

## Delayed Diagnosis

# Unusual cause of orthopnoea: primary tracheal tumour mimicking left ventricular failure

Tarek F.T. Antonios, Donald R.J. Singer, F.J.C. Millard<sup>1</sup>, Allan G. Wilson<sup>2</sup> and Graham A. MacGregor

*Blood Pressure Unit, <sup>1</sup>Chest Clinic and <sup>2</sup>Department of Radiology, St George's Hospital and Medical School, Cranmer Terrace, London SW17 0RE, UK*

**Summary:** An 84 year old woman who was a heavy smoker presented with clinical features suggestive of acute exacerbation of chronic obstructive lung disease complicated by left ventricular failure. She responded poorly to treatment and then the finding of stridor, only when she was in the supine position, led to the diagnosis of a primary tracheal tumour, a rare but important cause of unexplained shortness of breath.

### Introduction

Orthopnoea and paroxysmal nocturnal dyspnoea are classical features of severe heart failure and are recognized to occur in a few patients with chronic lung disease. We report here an unusual cause of these symptoms.

### Case report

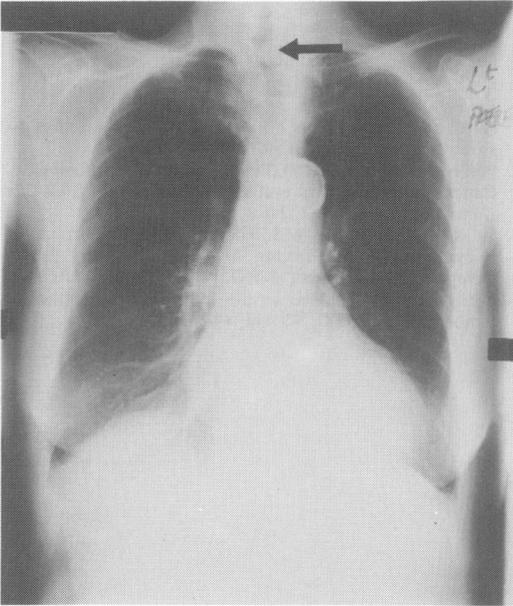
An 84 year old woman presented with a 6-week history of increasing shortness of breath, orthopnoea, wheeze and non-productive cough. She was a heavy smoker (20 cigarettes/day for 60 years) and was taking glibenclamide and metformin for non-insulin-dependent diabetes mellitus. On examination, she was afebrile, had mild central cyanosis and no clubbing. There were bilateral inspiratory and expiratory rhonchi but no features of heart failure. A chest radiograph showed lungs of normal volume and an enlarged heart, but no overt signs of heart failure. Peak expiratory flow rate was 110 l/minute. At this stage the diagnosis was made of chronic obstructive lung disease exacerbated by chest infection. Treatment was started with bronchodilators, antibiotics and inhaled steroids with some improvement; her peak flow rising from 110 to 155 l/minute. However, 2 days later, she was still dyspnoeic, and was now complaining of marked orthopnoea and paroxysmal nocturnal dyspnoea, both of which were relieved by sitting upright. Diuretics were added to her treatment but despite

this her symptoms persisted. She was therefore reassessed and during examination (with the patient supine), inspiratory stridor, which disappeared when she sat up, was noted. In view of this, a lateral soft-tissue X-ray of the neck and thoracic inlet was performed, and showed a localized narrowing of the trachea suggestive of an oesophageal tumour. A barium swallow as well as indirect laryngoscopy showed no abnormality. The chest radiograph was then reviewed and showed an eccentric filling defect in the trachea, 2–3 cm above the suprasternal notch, measuring 3.0 × 1.5 cm with a residual coronal lumen of 3–4 mm (Figure 1). A computed tomographic (CT) scan of the neck and trachea showed a sessile soft tissue mass (17 × 15 × 20 mm) arising from the left anterolateral aspect of the trachea 10 mm below the cricoid cartilage. The tracheal lumen was reduced to a crescentic slit, 20 mm long and 4 mm wide. There was no evidence of invasion outside the tracheal wall (Figure 2). Biopsy of the mass showed a squamous cell carcinoma. Following emergency neodymium yttrium aluminium garnet (YAG) laser therapy of the lesion, her symptoms resolved completely. The patient was reluctant to proceed to surgery and also, in view of her age, it was agreed to follow her up with the possibility of further laser therapy sessions should this be required.

### Discussion

This case illustrates the importance of considering upper airway obstruction in patients who present

with features that mimic left ventricular failure with orthopnoea and paroxysmal nocturnal dyspnoea, and do not improve with conventional treatment.



**Figure 1** Chest radiograph showing a sessile filling defect in the tracheal air column (arrow).

Primary malignant tumours of the trachea are rare.<sup>1</sup> Diagnosis is often delayed for months or years because the presenting symptoms are usually misinterpreted as those of asthma or chronic bronchitis.<sup>2-6</sup> In one of the largest published series of patients with tracheal tumours,<sup>7</sup> dyspnoea (44%), haemoptysis (28%), cough (22%) and wheezing (16%) were common complaints. Infrequently dyspnoea, as in our patient, who had a malignant primary tracheal tumour, has been reported to be paroxysmal or to occur at night when the patient is recumbent, particularly with pedunculated tumours, which can be mistaken for nocturnal asthma.<sup>7,8</sup> The anterior site of the tracheal lesion in our patient suggests one likely explanation for an increase in symptoms when a patient is supine. Adequate radiological evaluation

**Causes of orthopnoea/paroxysmal nocturnal dyspnoea**

**Cardiac**

- Left ventricular failure
- Severe mitral stenosis

**Respiratory**

- Bronchial asthma
- Chronic obstructive lung disease
- Tracheal tumours

**Abdominal**

- Bilateral diaphragmatic paralysis
- Massive ascites or organomegaly
- Multiple pregnancies/polyhydramnios



**Figure 2** CT scan of the thoracic inlet showing a large, left anterolateral mass in the trachea (arrow).

of the tracheal airway using a high kilovoltage (140–150 kV) chest radiograph is mandatory in such patients, as these radiographs demonstrate clearly the tracheal lumen.<sup>7</sup> CT scan is the best method of confirming the diagnosis. Endoscopic laser resection provides an excellent method of

relieving respiratory distress in patients with tracheal tumours. It produces an immediate and dramatic response, which provides time in which to assess the disease carefully and decide on the most appropriate longer term management.<sup>9</sup>

#### References

1. Gelder, C.M. & Hetzel, M.R. Primary tracheal tumours: a national survey. *Thorax* 1993, **48**: 688–692.
2. Issacs, D., Smyth, J.T., Bradbeer, T.L. & Pagliero, K.M. Intrathoracic tracheal tumour presenting as asthma. *Br Med J* 1977, **iii**: 1332.
3. Parrish, R.W., Banks, J. & Fennerty, A.G. Tracheal obstruction presenting as asthma. *Postgrad Med J* 1983, **59**: 775–776.
4. Aleva, R.M., Wouters, B., Kraan, J. & Postmus, P.E. Late onset asthma? *Eur Respir J* 1991, **4**: 239–241.
5. Bates, C.A. & Rahamin, J. Tracheal lipoma. *Thorax* 1989, **44**: 980.
6. Harrison, B.D.W. Upper airway obstruction – A report on sixteen patients. *Q J Med* 1976, **45**: 625–645.
7. Weber, A.L. & Grillo, M.D. Tracheal tumours. A radiological, clinical and pathological evaluation of 84 cases. *Radiol Clin North Am* 1978, **16**: 227–246.
8. Houston, H.E., Payne, W.S., Harrison, E.G. & Olsen, A.M. Primary cancers of the trachea. *Arch Surg* 1969, **99**: 132–140.
9. George, P.J.M., Garrett, C.P.O. & Hetzel, M.R. Role of neodymium YAG laser in the management of tracheal tumours. *Thorax* 1987, **42**: 440–444.