythrocyte scintigraphy is a helpful method in determining the source of bleeding.
- ▶ Additional unexpected findings can be observed during Tc-99m labelled erythrocyte scintigraphy.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Longstreth GF.** Epidemiology and outcome of patients hospitalized with acute lower gastrointestinal hemorrhage: a population-based study. *Am J Gastroenterol* 1997;**92**:419–24.
2. **Longstreth GF.** Epidemiology of hospitalization for acute upper gastrointestinal hemorrhage: a population-based study. *Am J Gastroenterol* 1995;**90**:206–10.
3. **Thorne DA, Datz FL, Remley K, et al.** Bleeding rates necessary for detecting acute gastrointestinal bleeding with technetium-99m-labeled red blood cells in an experimental model. *J Nucl Med* 1987;**28**:514–20.
4. **Nusbaum M, Baum S.** Radiographic demonstration of unknown sites of gastrointestinal bleeding. *Surg Forum* 1963;**14**:374–5.
5. **Kuhle WG, Sheiman RG.** Detection of active colonic hemorrhage with use of helical CT: findings in a swine model. *Radiology* 2003;**228**:743–52.
6. **Amini B, Patel CB, Lewin MR, et al.** Diagnostic nuclear medicine in the ED. *Am J Emerg Med* 2011;**29**:91–101.
7. **Fallah MA, Prakash C, Edmundowicz S.** Acute gastrointestinal bleeding. *Med Clin North Am* 2000;**84**:1183–208.
8. **Howarth DM.** The role of nuclear medicine in the detection of acute gastrointestinal bleeding. *Semin Nucl Med* 2006;**36**:133–46.
9. **Yama N, Ezoe E, Kimura Y, et al.** Localization of intestinal bleeding using a fusion of Tc-99m-labeled RBC SPECT and X-ray CT. *Clin Nucl Med* 2005;**30**:488–9.
10. **Wilson MW, Fidelman N, Lull RJ, et al.** Evaluation of active bleeding into hematomas by technetium-99m red blood cell scintigraphy before angiography. *Clin Nucl Med* 2002;**27**:763–6.
11. **Swayne LC, Peterson DP, Pohl C.** Scintigraphic localization of the bleeding site of a large retroperitoneal hematoma following renal angioplasty. *Clin Nucl Med* 1994;**19**:490–2.

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