Lymphogenous Spread
of an Intravascular Bronchioloalveolar Tumour

Case Report and Review of Literature

H.J.C. Wenisch and M. Lulay
Department of Pathology (Director: Prof. Dr. Dres.h.c. W. Doerr),
University of Heidelberg, Im Neuenheimer Feld 220/221, Postfach 104 340,
D-6900 Heidelberg 1, Federal Republic of Germany

Summary. A 56-year-old lady with distinct clinical symptoms was found to have an intravascular bronchioloalveolar tumour. The aetiology and pathogenesis of this disease are unknown; both a bronchoalveolar and a vascular origin of the tumour are discussed in the literature. For the first time, lymphatic spread of tumour to the lymphatic nodes of the hili of the lungs was encountered.

Key words: Intravascular bronchioloalveolar tumour – Histological findings – Lymphatic spread.

Introduction

The intravascular bronchioloalveolar tumour is an uncommon clinical and pathological entity (Spencer, 1977). The clinical differential diagnosis of the tumour is difficult, its histological features are very characteristic and its aetiology is unknown. Recently a vascular origin of the tumour was postulated by Corrin et al. (1979), whereas Dail and Liebow (1975) considered the tumour to be of bronchioloalveolar origin.

The following report describes another case of intravascular bronchioloalveolar tumour. Histological investigations showed tumour masses in both lungs and in the regional lymph nodes. Our findings are compared with those in the literature.

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Offprint requests to: Dr. H.J.C. Wenisch
Case Report

A female patient, born in 1921, was found in June 1977 to have dyspnoea and pretibial oedema, and had been suffering from a decrease of physical performance. In July 1977, multiple round lesions in both lungs were found on radiography. They were interpreted as metastases of a carcinoma of unknown origin. The Westergren sedimentation rate was highly accelerated (72/100 mm). The pulmonary airways expiratory resistance showed an increase. Clinically a primary carcinoma could not be found. Intravascular bronchioloalveolar tumour was detected histologically in a biopsy of the right lung (N: HD 33960/77). There was no specific therapy. In October and December 1977, growth of the pulmonary lesions was found. In addition, an enlargement of both lung hili was detected by radiography. In February 1978, the patient died following a myocardial infarction.

Autopsy Findings

At autopsy multiple small grey-white nodules up to 1.5 cm in diam. were found in the peripheral parts of both lungs. The lymphatic nodules of both lung hili were occupied by tumour. Other metastases were not found. The coronary arteries displayed moderate atherosclerotic lesions. The anterior-septal part of the myocardium was infarcted. Patchy fibrosis could be seen in other parts of the left cardiac muscle. The large conducting arteries were affected by atherosclerosis.

Methods

Tissue specimens taken from both lungs and the trachea were embedded in paraffin. 5 μm thick paraffin sections were stained with haematoxylin eosin, elastin van Gieson, Congo red, Masson-Goldner's stains and by the periodic acid-Schiff reaction.

For electron microscopy, some formalin-fixed specimens were postfixed for 2 h with 1% OsO₄ and embedded in Epon® after washing. Ultrathin sections were stained with lead citrate and uranyl acetate. A Zeiss EM 9 was used for investigation.

Histological Results

The tumour nodules consisted of hyaline fibrous tissue with sparse vesicular cells containing large nuclei and pale-staining characteristics. The tumour occupied a large number of alveoli preserving the fibers of the alveolar walls (Fig. 1a). Central necrosis of tumour was seen. The tumour interstitium had PAS positive staining characteristics. Sometimes the lumina of small arteries, veins and bronchioli embedded in the tumour nodules were filled with tumour tissue (Fig. 2a and b). Elastin staining was helpful to demonstrate the well preserved vessel walls. In the periphery of the tumour nodules, protrusions of the alveolar wall consisting of a hyaline fibrous tissue were found. They were covered by hypertrophied alveolar epithelial cells. The tumour seemed to spread through the pores between the alveoli (Fig. 1b). The pulmonary tissue surrounding the tumor nodules was atelectatic. Non-specific round cell infiltrations were found in the vicinity of the tumour.

The lymph nodes and lymphatic vessels of both lung hili contained tumour tissue (Fig. 3a and b). The walls of the lymphatics were well preserved. In the lymph nodes the tumour displayed histological features which differed from those in the lung. The cellular elements were increased in number. The tumour cells were smaller and arranged in chains with gaps in between. The fibrous capsules of the lymph nodes were well preserved. In the central parts of the tumour large necrotic areas were found.