Left recurrent laryngeal nerve palsy secondary to an aortic aneurysm (Ortner's syndrome)

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Introduction

In patients presenting with persistent hoarseness due to left recurrent laryngeal nerve (LRLN) palsy and an abnormal left hilum on chest radiographs, a major cause is bronchogenic carcinoma. We describe two cases presenting with such a combination of symptoms and signs in whom a diagnosis of bronchogenic carcinoma was suspected. In each case, the LRLN palsy was in fact due to direct compression of the nerve by an aortic aneurysm.

Br J Cardiol 2004;**11**:69–70

Case reports

Case one

A 75-year-old man, known to suffer from severe chronic obstructive pulmonary disease, presented to the ear, nose and throat (ENT) department with a three-week history of hoarseness. Fibreoptic laryngoscopy showed paralysis of the left vocal cord, and the chest radiograph revealed a left hilar mass (figure 1). A provisional diagnosis of bronchogenic carcinoma was made and the patient was referred to the respiratory department.

At bronchoscopy, an extrinsic compression of the left main bronchus was found. A computerised tomography (CT) scan of the thorax showed a clearly defined rounded mass beneath the arch of the aorta and just above the left main pulmonary artery (figure 2). A tiny fleck of contrast density was visible within it, suggesting that the mass was most likely to be a thrombosed aortic aneurysm. Tests for syphilis were negative. The aneurysm increased in size slowly over the subsequent months but the patient died of respiratory failure 15 months later.

Case two

A frail 83-year-old woman presented with a one-year history of non-productive cough, intermittent sneezing and mild wheeziness. She had been a non-smoker all her life but she suffered from hypertension, ischaemic heart disease and rheumatoid arthritis.

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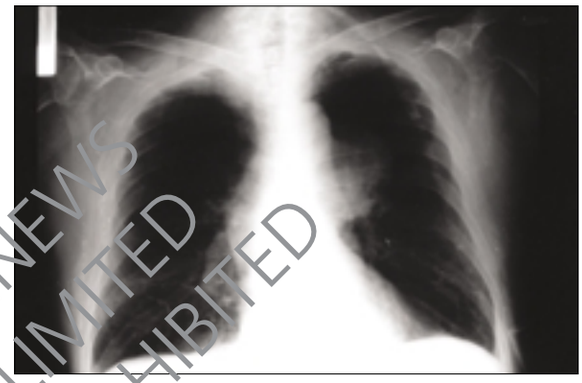
Figure 1. Chest radiograph, showing the left hilar mass



Clinical examination revealed no significant abnormalities apart from rheumatoid changes to the hands. The chest radiograph was normal. A diagnosis of cough-variant asthma was made. She was prescribed a budesonide inhaler and a fluticasone nasal spray. By six weeks, her cough had improved, but she had developed a hoarse voice and had discontinued the budesonide. There was no evidence of *Candida* infection on examination.

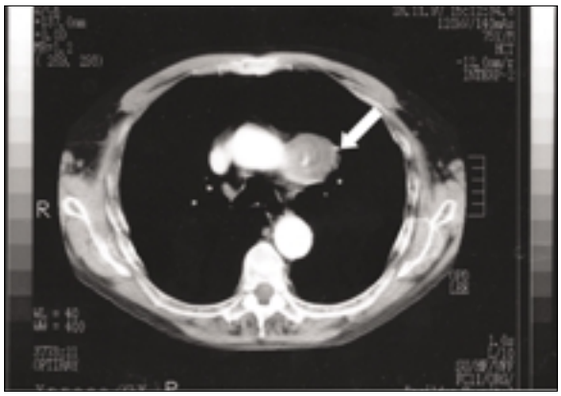
Fibreoptic laryngoscopy revealed left vocal cord paralysis. A further chest radiograph showed an opacity adjacent to the aortic arch. A diagnosis of bronchogenic carcinoma was suspected, despite the lack of smoking history. Fibreoptic bronchoscopy revealed no endobronchial lesion but marked pulsation was noted on the lateral wall of the left upper lobe. Bronchial washings revealed no evidence of malignancy. A CT scan of the thorax confirmed the presence of a smooth-walled opacity in the aorto-pulmonary window, typical of an aortic aneurysm. No other abnormalities were found. Tests for syphilis were negative.

The patient was judged to be unfit for any surgical intervention and was treated conservatively. She remained well for 22 months and died of an unrelated medical illness.

Discussion

We have described two patients who had LRLN palsy and enlarged hila on chest radiographs. In each case, a diagnosis of bronchogenic carcinoma was suspected but a non-malignant cause was found eventually. The LRLN leaves the left vagus nerve at the anterolateral border of the aortic arch in a space between the main pulmonary artery and the aortic arch (aorto-pulmonary window), just behind

Figure 2. A CT scan of the thorax, showing the thrombosed aortic aneurysm



Key messages

- A common cause of left recurrent laryngeal nerve (LRLN) palsy associated with an enlarged and abnormal hilum on a chest radiograph is bronchogenic carcinoma
- Persistent hoarseness due to LRLN palsy can also occur as a result of many other intra-thoracic causes, including an aortic aneurysm
- It is vitally important to differentiate between a malignant and non-malignant cause of LRLN palsy
- A computerised tomography (CT) scan of the thorax provides an excellent diagnostic tool towards establishing the underlying aetiology of the LRLN palsy, so avoiding further unnecessary investigations and inappropriate interventions

the ligamentum arteriosum. Any structure that compresses the nerve within the aorto-pulmonary window can lead to paralysis of the left vocal cord.

There are many intra-thoracic causes of LRLN palsy other than direct invasion from a primary bronchogenic carcinoma. These include oesophageal tumours, malignant mediastinal nodes and trauma from cardiac or oesophageal surgery. In addition, LRLN palsy can have a cardiovascular cause, namely cardiovocal or Ortner's syndrome. This syndrome was originally described by Ortner in 1897 in a patient with mitral stenosis.[1] Since then it has been reported in combination with a variety of other conditions such as patent ductus arteriosus, primary pulmonary hypertension, atrial septal defect, atherosclerotic heart disease, aortic aneurysm (atherosclerotic, syphilitic or mycotic), pulmonary embolism and left ventricular failure secondary to hypertensive heart disease.[2] Most cases reported in the literature have been due to compression of the nerve between a dilated pulmonary artery, often due to mitral stenosis, and the aorta.[3,4]

Correction of the underlying cause can lead to reversal of the hoarseness, although experience with this remains limited.[5,6] Unfortunately, neither of our patients was sufficiently fit to undergo aneurysm repair. There was also the option of voice improvement by Teflon injection of the paralysed vocal cord but both patients were not unduly troubled by their hoarseness and declined such intervention.

In the management of a patient with LRLN palsy and an abnormal hilum on the chest radiograph, it is vitally important to differentiate between a neoplastic cause and a cardiovascular cause such as an aortic aneurysm so that unnecessary and inappropriate interventions can be avoided. A CT scan provides an excellent tool to aid in establishing a diagnosis. In the cases reported, the timing and the degree of contrast enhancement of the masses paralleled that of the adjacent aorta, providing strong evidence that the masses were indeed aneurysms. Also, continuity between the lumen of the aneurysm and the aorta was demonstrated in these cases. Ortner's syndrome has in the past been largely due to mitral stenosis, but with the decline in the incidence of rheumatic heart disease and with increasing longevity, atherosclerotic aortic aneurysm will need to be considered in the differential diagnosis of such a syndrome.

Source of funding: none.

Conflict of interest: none.

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