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Short reports

Monoclonal gammopathies in chest disease

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Monoclonal gammopathies are found in patients with myeloma, lymphoid malignant disorders, and amyloidosis. They are also discovered in patients with other diseases, and even in healthy people over 70 years.[1 2] In such cases monoclonal gammopathies are of undetermined significance, and therefore of little if any diagnostic value. The aim of the present study was to evaluate the monoclonal gammopathies revealed in the course of investigation of patients with chest disease.

Methods

We reviewed the records of all patients referred to us because of chest disease from November 1969 to June 1984 in whom a monoclonal gammopathy was revealed by examination of blood or urine. We excluded all patients with previously recognised lymphoproliferative disorders, myeloma, or amyloidosis. Monoclonal components were characterised by electrophoretic and immunoelectrophoretic methods.[3]

Results

Fifty two patients (41 men and 11 women) were included in the present study: 48 with one, three with two, and one with three monoclonal gammopathies. The mean age of the patients was 64 years (range 36–84).

The distribution of monoclonal gammopathies was as follows: IgG 42; IgA 5; IgM 7; light chains 3. Light chain isotypy was of kappa type in 37 cases and lambda in 20.

The nature of the patients' chest disease is shown in the table, together with the associated disorder (extrathoracic myeloma, lymphoproliferative disorder, or amyloidosis). The number of patients with no underlying systemic disease may have been underestimated since, although none of them had any osseous symptoms of lymphadenopathy, bone marrow biopsy material or aspirate was not available in all cases. Bone marrow examination was done on the following patients, in each of whom the proportions of lymphocytes and plasma cells were less than 15% and 10%: the patient with solitary plasmacytoma, the five patients with primary pulmonary and pleural lymphomas, and 18 patients with pleuropulmonary infection, cancers, and miscellaneous disorders. In most cases where an underlying systemic disease was present it was discovered because of the gammopathy.

The miscellaneous disorders comprised systemic sclerosis with interstitial pulmonary disease; farmer's lung; two cases of pleural effusion associated with congestive heart failure (one of them with underlying Waldenström's disease); two cases of chronic obstructive pulmonary disease; eosinophilic pneumonia; and idiopathic pulmonary fibrosis with underlying Waldenström's disease.

The monoclonal gammopathy disappeared in five patients: in one with solitary plasmacytoma, after surgery; one with Hodgkin's disease and one with non-Hodgkin's lymphoma after complete remission under treatment; one with lung cancer who presented with infection while receiving chemotherapy; and one with pulmonary infection.

Discussion

Monoclonal gammopathy was a valuable guide to diagnosis in 17 of the 52 patients (33%). In 10 of them it was an indicator of myeloma or a lymphoproliferative disorder affecting the chest; in the remaining seven patients it was an indicator of such conditions affecting only extrathoracic sites, the chest disease having another origin. In the other seven cases the monoclonal gammopathy did not contribute to diagnosis, although a latent lymphoproliferative disease or "smouldering myeloma"[4] cannot be excluded since more intensive investigation might have revealed a higher proportion of such conditions.

The heavy and light chain isotypes of the monoclonal components in this series were similar to those of a larger series from the same laboratory.[3] In our study IgM gammopathies were always associated with lymphoproliferative disorders, and light chain gammopathies were in all cases associated with myeloma or lymphoproliferative disease.

Thoracic and pulmonary disease are only rarely initial features of plasma cell myeloma.[5] The chest radiographic appearance of a plasmacytoma is typically that of a homogeneous mass associated with an osteolytic rib lesion. This mass usually protrudes intrathoracically, and the association of such a radiological appearance with a monoclonal gammopathy is therefore highly suggestive of plasmacytoma of the rib. Diffuse infiltration of the lung by

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Clinical conditions and gammopathy in 52 patients with chest disease

Chest disease		*Underlying systemic disease**	*Gammopathy*
PLASMA CELL TUMOURS AND LYMPHOPROLIFERATIVE DISORDERS (n = 10)			
Rib plasmacytoma			
Solitary	1	None	IgGκ
Multiple	1	Myeloma	κ Light chains
Interstitial pulmonary myeloma with amyloidosis	1	Myeloma (with amyloidosis)	IgGλ + IgGλ
Primary pulmonary lymphoma	4	None	IgMκ (3), IgGκ
Primary pleural lymphoma	1	None	IgMκ
Lymphomatous pleurisy	1	Non-Hodgkin's lymphoma	κ Light chains
Mediastinal lymphoma	1	Hodgkin's disease (with amyloidosis)	IgGκ + IgGλ
PLEUROPULMONARY INFECTION (n = 13)			
Tuberculosis	3		IgGκ (2), IgAκ
Bacterial or viral infection	6		IgGκ (2), IgGλ (4)
	2	Myeloma	IgGλ, IgAκ
	2	Lymphatic leukaemia, Waldenström's disease	IgGλ, IgMλ
PLEUROPULMONARY CANCERS (n = 21)			
Squamous (8), oat cell (2), others (10)	20		IgGκ (12), IgGλ (4), IgAκ (2), IgGλ + IgAλ IgGκ + IgGλ +IgGλ
Squamous	1	Lymphatic leukaemia	κ Light chains
MISCELLANEOUS (n = 8)			
	6		IgGκ (4), IgGλ (2)
	2	Waldenström's disease	IgMκ (2)

*Refers only to extrathoracic myeloma, lymphoproliferative disorders, or amyloidosis.

plasma cells is very rare, as is the interstitial form of amyloidosis. Monoclonal gammopathies found in patients with amyloidosis usually have lambda light chains,[6] as in our patient with interstitial pulmonary myeloma with amyloidosis.

Most primary lymphomas of the lung present without symptoms and their radiographic appearance is typically that of opacities with soft, woolly contours and an air bronchogram.[7] Monoclonal gammopathy associated with such presentation strongly suggests the diagnosis. Monoclonal gammopathies in patients with other extrathoracic and intrathoracic malignant lymphomas may also be considered as tumour markers.

Pleuropulmonary infection may be either the origin or the consequence of a monoclonal gammopathy. Infection may induce the development of a monoclonal gammopathy, which may regress when the antigenic stimulation stops, especially in patients with either primary or iatrogenic immunodeficiency.[8] On the other hand, monoclonal gammopathy predisposes to infection, especially in multiple myeloma.[9] Monoclonal immunoglobulins associated with cancers or miscellaneous pulmonary diseases were of no diagnostic value,[2 10] in this series, except for three cases where an underlying lymphoproliferative associated disorder was present.

We have found electrophoretic and immunoelectrophoretic examination of the serum to be useful in the diagnosis of patients referred for investigation of chest disease. Where chest disease is accompanied by monoclonal gammopathy, plasma cell neoplasia or lymphoproliferative disease should be sought and chest disease caused by these disorders considered.

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