

## Diagnosis and treatment of a bronchogenic cyst using transbronchial needle aspiration

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Mediastinal bronchogenic cysts present problems in diagnosis and management.<sup>1,2</sup> A smooth, rounded appearance of the radiological shadow and proximity to central airways suggests the diagnosis. Nevertheless, recent experience with computed tomography indicates that nearly half of the lesions studied appear to be solid in density, and even those that are fluid filled may sometimes be confused with a malignant tumour undergoing central necrosis.<sup>3</sup> Compression of vital structures by mediastinal bronchogenic cysts may cause symptoms, especially in young patients. Infection and haemoptysis, though less frequent in mediastinal than in parenchymal bronchogenic cysts, also occur occasionally. Surgical

exploration of these lesions has been advocated because of uncertainty both in diagnosis and in management.<sup>4</sup>

Recently, a bronchoscopic transbronchial needle aspiration technique has been developed for the diagnosis and staging of bronchogenic carcinoma.<sup>5</sup> This report describes a new application of the technique for the diagnosis and management of a mediastinal bronchogenic cyst.

### Case report

A symptomless 26 year old man presented to the Johns Hopkins Hospital with a subcarinal mass detected on a rou-

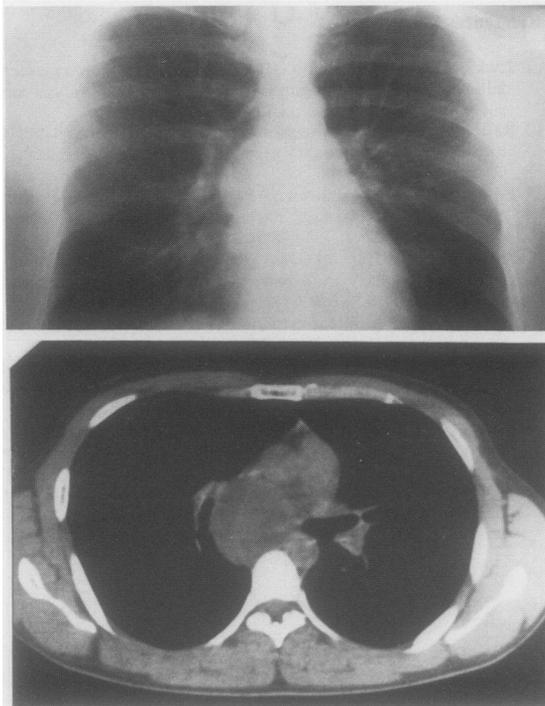


Fig 1 Initial chest radiograph and computed tomogram before transcarinal needle aspiration, showing a fluid density subcarinal cyst displacing and compressing the right mainstem bronchus and intermediate bronchus.

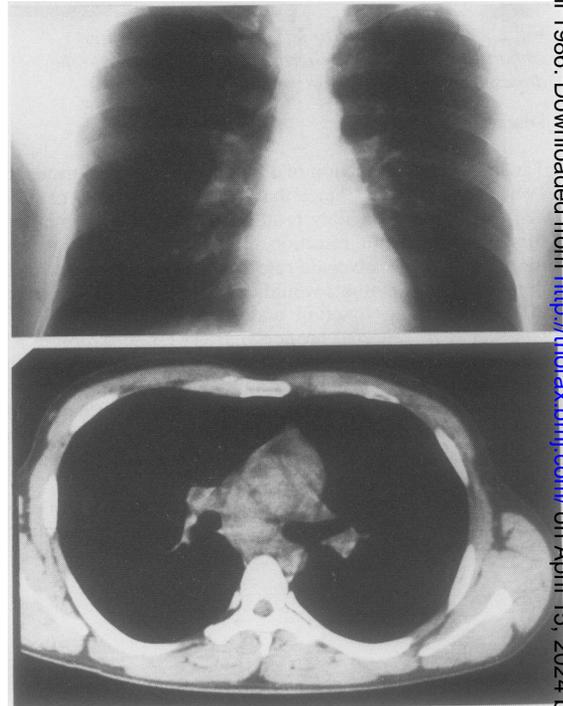


Fig 2 Chest radiograph and computed tomogram nearly five months after transcarinal needle aspiration, showing appreciable decrease in the size of the bronchogenic cyst.

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tine chest radiograph. Computed tomograms of that region confirmed the presence of a fluid density cyst (5.5 × 5 cm, 1 Hounsfield units) displacing the right mainstem and intermediate bronchi superiolaterally (fig 1). Flexible bronchoscopy was performed and a 22 gauge fixed transbronchial

aspirating needle was used to puncture the cyst transcarinally. Seventy millilitres of viscous, brown, turbid fluid were aspirated with the application of sustained suction by a syringe. Cytological examination of the fluid showed numerous macrophages and a few lymphoid and mononuclear cells. Another chest radiograph and computed tomography immediately after the procedure showed significant reduction in the size of this cyst ( $4 \times 3$  cm, 20 Hounsfield units). Follow up examination after five months showed a further decrease in size ( $2.5 \times 3$  cm, 46 Hounsfield units (fig 2)).

## Discussion

This case illustrates the use of transbronchial needle aspiration in the diagnosis of a mediastinal bronchogenic cyst located next to central airways. Although criteria for the cytological diagnosis of mediastinal bronchogenic cysts have not been developed, histological study of these cysts<sup>1-6</sup> suggests that ciliated columnar epithelial cells shed from their lining and mucus secreted by glands in their wall may be expected in such an aspirate. The nature of the fluid and the cytological findings in our patient are consistent with the diagnosis of a bronchogenic cyst. The continued regression of the lesion during nearly five months of observation attests to the benign nature of this lesion. The walls of bronchogenic cysts often contain elastic fibres and smooth muscle, which may account for the prompt decrease in the size of the cyst after transbronchial needle aspiration and further decrease with time.

The considerable decrease in the size of the bronchogenic cyst in this case suggests that fiberoptic transbronchial needle aspiration may be useful in the management of patients with symptoms related to compression of adjacent mediastinal structures by bronchogenic cysts. Whereas emergency thoracotomy and excision of the cyst might previously have been necessary for management of acute symptoms,<sup>4</sup> the prompt and persistent decrease in size after aspiration suggests the potential for immediate decompression of these cysts with transbronchial needle aspiration.

This case also illustrates that a single attempt to aspirate a mediastinal bronchogenic cyst may not drain the cyst entirely. Section of excised lesions has shown that they are

often trabeculated and may contain several non-communicating cavities.<sup>4</sup> This suggests that adequate decompression of symptomatic bronchogenic cysts may require aspiration from more than one site.

Transbronchial needle aspiration is a safe technique in the diagnosis and staging of bronchogenic carcinoma. No instance of untoward bleeding or mediastinal infection complicating this technique has occurred in our institution or been reported elsewhere.<sup>7,8</sup> Furthermore, our observations in dogs and in patients have suggested that intraluminal bleeding appears to be related to inadvertent puncture of intraluminal small vessels rather than extraluminal great vessels. Similarly, significant intraluminal drainage of a mediastinal bronchogenic cyst is unlikely to complicate transbronchial needle aspiration. The successful use of transbronchial needle aspiration for draining a sterile mediastinal abscess supports this impression.<sup>9</sup> The low incidence of complications from transbronchial needle aspiration suggests that this should be a safe technique for diagnosing and managing mediastinal bronchogenic cysts.

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