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Radiology in Focus

Bronchogenic cyst: an unusual cause of lump in the neck

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Abstract
Bronchogenic cysts are rare congenital benign lesions that are usually detected in the paediatric patient with symptoms of infection or compression on vital structures. They are rarely diagnosed in the adult population. We present a case of bronchogenic cyst presenting as a lump in the neck in an adult patient. Radiological imaging helped to diagnose this lesion accurately before any form of intervention. Complete surgical excision is the treatment of choice.

Key words: Mediastinal cyst; Neck

Introduction

Congenital cysts of the head and neck are frequently seen by otolaryngologists. Most of these lesions are either thyroglossal or branchial in origin. A bronchogenic cyst, which is a less common anomaly, is a developmental lesion of the tracheobronchial tree with a predominantly pulmonary or mediastinal location (Baxter and Meakins, 1953). These cysts sometimes lose their connection to the tracheobronchial tree and migrate to a subcutaneous position in the lower portion of the neck. Surgeons confronted with such a mass often fail to recognize the nature of the lesion. Radiological imaging usually helps enormously to diagnose this entity correctly.

Case history

A 54-year-old man, previously well, was admitted to hospital from the Accident and Emergency department with a four-day history of pain and swelling in the right supraclavicular region. On examination his temperature was raised at 37.8°C, but he felt relatively well without any dyspnoea or dysphagia. He was found to have a 2 × 2 cm hot, firm and painful swelling in the right supraclavicular triangle which clinically seemed to be extending into the chest. Neck X-ray did not show any abnormalities whereas chest X-ray (Figure 1) showed a large homogeneous soft tissue mass overlying the mid zone of the right lung which appeared to be pleurally based. It had a well-defined inferior border. No associated rib abnormalities were seen. The patient was admitted to the Ear, Nose and Throat ward with a presumptive diagnosis of an infected bronchogenic cyst with extension into the neck and was started on intravenous antibiotics. Two days later, panendoscopy was carried out as part of the diagnostic workup; it did not reveal any abnormality. Computed tomography (CT) (Figure 2) demonstrated a right-sided pulmonary mass based on the anterolateral pleura; the sternal end of the right clavicle appeared eroded by this mediastinal mass

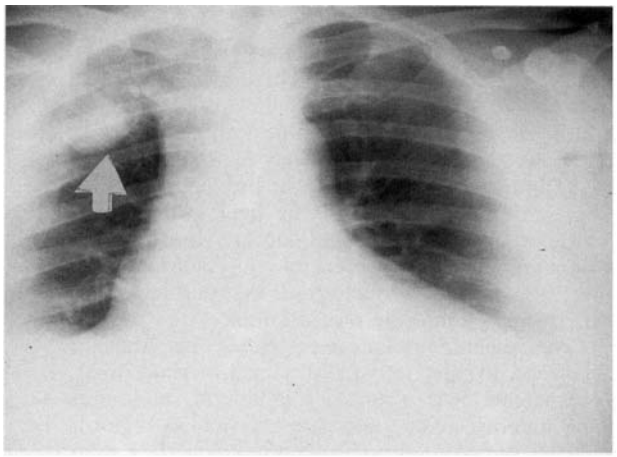

FIG. 1
Chest X-ray showing radiological features of a bronchogenic cyst (arrow).

(Figure 3) which had spread into the right upper extrapleural space. The appearances were suggestive of an infected bronchogenic cyst.

Two weeks later, excision biopsy via a lower cervical approach was carried out. The lump had a well-defined, thick wall, and extended into the superior mediastinum. It was easily dissected from the surrounding structures. It did not communicate with any of the intrathoracic structures although it was firmly adherent to the inferior border of the right clavicle. Following excision, the patient made a full recovery and remains symptom-free six years later.

Histology revealed that the cyst was bronchial in origin, containing all the elements of a normal bronchus: cartilage, ciliated columnar epithelium, smooth muscle, mucous glands and fibrous connective tissue.

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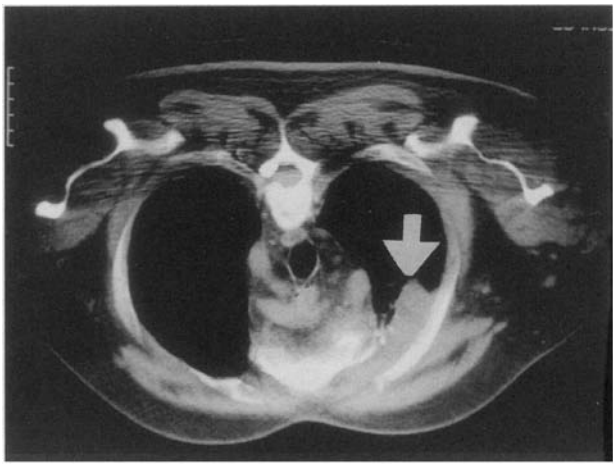

FIG. 2

Computed tomography demonstrating a right-sided pulmonary mass based on the anterolateral pleura (arrow).

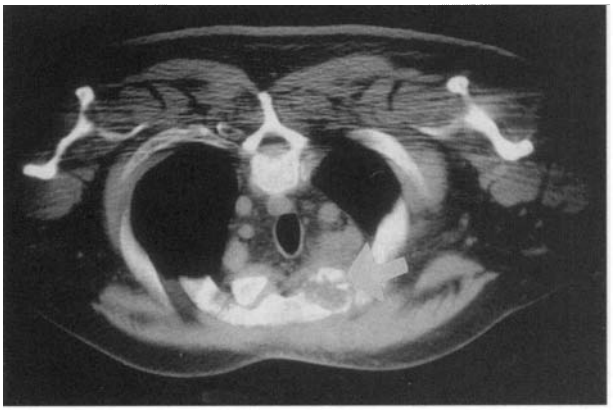

FIG. 3

Computed tomography showing erosion and cortical destruction (arrow) of the sternal end of the right clavicle.

Discussion

Bronchogenic cysts are rare, congenital, benign masses which are commonly located in the mediastinum or lung parenchyma. They are rarely seen in the neck and are thought to result from the abnormal budding of primordial lung tissue (Maier, 1948). They are most frequently unilocular and contain either clear fluid or, less commonly, haemorrhagic secretions or air. It is unusual for them to have a patent connection with the airway, but when present, such a communication may promote cyst infection by allowing bacterial entry but not fluid egress (Yerman and Holinger, 1990). Communication with deeper structures has been reported on a few occasions; Gessendorfer (1973) described a subcutaneous bronchogenic cyst in the lower posterior triangle of the neck, which was tightly adherent to the first rib and subclavian artery by a tract extending through a defect in the clavicle. Fraga *et al.* (1971) described a bronchogenic cyst that had a prolongation extending into the mediastinum.

Bronchogenic cysts are classified by Maier (1948), according to site, into paratracheal, carinal, hilar, paraoesophageal and atypical (diaphragm, abdomen, skin, subcutaneous tissue and supraclavicular region). They may be symptomatic or asymptomatic. They tend to be asymptomatic at presentation in adults, being diagnosed as incidental findings on chest radiographs obtained for other reasons. Symptomatology in children varies according to site and age. In infants dyspnoea, cyanosis, stridor or more rarely dysphagia are seen whereas in older children pulmonary infections are a more common presentation.

Chest X-ray and CT scan are the most valuable diagnostic studies. Neck X-rays and barium swallow studies have shown to be of non-diagnostic value in children (Yerman and Holinger, 1990). On plain film radiographs bronchogenic cysts appear as spherical or oval masses with smooth outlines, projecting from either side of the mediastinum. They are usually unilocular and are located close to the carina or mainstem bronchi. They may, however, arise anywhere along the course of the main airways and can extend into the posterior mediastinum. Once suspected, a CT scan is the diagnostic modality of choice but panendoscopy should be performed beforehand (Yerman and Holinger, 1990). Direct laryngoscopy and bronchoscopy provide a diagnosis in the vast majority of infants and children with stridor. In this adult case panendoscopy revealed no abnormality. CT is valuable in demonstrating the size and shape of the cyst and determining its position in relation to other structures. The fluid contents normally have an average CT density of 0 Hounsfield units. However this density reading may be higher, comparable to that of soft tissue density, which can create problems in diagnosis.

Differential diagnosis in the neck includes cervical lymphadenopathy, thyroglossal cyst, branchial cyst, teratoma, haematoma and neurogenic tumours.

Surgical excision is the treatment of choice, as aspiration in unlikely to offer significant benefit. Complete extirpation with ligation of the point of attachment to the patent bronchus is usually possible. Prognosis after complete excision is excellent in all groups.

References

Baxter, S. G., Meakins, J. F. (1953) Developmental bronchial cysts. *Annals of Internal Medicine* **38:** 967–980.

Fraga, S., Helwig, L. B., Rosen, S. H. (1971) Bronchogenic cysts in the skin and subcutaneous tissue. *American Journal of Clinical Pathology* **56:** 230–238.

Gessendorfer, H. (1973) Cervical bronchial cyst. *Journal of Paediatric Surgery* **8:** 435.

Maier, H. C. (1948) Bronchogenic cysts of the mediastinum. *Annals of Surgery* **127:** 476–502.

Yerman, H. M., Holinger, L. D. (1990) Bronchogenic cyst with tracheal involvement. *Annals of Otology, Rhinology and Laryngology* **99:** 89–93.

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