

## Report of Two Cases of Endobronchial Metastases Secondary to Colorectal Cancer

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**Abstract.** *Two cases of endoluminal/endobronchial metastases (EEM) from a secondary extrathoracic tumour are reported. The patients, eight years after the curative treatment of colorectal adenocarcinoma, were examined exhibiting pulmonary symptoms with radiological findings in the chest and endobronchial lesions as an initial presentation. The use of fiberoptic bronchoscopy of endoluminal/endobronchial lesions may help in diagnosing the origin of metastatic spread in the presence or absence of a primary tumour.*

Endoluminal/endobronchial metastases (EEM) from a secondary, extrathoracic tumour are particularly rare, since only 1% of endobronchial tumours represent a malignancy other than a bronchogenic carcinoma (1-3). By the use of fiberoptic bronchoscopy (FB) a variety of extrathoracic solid tumours have been associated with EEM, the most frequent being breast, colon, renal, ovarian and head and neck carcinomas. Most of the reported cases describe the presence of EEM during the course of the disease in patients already diagnosed with a solid malignancy, while in an autopsy series only 2% of solid tumour cases were found to generate EEM (4).

The cases of two patients presented with pulmonary symptoms, radiological findings in the chest and endobronchial lesions as an initial presentation, eight years after the curative treatment of the primary tumour are reported. Both patients were previously treated for colorectal adenocarcinoma.

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### First Case Report

A 72-year-old man was admitted as an emergency complaining of repeated episodes of haemoptysis over the previous week. A subsequent chest radiograph indicated multiple left, paracardiac lung infiltrations and a solitary nodular lesion in the right lung. A computed tomography (CT) scan of the thorax showed multiple nodules in both lungs with a diameter of 1-4 cm. The largest, at 4cm, was the cause of post-obstructive pneumonitis in the lower left lobe. The laboratory results indicated anaemia (Hb 9.3 g/dl) and an increased  $\gamma$ GT (241 U/L), ALP (333 U/L) and LDH (239 U/L). His complete history revealed that over the last three years he had had several episodes of rectal blood loss, with the stools occasionally being mixed with blood.

Using fiberoptic bronchoscopy, the right bronchial tree was found to be without pathological findings, however, in the lower left bronchial lobe, a polypoid lesion covered with necrotic tissue was discovered which was causing tubular obstruction (Figure 1). Biopsies were taken from this lesion, along with material from the intrabronchial washing and brushing. The biopsy of the lesion demonstrated mucosal invasion from neoplastic cells of adenomatous origin, with necrotic foci. From the subsequent immunohistochemical analysis, the malignant cells tested positive to CEA (carcinoembryonic antigen), CK20 (cytokeratine 20) and LMWCK (low molecular weight cytokeratine) (Figure 2a and 2b). These findings, along with the morphology of the cells, were indicative of metastatic invasion from a primary colon tumour. Furthermore, cytological examination of the material taken during washing and brushing exhibited metastatic adenomatous malignant cells of undetermined origin. Subsequently, the patient underwent a colonoscopy that revealed a polypoid bleeding mass in the sigmoid, 25 cm from the rectum, along with four additional polyps in the upper colon (Figure 3). The biopsy examination of the bleeding mass demonstrated a colorectal adenocarcinoma histologically identical to the intrabronchial tumour

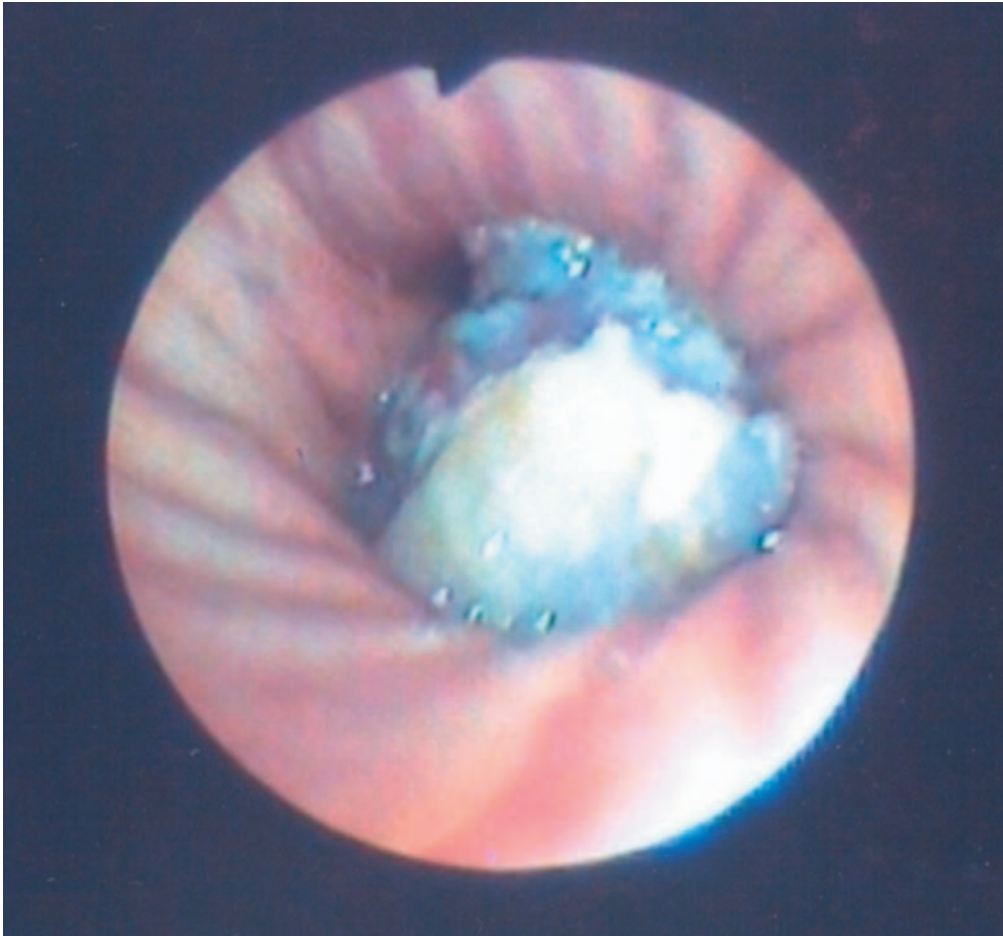


Figure 1. *Bronchoscopic image of metastatic necrotic mass obstructing the left lower bronchus.*

previously documented, while the biopsies of the other lesions were negative for malignancy. The patient was diagnosed with metastatic adenocarcinoma of the colon, stage D, according to Duke's staging system, and was treated accordingly.

### **Second Case Report**

A 58-year-old female, complaining of diffuse, right-sided chest pain and a temperature of up to 37.4°C, was referred to our department by her family doctor. A chest X-ray revealed bilateral nodules in the lungs. Eight years previously, the patient had an excision of a sigmoid tumour stage A, as per Duke's staging system. Due to the early stage of her disease, she had not received any adjuvant treatment.

A CT scan of the thorax confirmed the multiple nodules in both lungs as well as the presence of enlarged mediastinum lymph nodes on the right side of the trachea along with a small pericardial and right pleural effusion. All

laboratory blood tests were within the normal range and additional imaging studies revealed no abnormal findings. Endoscopic examination had been performed one month before without any abnormal findings so it was not repeated. Bone scanning with a  $\gamma$ -camera presented a single bone metastasis in the thoracic area of the spinal column (T12).

The patient underwent a fiberoptic bronchoscopy, which revealed an easily bleeding polypoid lesion in the lower third of the trachea. Consequent biopsy, washing and brushing materials were taken for analysis. The cytologic results from the washing and brushing material and multiple post-bronchoscopy sputum samples were indicative of metastatic adenocarcinoma of the colon. The histological examination of the endotracheal mass, as well as the immunohistochemistry [LMWCK (+), CK 20 (+), thyroid transcription factor-1 (-)] of the biopsy specimens confirmed that it was a moderately-differentiated mucoproduative metastatic adenocarcinoma of the colon. The colorectal tumour excised eight years previously

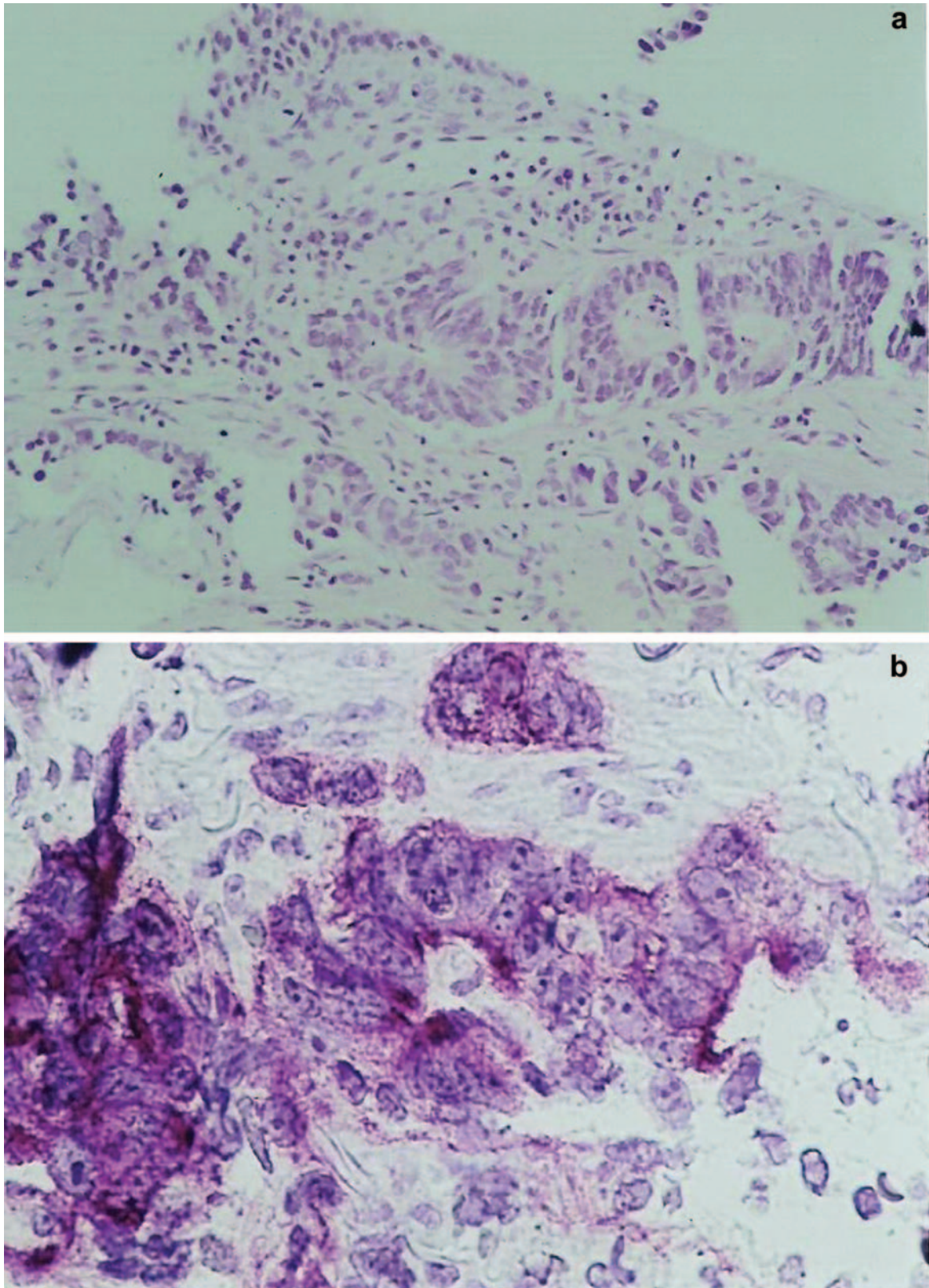


Figure 2. Bronchial mucosa infiltrated from intestinal adenocarcinoma: (a) Hematoxylin and eosin staining x63; (b) CK20 positive immunostaining of the malignant cell x400.

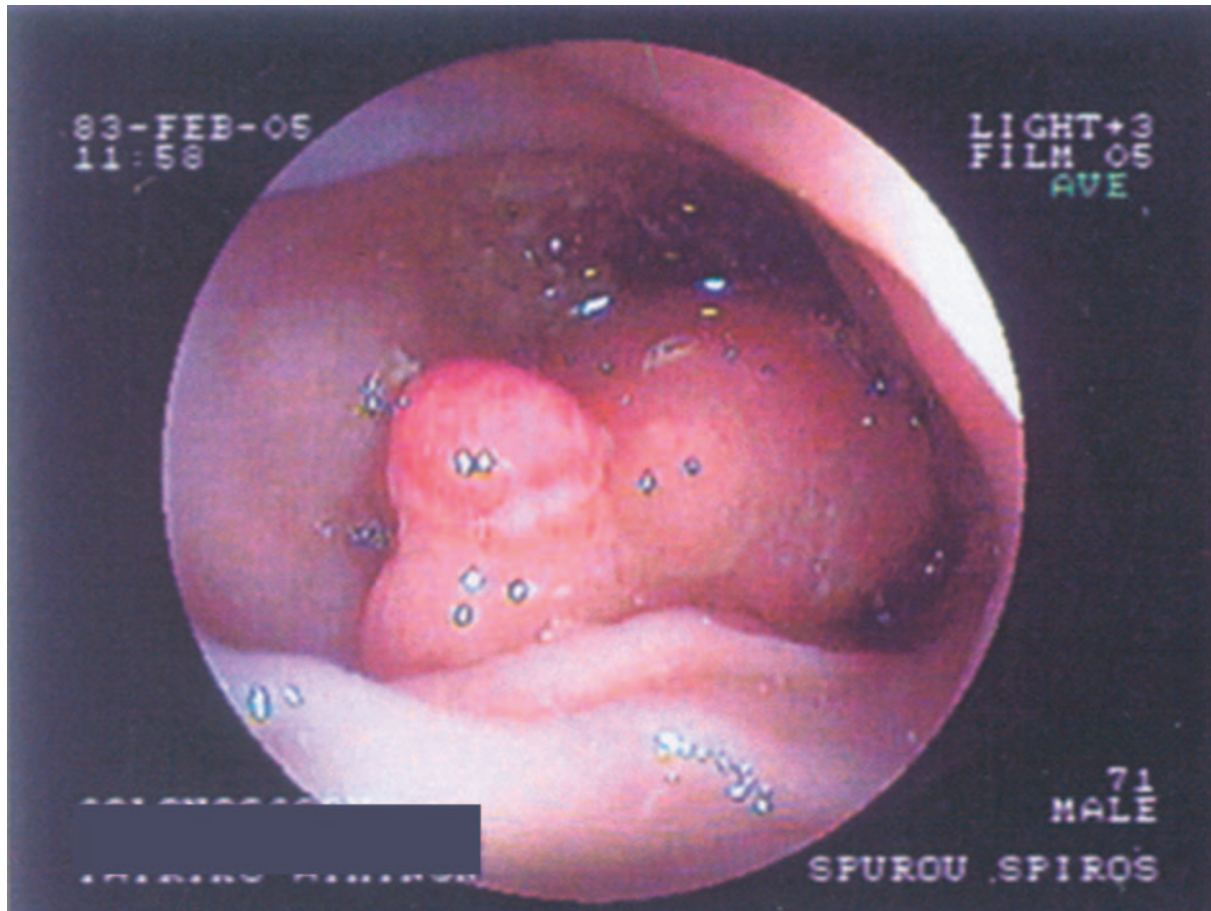


Figure 3. Endoscopic image from colonoscopy that revealed a polypoid bleeding mass in the sigmoid.

confirmed that the intrabronchial tumour was histologically identical to the initially documented colorectal adenocarcinoma.

### Conclusion

The increasing use of fiberoptic bronchoscopy in the evaluation of patients with abnormal chest X-rays, with or without a medical history of malignancy, might help reveal endoluminal/endobronchial metastatic lesions more often than originally thought. There is no clear predilection of EEM but the trachea, the main bronchus and lobar bronchus are the most common locations (4, 5). However, these direct metastases to the bronchus have been correlated with lymphangitis carcinomatosa (4). Chest physicians should always bear this possibility in mind, even when there is no previous history of an extrathoracic malignancy, or even when a long period has elapsed since treatment of the primary tumour.

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