Peripheral mucoepidermoid tumour of the lung

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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.11-10 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 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 palisading epithelial components and interspersed glandular formations containing mucin. (Haematoxylin and eosin.)
carcinoma with squamous differentiation or an adenosquamous cell carcinoma. Distin-
guishing features include the presence of an intimate admixture of epidermoid and mucus
producing cells, the presence of basal or inter-
mediate cells, the absence of in situ car-
cinomatous change, the non-infiltrative pat-
tern, and the lack of frank keratinisation or
squamous "pearl" formations.  

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.  

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. He found an under-
mining of stunted ciliated respiratory epithe-
lium 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 pos-
tulated, 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.

Discussion
Mucoepidermoid tumours of the lung char-
acteristically arise from the trachea or large
bronchi. Their clinical behaviour has been
shown to correlate with their histological
grade (low and high). Cases of low grade
mucoepidermoid tumours that behaved
aggressively, however, have been reported.

This case has the overall features of a low
grade mucoepidermoid tumour, including
minimal parenchymal extension, mono-
morphic 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 pleo-
morphism, increased mitotic activity, and
necrosis.

As this lesion was peripheral, it must be
distinguished from a bronchogenic adeno-
Peripheral mucoepidermoid tumour of the lung.

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