

## **CASE FOR DIAGNOSIS**

# **Haemoptysis and wheezing in a young woman**

T. Sutedja\*, A. v.d. Heijden†, J. van Mourik\*\*, P.E. Postmus\*

### **Case report**

A 25 year old woman was referred for the evaluation of haemoptysis. For one year she had been complaining of cough and recurrent blood streaked sputum, without dyspnoea, fever, chills or weight loss. She was not asthmatic, her childhood was free of pulmonary complaints, and there was no family history of pulmonary disease. Before this episode, she had been healthy. She had never smoked and had not been abroad recently. She worked as a laboratory technician in the Department of Cardiology.

On physical examination, she appeared well and was not dyspnoeic. Slight inspiratory wheezing was heard over the right parasternal region. Further physical examination was unremarkable.

The erythrocyte sedimentation rate (ESR) was normal, white blood cell count and differential counts were normal, and there was no eosinophilia. Serum electrolytes, liver and renal functions were normal. Pulmonary function test showed vital capacity (VC) 3.2 l, forced expiratory volume in one second (FEV<sub>1</sub>) 1.8 l, forced inspiratory volume in one second (FIV<sub>1</sub>) 2.5 l. A well-penetrated posteroanterior (PA) and lateral chest roentgenogram were made (figs 1 and 2).

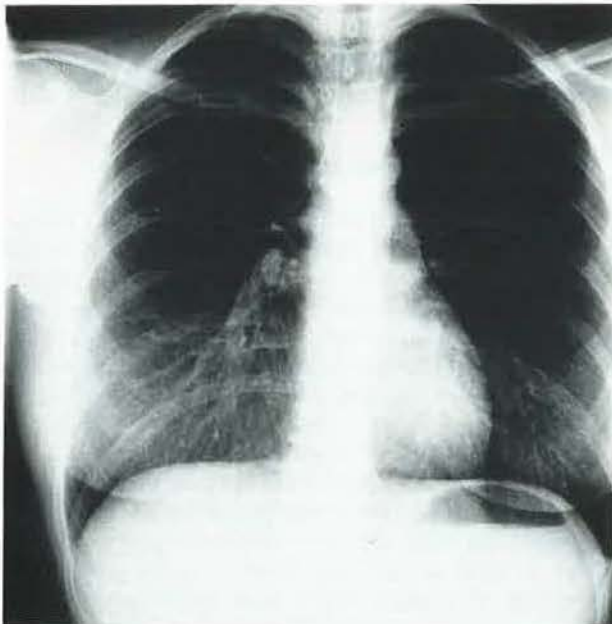


Fig. 1. - Posteroanterior (PA) roentgenogram.



Fig. 2. - Lateral roentgenogram.

\*Pulmonary Department and, \*\*Surgical Department, Free University Hospital, Amsterdam, The Netherlands. †Spaarne Ziekenhuis, Heemstede, The Netherlands. Correspondence: P.E. Postmus, Dept of Pulmonology, Free University Hospital, De Boelelaan 1117, 1081 HV Amsterdam, The Netherlands

**INTERPRET THESE ROENTGENOGRAMS  
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FOR DIAGNOSIS**

### Interpretation of the chest roentgenograms (figs 1 and 2)

On the PA roentgenograms, a round mass is visible just beside the thoracic spine in the lumen of the right main bronchus. On the lateral roentgenogram the mass is visible in the orifice of the right upper lobe (RUL) bronchus.

### Further investigation

Bronchoscopy confirmed the roentgenological findings. A polyp-like structure was found, connected by its base to the dorsal wall of the right main stem (RMS) bronchus just proximal to the orifice of the RUL bronchus. A biopsy revealed the diagnosis. The obstruction of the RMS bronchus was almost complete. Computed tomographic (CT) scan also showed some thickening of the dorsal wall of the RMS bronchus (fig. 3).



Fig. 3. - Computed tomographic (CT) scan showing polyp-like mass in right main bronchus at the level of the main carina.

### Diagnosis

#### Bronchial carcinoid of the right main bronchus

#### Treatment and clinical course

After deobstruction by the neodymium yttrium aluminium garnet (Nd-YAG) laser, the dorsal wall of the RMS bronchus remained elevated, and biopsy confirmed carcinoid tissue extending into the anterior segment of the RUL, which was more extensive than visualized on CT scan. For a radical resection, a sleeve pneumonectomy with resection of the main carina would probably have been required, and even then cure was uncertain. Treatment with photodynamic therapy (PDT) was given, and resulted in improvement and reopening of the RUL bronchus (fig. 4).

During follow-up bronchoscopies with biopsies, no recurrent tumour was found. However, scar tissue at the entrance of the main stem bronchus resulted in progressive narrowing. During dilatation, a perforation into the mediastinum was made. Thoracotomy was necessary,

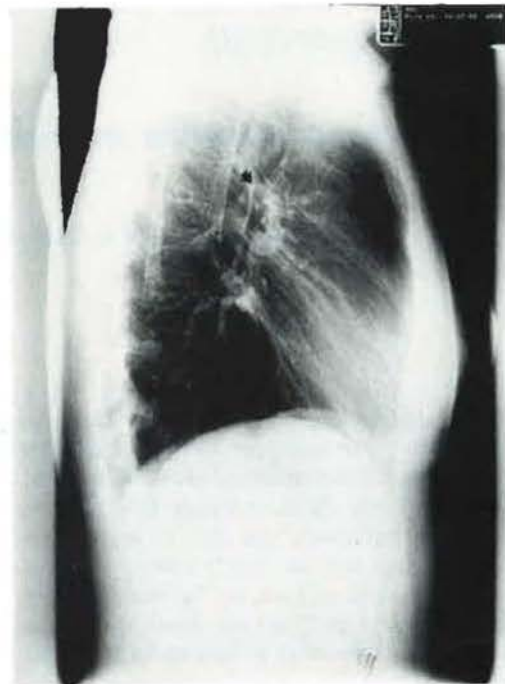


Fig. 4. - Lateral roentgenogram with normal opening of right upper lobe (RUL) (arrow).

and sleeve lobectomy of the RUL was successfully performed. In the resected tissue, no signs of residual carcinoid were found. Currently, the patient is doing well.

### Discussion and pathogenesis

Bronchial carcinoids are neoplasms of low grade malignancy, and in 80% of cases the tumour arises from the major bronchi [1]. This patient had a classical presentation of a bronchial carcinoid with regard to age, and tumour localization on roentgenograms and during bronchoscopy [1]. The lateral roentgenogram is characteristic for a centrally-located endobronchial tumour (figs 1 and 2). The orifices of the upper lobes are visible in about 50% of cases on a lateral roentgenogram [2].

In patients with superficially located non-small cell lung cancer, long-term complete responses have been reported after PDT [3]. In a number of cases, this was given to spare normal lung tissue as much as possible, especially in patients with a poor pulmonary function due to underlying lung disease or previous resections [4]. The effect of PDT is mainly vascular [5]. Although no experience exists with regard to PDT in carcinoids, this tumour is known to be highly vascularized and seems, therefore, a good candidate for PDT [6]. A complete response has been achieved with PDT in this particular patient; unfortunately, the progressive narrowing of the right main stem bronchus ultimately resulted in a thoracotomy.

For patients with central mainly endobronchial carcinoid, endoscopic treatment should be considered as first line treatment.

**Keywords:** Endobronchial carcinoid, photodynamic therapy

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