Pleomorphic adenoma of the bronchus

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Abstract
An example of pleomorphic adenoma of the bronchus is described in a 27 year old male student who was referred for evaluation of a coin lesion identified incidentally on chest x-ray. The tumour exhibited the classic histological, immunohistochemical and ultrastructural features of this rare entity but, in addition, contained mature and immature adipose tissue in the stroma and showed transition, in its superficial portion, between ostensibly normal bronchial mucus glands and tumour tubules. Neither of these features has been commented upon previously. (J Clin Pathol 1996;49:87-89)

Keywords: bronchus, pleomorphic adenoma, adipose tissue, mucus glands.

Case report
A 27 year old male student was referred for evaluation of a coin lesion identified incidentally on chest x-ray. An x-ray taken four years earlier for an insurance examination had been reported as normal. The patient had no symptoms and no past medical history. He had smoked 20 cigarettes daily up to four months before presentation. Physical examination and routine laboratory tests were normal.

Computed tomography examination revealed a 3 cm enhancing mass, with well defined margins, at the hilum of the right lung. On endoscopy, a polypoid tumour was seen in the lower lobe bronchus, but biopsy specimens of the surface of this were not diagnostic. A lower lobectomy was performed. On gross examination, there was a well circumscribed 3.5 cm grey-yellow tumour, largely located within pulmonary parenchyma but projecting intraluminally through the wall of the bronchus, 2 cm from the bronchial resection margin.

Methods
Tissue blocks were fixed in 10% buffered formalin, routinely processed and embedded in paraffin wax. Sections were stained with haematoxylin and eosin, alcin blue (pH 2.5) and periodic acid Schiff (PAS) after diastase pretreatment. Sequential sections were stained for keratin (AE1/AE3; ICN, Costa Mesa, California, USA), S100 protein and epithelial membrane antigen (EMA) (Dako, Glostrup, Denmark) and smooth muscle actin (Enzo Diagnostics, New York, USA). Further tissue blocks were fixed in 3% glutaraldehyde and examined by electron microscopy.

Microscopy
On its bronchial aspect, the lesion was covered by normal respiratory epithelium. Within the lung, however, it was separated from normal parenchyma by a dense fibrous capsule of variable thickness. Peribronchial adipose tissue was present at the resection margin of the lobectomy specimen but not in the immediate vicinity of the tumour. The mass was roughly spherical and, at its centre, had a stellate, perivascular area, radiating from which were irregular, solid islands of polygonal epithelial cells with moderate amounts of eosinophilic cytoplasm, and scattered cells, either singly or in groups, in which the cytoplasm had a more hyaline, glassy appearance. The stroma between the cellular areas contained spindle shaped and stellate cells set in a variably myxoid, hyaline or focally chondroid matrix. Zones of adipose tissue were easily identifiable in the stroma (figure, panel A), some of which contained lipoblasts (figure, panel B). In both the cellular and myxoid areas there were well formed tubular structures, many of which were lined by distinct epithelial and myoepithelial layers. Squamous metaplasia was identified in...
The cells lining the tubules and most of the solid epithelial islands stained positively for keratin, whereas only the luminal aspect of these cells stained with antibody to EMA. S100 protein and smooth muscle actin were demonstrable in myoepithelial cells around tubules and also in single cells, or groups of cells, in solid epithelial zones, corresponding to the cells with hyaline cytoplasm noted on staining with haematoxylin and eosin. The peritubular distribution of myoepithelial cells was very variable, ranging from scattered peripheral cells in those glands with mucin secreting epithelium to continuous runs of such cells enclosing classic tumour tubules. Other tubules showed completely haphazard distribution of myoepithelial cells, in solid clumps or even lying inside the epithelial cell layer. Adipocytes stained strongly for S100 protein but not for actin or EMA.

**ELECTRON MICROSCOPY**

Epithelial cells lining tubules varied from cuboidal to columnar, the former often containing little mucin and the latter numerous mucin vacuoles. Both of these cell types demonstrated poorly formed, stubby microvilli on the luminal surface. Tight junctions were evident at the luminal aspects of epithelial cells and, elsewhere, desmosomes were plentiful between epithelial and myoepithelial cells. These latter cells, with cytoplasmic aggregates of thin filaments and overlapping dense bodies, were not only related to tubular structures but were also present isolated in the myoid stroma. Flattened epithelial cells containing bundles of tonofilaments were readily identified. Adipocytes were ultrastructurally unremarkable and, in particular, myofilaments were not identified in the cytoplasm, nor were such filaments observed in cells which had the morphology of lipoblasts (figure, panel B).

**Discussion**

Pleomorphic adenoma of the bronchus is extremely uncommon, with approximately 20 verifiable cases documented to date. At 27 years of age, the case presented here is the youngest on record, previous cases falling within the age range of 35–74 years. About one third of all cases come to light incidentally, as in the case reported here.

The histological and ultrastructural features of pleomorphic adenoma of the bronchus, as seen in this case, are identical with those of lesions arising in salivary gland. Features, however, which have not been annotated previously, include the presence of adipose tissue within the stroma and the apparent continuity of the tumour tubules with glandular structures which resemble normal mucus glands, towards the bronchial luminal surface. This latter phenomenon is consonant with the hypothesis that pleomorphic adenoma arises from cells of the intercalated duct but we have been unable to find reference to this spatial juxtaposition in other reports of this condition.
Detection by PCR of *Toxoplasma gondii* in blood in the diagnosis of cerebral toxoplasmosis in patients with AIDS

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**Abstract**

The polymerase chain reaction (PCR) for amplification of *Toxoplasma gondii* DNA was performed prospectively in the blood of 19 patients with AIDS and cerebral toxoplasmosis. The B1 gene and TGR1E sequence were used as targets and results were confirmed by hybridisation. Controls consisted of 24 HIV infected patients with tissue culture proven *T gondii* parasitaemia and 57 HIV infected patients without toxoplasmosis. PCR was positive with both targets in 20 of 24 samples (84%) from patients with parasitaemia. Three of 57 samples (5%) from patients without toxoplasmosis were PCR positive with either target, but none was positive with both targets. Only three of the 19 patients (16%) with cerebral toxoplasmosis had a positive PCR with both targets before the...