

## Small bowel metastases from primary carcinoma of the lung: Presenting with gastrointestinal hemorrhage

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Upper gastrointestinal system bleeding should be first taken into account when a patient complains of melena. On rare occasions, gastrointestinal bleeding may be due to primary or metastatic tumors of the gastrointestinal system. Here, we present a case in which the localization of bleeding was demonstrated by Tc-99m red blood cell labeled scintigraphy with the final diagnosis of metastases of non-small cell lung cancer to the small bowel.

**Key words:** Tc-99m RBC scintigraphy, small bowel metastases, NSCLC

### INTRODUCTION

SYMPTOMATIC SMALL BOWEL METASTASES from primary carcinoma of the lung have been rarely reported. Such lesions are usually manifested by intestinal obstruction, perforation and rarely bleeding or peritonitis.<sup>1–6</sup> Tc-99m red blood cell (RBC) imaging is a proven technique for the early detection of gastrointestinal bleeding. Tc-99m RBC scintigraphy can theoretically detect enteric bleeding at a rate as low as 0.05–0.1 ml/min.<sup>7,8</sup> The authors report a case of successful detection of a small bowel metastases from primary carcinoma of the lung with bleeding in the small bowel using Tc-99m labeled RBC scintigraphy.

### CASE REPORT

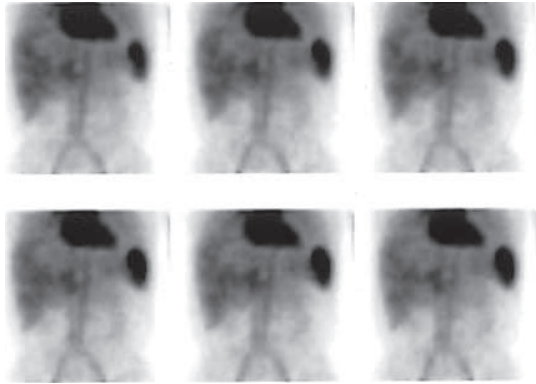
A 54-year-old man complaining of cough and fever for two months, was subjected to chest X-ray. The X-ray showed a mass in the upper side of the left lung. Thorax CT study obtained for the evaluation of the mass revealed a 4 × 7 cm mass at the apical segment of the left lung with paratracheal and aortopulmonary lymphadenopathy with a dimension of 1.5 cm. Afterwards, pathology analysis of

the biopsy specimen obtained during mediastinoscopy demonstrated a non-small cell lung cancer. No metastatic involvement was detected in the mediastinal lymph nodes. Meanwhile, the patient had started to complain of melena. Consecutive analysis of hemoglobin and hematocrit levels showed a significant decrease within hours. Gastroscopy and colonoscopy showed no abnormal findings. Subsequently, Tc-99m labeled RBC was performed to detect possible upper gastrointestinal bleeding. Dynamic images taken in the first hour after the injection of labeled RBC's did not reveal an abnormal activity in the abdominal region (Fig. 1). Bleeding was detected below the iliac bifurcation in the second hour image (Fig. 2a) and also a rim shaped bleeding image was seen in the fourth hour image (Fig. 2b). After 24 hours, increased activity moved to the ascending and transverse colon (Fig. 2c). The localization of the bleeding was interpreted in the region of the small intestine. Based on the scintigraphic findings, the patient underwent open surgery. The surgical exploration demonstrated a 7 cm mass localized at ten cm after the ligament of the Treitz. The affected part of the intestine was resected and reanastomized. Pathological analysis of the resected surgical specimen revealed metastases of the non small cell lung cancer. Immunohistochemical analysis of the neoplastic cells showed strong immunoreactivity to cytokeratin-7 with no positivity to cytokeratin-20, S-100, and TTF-1. These result were consistent with a metastatic carcinoma rather than a primary one (Figs. 3 and 4).

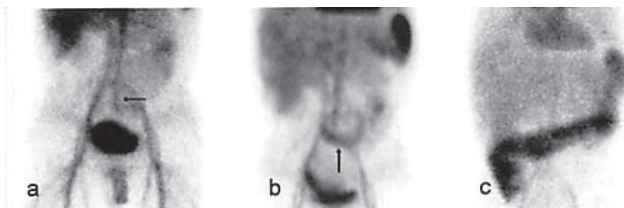
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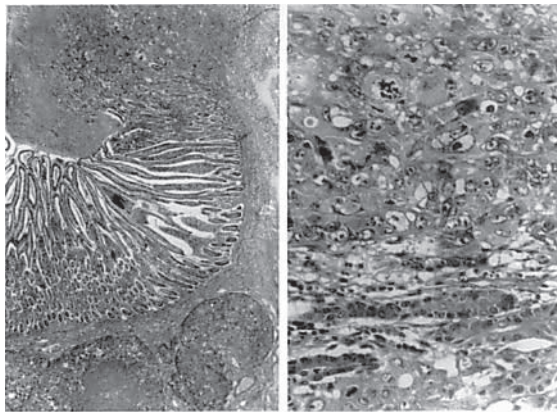
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**Fig. 1** In the dynamic images, no abnormal activity was seen in the abdominal region at the first hour 60 frames, each with duration of 60 seconds.



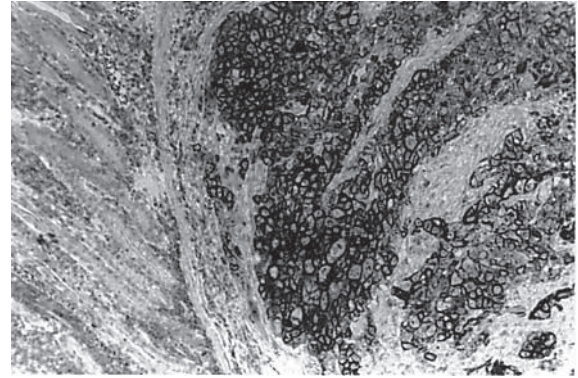
**Fig. 2** a: Bleeding was detected below the iliac bifurcation in the second hour image. b: A rim shaped bleeding image in the fourth hour image. c: Increased activity moved to ascending and transverse colon at 24 hours static image.



**Fig. 3** Histopathologically the tumor consisted of undifferentiated cells with a high mitotic index.

## DISCUSSION

Small bowel metastases from non-small cell lung cancer have been rarely reported. The majority of patients had a history of abdominal pain, anemia, melena, small bowel obstruction or nausea and vomiting.<sup>2</sup> In the literature, cases with primary lung metastases generally administer with perforation or obstruction of the intestine; however



**Fig. 4** Immunohistochemical analysis of the neoplastic cells showed strong immunoreactivity to cytokeratin-7. There was no positivity to cytokeratin-20, S-100, and TTF-1.

our patient manifested bleeding, which is infrequent.

Melena usually denotes bleeding from the esophagus, stomach, or duodenum, although lesions in the jejunum, ileum, and even ascending colon may cause melena provided the gastrointestinal transit time is sufficiently prolonged. In our case, the patient suffered from melena due to small bowel bleeding.

Successful management of patients with acute GI bleeding depends on the accurate localization of the bleeding site. Gastroscopy of the upper GI tract is reported to have an overall accuracy of more than 90%, and colonoscopy is becoming the most frequently used examination method in patients hospitalized with lower GI bleeding. In our case, neither the endoscopic interventions nor the radiologic studies demonstrated the bleeding site or the cause of the bleeding. However, Tc-99m RBC labeled scintigraphy was successful in demonstrating the bleeding sites. Scintigraphy can detect even lower rates of 0.05–0.1 ml/min, and more importantly, when labeled red cell are used, their long intravascular half life allows repeated scanning to be performed over 24 h, without injection of further isotope.<sup>9,10</sup> We showed that small bowel bleeding can be detected in the second hour static images.

Here, we presented a case with symptomatic small bowel metastases from lung cancer which is a rare entity.

## REFERENCES

- Berger A, Cellier C, Daniel C, et al. Small bowel metastases from primary carcinoma of the lung: Clinical findings and outcome. *Am J Gastroenterol* 1999; 94: 1884–1887.
- Mosier DM, Bloch RS, Cunningham PL, et al. Small bowel metastases from primary lung carcinoma: A rarity waiting to be found? *Am Surg* 1992; 58: 677–682.
- McNeill PM, Wagman LD, Neifeld JP. Small bowel metastases from primary carcinoma of the lung. *Cancer* 1987; 15: 1486–1489.
- Akahoshi K, Chijiwa Y, Hirota I, et al. Metastatic large-cell lung carcinoma presenting as gastrointestinal hemorrhage. *Acta Gastroenterol Belg* 1996; 59: 217–219.

5. Hubens G, Eerdeweg WA, Schoofs E, et al. Massive intestinal haemorrhage due to a solitary jejunal metastasis of a primary bronchogenic tumour. *Acta Chir Belg* 1992; 92: 187–190.
6. Gonzalez GD, Bottsford JE, McCulloch JH. Metastatic adenocarcinoma from the lung occurring as occult gastrointestinal bleeding. *South Med J* 1983; 76: 1035–1036.
7. Maurer AH. Gastrointestinal Bleeding. In: *Nuclear Medicine in Clinical Diagnosis and Treatment*, Murray IPJ (ed), 2nd ed., Churchill Livingstone, 1998: 67–74.
8. Suzman MS, Talmor M, Jennis R, et al. Accurate localization and surgical management of active lower gastrointestinal hemorrhage with technetium-labeled erythrocyte scintigraphy. *Ann Surg* 1996; 224: 29–36.
9. Ponzio F, Zhuang H, Liu FM, et al. Tc-99m Sulfur colloid and tagged red blood cell methods are comparable for detecting lower gastrointestinal bleeding in clinical practice. *Clin Nucl Med* 2002; 27: 405–409.
10. Gunderman R, Leef J, Ong K, et al. Scintigraphic screening prior to visceral arteriography in acute lower gastrointestinal bleeding. *J Nucl Med* 1998; 39: 1081–1083.