Peripheral mucoepidermoid tumour of the lung

Linda K Green, Terry L Gallion, Ferenc Gyorkey

Abstract

Mucoepidermoid tumours of the bronchial tree are uncommon neoplasms, which are believed to arise from terminal ducts of the proximal tracheobronchial tree. The first case of a peripheral mucoepidermoid tumour of the lung is reported.

Mucoepidermoid tumours of the bronchial tree are similar to those of the major salivary gland. For the three decades since their description the clinical features, optimum treatment, and prognosis of these tumours have remained unclear.[1–10] Most investigators agree that the tumours have a favourable course but others have reported cases in which apparently low grade mucoepidermoid tumours were highly aggressive and associated with a poor prognosis.[2 3 8–10] The tumours are reported to arise from the large bronchi or trachea. We report an unusual mucoepidermoid tumour which arose subpleurally.

Case report

A 63 year old Latin American man was found to have an abnormal chest radiograph after sustaining blunt trauma to his back. He denied respiratory symptoms and his past medical history was unremarkable except for a 50 pack year smoking history.

Physical examination showed nothing remarkable; he was a well nourished man with no masses in his head or neck, or in his salivary glands. Laboratory investigations gave results within normal limits. A chest radiograph showed a poorly defined 1·5 cm lesion in the right mid lung field. Bronchoscopy showed no endobronchial lesions and cytological examination of a bronchial washing and a sputum specimen gave negative results.

Thoracotomy revealed a nodular mass in the central subpleural portion of the right middle lobe. A right middle lobectomy was performed. The postoperative course was uncomplicated and the patient is well 10 months later.

PATHOLOGY

The lesion was a firm, tan-white, subpleural irregular nodule 2·5 × 2 × 2 cm, unrelated to any grossly visible bronchial structure.

Macroscopically, most of the tumour was composed of epidermoid and intermediate cells occurring in nests and sheets within a fibrous stroma containing numerous plasma cells and lymphocytes. There was an intermediate, basal layer that transformed to more differentiated polygonal cells with demonstrable intercellular bridges. Interspersed vacuolated cells contained mucin droplets. The mucus secreting cells were more numerous in certain areas of the tumour and lined cystic spaces were filled with mucinous material (fig 1), which was readily detected by routine haematoxylin and eosin staining but was seen more strikingly with periodic acid-Schiff or mucicarmine stains. The lesion was well circumscribed and separate from the adjacent normal lung parenchyma and lacked an infiltrative margin.

Most of the tumour cells had uniform round or oval nuclei with a vesicular chromatin pattern and a small round nucleolus. There was no frank keratinisation or individual cell keratinisation in these areas, and no mitotic activity or necrosis. In one small central area of the tumour (less than 5% of the tumour) the epithelioid cells had large nuclei with nuclear rim irregularity, rare individual cell keratinisation, central necrosis, and an increased mitotic rate (fig 2). These less differentiated areas merged with the differentiated areas.

No normal bronchioles were found within or immediately adjacent to the tumour. Terminal bronchioles, lined with normal ciliated columnar respiratory epithelium, were present 4 mm from the tumour. No glandular or ductular structures were associated with the bronchioles.

Tissue that had been fixed in formalin briefly and then in glutaraldehyde was

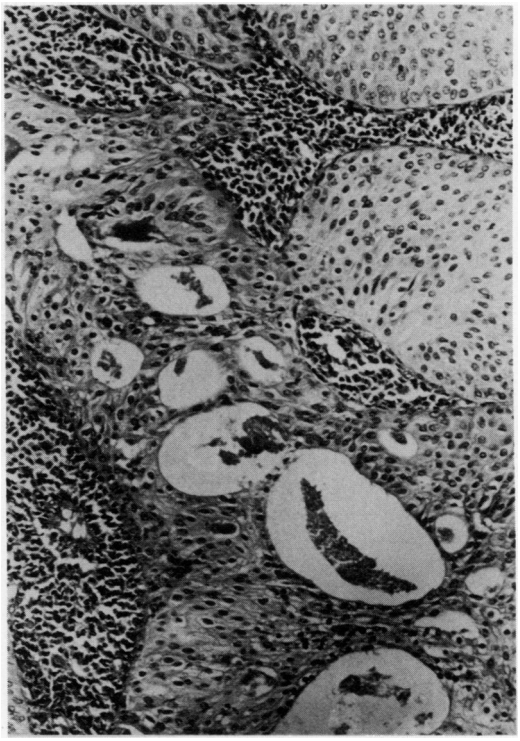

Figure 1 Histological section of the tumour with pallisading epithelial components and interspersed glandular formations containing mucin. (Haematoxylin and eosin.)

Department of Pathology
L K Green
F Gyorkey

Department of Surgery
T L Gallion

Veterans Affairs Medical Center and Baylor College of Medicine, Houston, Texas, USA

Reprint requests to:
Dr Green.

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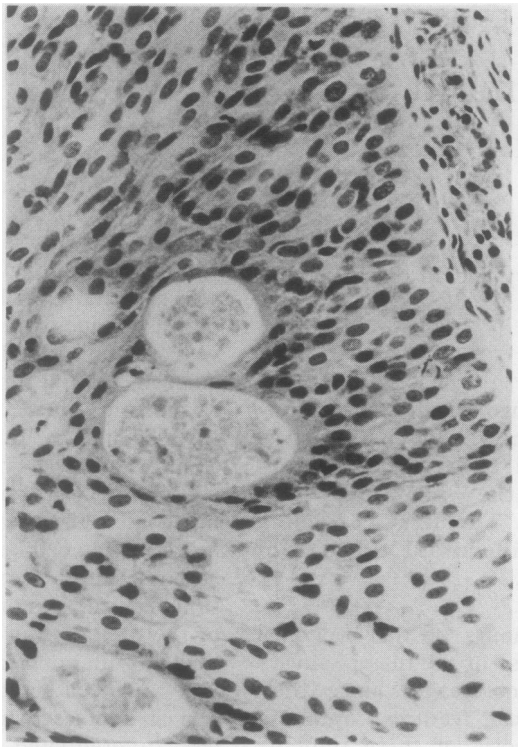

Figure 2 Histological section of the less differentiated central area of the tumour. (Haematoxylin and eosin.)

examined ultrastructurally. Two components were identified: epithelial cells with spot desmosomes, intercellular bridges, and intracytoplasmic tonofilaments and glandular cells containing intracytoplasmic mucin granules with microvilli on their luminal borders. These findings supported the histological diagnosis of mucoepidermoid tumour of lung.[3]

Discussion

Mucoepidermoid tumours of the lung characteristically arise from the trachea or large bronchi.[1-10] Their clinical behaviour has been shown to correlate with their histological grade (low and high).[2-4 6 9] Cases of low grade mucoepidermoid tumours that behaved aggressively, however, have been reported.[2 8 9] This case has the overall features of a low grade mucoepidermoid tumour, including minimal parenchymal extension, monomorphic cellular features, low mitotic activity, absence of necrosis, and areas of well formed mucus glands. The less differentiated area has some of the features of a high grade mucoepidermoid tumour, including pleomorphism, increased mitotic activity, and necrosis.

As this lesion was peripheral, it must be distinguished from a bronchogenic adenocarcinoma with squamous differentiation or an adenosquamous cell carcinoma. Distinguishing features include the presence of an intimate admixture of epidermoid and mucus producing cells, the presence of basal or intermediate cells, the absence of in situ carcinomatous change, the non-infiltrative pattern, and the lack of frank keratinisation or squamous "pearl" formations.[2 3]

The reason for the peripheral location of this pulmonary mucoepidermoid tumour is not clear. Central bronchial mucoepidermoid tumours are believed to originate from the ductular epithelium of bronchial glands, which are not found in terminal bronchioles.[2 3] This lesion may have been a metastasis from a salivary gland mucoepidermoid tumour, but clinical examination revealed no swelling to support this view. Sniffen *et al* suggested that bronchial mucoepidermoid tumours may arise from surface epithelium.[5] He found an undermining of stunted ciliated respiratory epithelium by mucoepidermoid tumour cells in one of his five bronchial tumours. There was no bronchial or ciliated epithelium in the present case. The possibility of ectopic or hamartomatous bronchial tissue may be postulated, but extensive examination failed to disclose any hamartomatous components.

This case is the first to be described in which the tumour was peripheral and not associated with an airway. It was completely resected and should behave in a non-aggressive fashion.

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