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Primary immunocytoma of the lung: the diagnostic value of bronchoalveolar lavage

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Primary lymphomas of the lung are rare, representing less than 1% of all primary bronchopulmonary malignancies.[1] They are usually well differentiated lymphomas of B type producing a monoclonal immunoglobulin.[2] We report an example of this condition that highlights the usefulness of bronchoalveolar lavage as a diagnostic tool.

Case report

A 69 year old woman was referred to us for investigation of radiographic features of an infiltrate with air bronchogram in the anterior segment of the right lower lobe. This had been discovered during an episode of fever, cough, and mucopurulent sputum and had remained unchanged for two months. Physical examination showed nothing remarkable except for some fine crackles that were audible at the right base. She had a normal white blood count. Her total serum protein concentration was normal (63 g/l) but serum electrophoresis showed a monoclonal band characterised as IgM with kappa light chains. Oligoclonal IgG was also found on polyacrylamide gel electrophoresis. Serum immunoglobulin concentrations were: IgM 5.4 (normal range 0.7–3.73), IgG 6.6 (5.26–14.2), and IgA 1.3 (0.6–2.91) g/l.

A bronchial biopsy specimen from an apparently normal bronchus and a needle lung biopsy, specimen both taken from the affected area of lung, showed an infiltration by mature lymphocytes. Bronchoalveolar lavage carried out in the same area yielded 444 cells/ml (93% viable), consisting of 44% lymphocytes, 5% plasma cells, 48% macrophages, 2% neutrophils, and 1% eosinophils. The lymphocytes varied in size and maturity. Immunoglobulin:albumin ratios in the bronchoalveolar lavage fluid are shown in the table. The IgG:albumin ratio was 10.23 times higher in lavage fluid than in the serum, 8.25 times higher for IgM, and three times higher fold for IgA. This shows that most of the IgG and IgM in the lavage fluid had been produced locally. Immunoelectrophoresis and polyacrylamide gel electrophoresis showed monoclonal IgM and oligoclonal IgG in the lavage fluid identical to that found in serum.

A right lower lobectomy was performed. Histological examination showed a diffuse, infiltrating, well-differentiated lymphoplasmacytic lymphoma limited to the anterior segment. Examination of the upper respiratory tract, bone marrow biopsy, and abdominal computed tomography showed nothing abnormal, suggesting that the lymphoma's primary origin was in the lung.

Immunoglobulin: albumin ratios (means with standard deviations in parentheses) in bronchoalveolar lavage fluid

Ig:Alb	*Normal**	*Patients*
IgA:Alb	0.72 (0.12)	0.09
IgG:Alb	0.3 (0.02)	1.74
IgM:Alb	Present in small quantities in 5% of controls	1.2

*From Gee and Fick.[8]

Discussion

Most primary lymphomas of the lung are immunocytomas of IgM type but a few cases of IgG and IgA type have been reported.[2 3–6] The clinical and radiological features of our case are similar to those previously reported.[3 7] We found an excess of lymphocytes and plasma cells in the alveolar lavage fluid. A high proportion of lymphocytes has been found in lavage specimens in many conditions, including sarcoidosis, tuberculosis, asbestosis, silicosis, and hypersensitivity or radiation pneumonitis. The presence of plasma cells is, however, unusual. The lymphoid cells in the lavage fluid ranged from small lymphocytes to mature plasma cells, reflecting the histological composition of the lymphoma.

Immunoglobulins in the lavage fluid come mainly from local synthesis of IgG and IgA and from the blood. IgM is normally present in minute amounts.[8] The large amounts of IgM found in the present case must have been secreted locally as IgM cannot cross the epithelial barrier owing to its high molecular weight. Furthermore, immunoelectrophoresis and polyacrylamide gel electrophoresis showed that the IgM was monoclonal. Monoclonal antibody produced by immunocytomas may be found in the blood but has not previously been reported in alveolar lavage fluid obtained from the site of a primary immunocytoma of the lung.

The definitive diagnosis of primary lymphoma of the lung rests on the typical histological and immunochemical staining patterns.[3 9 10] Our case suggests, however, that alveolar lavage fluid showing (1) a lymphocytosis with cells ranging from small lymphocytes to mature plasma cells and

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(2) locally produced monoclonal immunoglobulin may also be pathognomonic.

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Book notice

Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies. Edited by NK Wenger, ME Mattson, CD Furberg, J Elinson. (Pp 400; US $34.50.) Le Jacq Publishing Inc. 1984.

Viewed from the outside these 374 pages (no pictures) look as daunting as the title. The typeface is, however, vast and much of the book is taken up by references, specimen questionnaires, appendices, and discussions of the main articles. The remainder is not so easy to dismiss, even for thoracic physicians, who might be a little surprised to see this book being reviewed in *Thorax*. Quality rather than duration of life will become increasingly important in medicine as the healthy population ages and we are all already concerned in such decisions in the management of lung cancer. This book gives a good insight into the relatively new techniques of measurement in this difficult field. There are three parts of the book and only the first of these need concern the general reader. The first chapter deals with the philosophical problems of trying to define quality of life and the differences between objective and subjective points of view. It is chastening to see how often the doctor's perception is narrow minded when compared with the patient's or with non-medical opinion. Subsequent chapters discuss ways of applying these ideas to treatment trials and go into the formidable problems of interpretation and methodology. The second and third parts, which are for the specialist reader only, examine methods in detail with examples of the most widely used questionnaires. If only the first part is read the book is reduced to a very readable and fascinating account of new science in the making. The fact that cardiovascular disease alone is discussed does not matter since the concepts are common to many aspects of thoracic disease and the detail is unimportant for all but the expert. Overall the book can be recommended, particularly to those concerned in clinical trials, who may get new insights into just how much can be measured and how one sided are the assessments of many treatments at present.

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