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CASE REPORT

Non-Hodgkin's lymphoma presenting as multiple cavitating pulmonary nodules

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Non-Hodgkin's lymphoma presenting as multiple cavitating pulmonary nodules. J. Van Schoor, G. Joos, R. Pauwels. ©ERS Journals Ltd 1993.

ABSTRACT: Intrathoracic involvement is common in non-Hodgkin's lymphoma (NHL). We present the case of a young woman with a secondary pulmonary lymphoma (SPL) of the centroblastic subtype, with B-cell characteristics. The chest radiograph at presentation revealed an extremely rare pattern of multiple cavitating pulmonary nodules. The radiographic patterns of intrathoracic NHL are discussed.

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The non-Hodgkin's lymphomas (NHL) are a heterogeneous group of lymphoid neoplasms, with remarkably different histological appearances, clinical presentations, prognoses, and responses to therapy. Thoracic involvement in NHL is common; usually, a distinction is made between primary pulmonary lymphoma (PPL) and secondary pulmonary lymphoma (SPL) [1].

Case report

The patient was a 31 year old woman, who had always been in good health. She had never smoked, and was not taking any medication. She had complained of anorexia, fatigue and malaise for about one month. There was a weight loss of approximately 8 kg over the last few months. There were no respiratory symptoms. A screening chest radiograph, taken on January 27, 1992, revealed multiple nodular opacities, some displaying discrete excavation (fig. 1). The patient was admitted to our department for further exploration.

Physical examination showed a pale, thin woman who was not acutely ill. The examination of the chest was completely normal; enlarged lymph nodes were not observed. The rest of the examination was also unrevealing. Laboratory tests results included a moderately elevated erythrocyte sedimentation rate (45 mm after 1 h, 80 mm after 2 h), a normal leucocyte count, with a normal differentiation and a lactate dehydrogenase (LDH) of 908 $IU \cdot l^{-1}$ (upper limit of normal: 450 $IU \cdot l^{-1}$). Tests for serum antineutrophil cytoplasmic auto-antibodies (ANCA), alpha-fetoprotein (AFP), carcinoembryonic antigen (CEA), human chorionic gonadotropin (HCG), and neuron-specific enolase (NSE) were negative. Serum immunoelectrophoresis showed no evidence of monoclonal gammapathy.

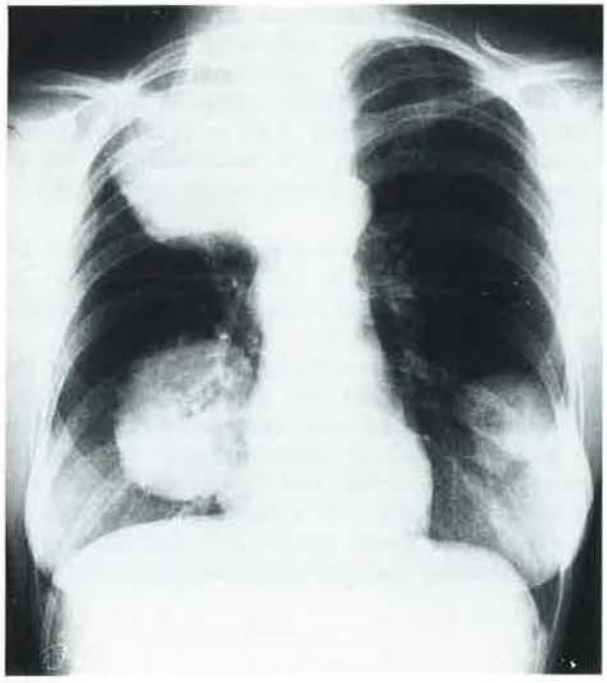

Fig. 1. – Chest radiograph before admission: large rounded lesion with a diameter of 9 cm at the top of the right lung, as well as several smaller nodules (one behind the heart) with discrete excavation in both lung fields.

A computerized tomographic (CT) scan of the thorax was performed one week after the chest X-ray; it confirmed the excavating nodules in both lungs. The lesion at the top of the right lung was shown to be caused by a large, non-homogeneous mediastinal mass with excavation, extending ventrally and to the right of the trachea.

Fibrebronchoscopy revealed extrinsic compression of

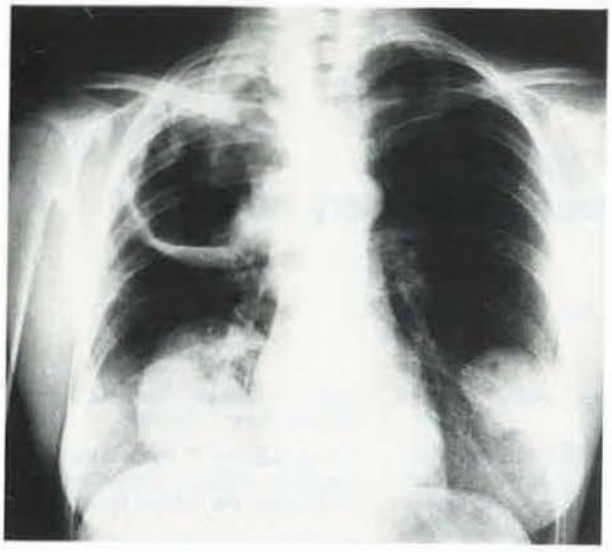

Fig. 2. – Chest radiograph, February 28, 1992: increased size of the right-sided masses with prominent cavitation, especially in the mass at the apex of the right lung.

the apical subdivision of the right upper lobe bronchus. A transthoracic needle biopsy of this mediastinal mass was performed. Examination of this biopsy revealed a picture of a non-Hodgkin's lymphoma. The tumour cells strongly reacted with the monoclonal antibody OKB2, thus demonstrating their B-cell origin. In addition, they displayed the ultrastructural characteristics of a centroblastoma, according to the Kiel classification [2]. Further staging revealed smaller abdominal lesions, compatible with lymphoma localizations.

A follow-up X-ray of the chest, taken on February 28, 1992, showed significant evolutive changes (fig. 2). There were, however, no changes in the clinical condition of the patient at that time.

The diagnosis of non-Hodgkin's lymphoma of the mediastinum, with secondary pulmonary involvement, was made. Treatment with combination chemotherapy was started. Despite an initial favourable response, the disease progressed rapidly and the patient died of a disseminated lymphoma. At autospy, lymphomatous involvement of the thorax (mediastinum and parenchymal nodules), abdomen and central nervous system was documented.

Discussion

There is no consensus on the diagnostic criteria for primary pulmonary lymphoma (PPL). SALTZSTEIN [3] defined PPL as a lymphoma that originally involves only the lung (with or without its regional lymph nodes), and in which there is no evidence of dissemination for at least 3 months after the diagnosis is made. Some authors are more restrictive, accepting only hilar and not mediastinal node involvement [4]. Primary pulmonary NHL comprises less than 1% of all cases of NHL [1]. They are usually of the low grade, small, lymphocytic subtype with B-cell characteristics, and are considered to originate from the mucosa-associated lymphoid tissue (MALT) of the bronchus [1–3].

Pleuropulmonary involvement with lymphoma in patients known to have disease outside of the thorax (SPL) is much more common than PPL, and occurs in about 20–30% of the cases of NHL. Any of the histological subtypes can be responsible, and their pathological, roentgenological, and clinical manifestations tend to be similar [1].

Although an aggressive PPL with spread to the mediastinum and extrathoracic sites cannot be completely excluded, we think that our patient represents a case of SPL, with the primary focus most probably in the mediastinum.

The roentgenographic manifestations of intrathoracic PPL and SPL are very similar, and include the following patterns: mediastinal and/or hilar lymph node enlargement (more common in SPL), diffuse reticulonodular changes resembling lymphangitis carcinomatosa, solitary or multiple nodular lesions, parenchymal consolidation simulating acute airspace pneumonia, miliary changes, atelectasis and obstructive pneumonitis due to endobronchial involvement (more common in SPL) and, finally, pleural involvement with effusion [1, 4–6]. Cavitation of pulmonary nodules in NHL, however, is very uncommon.

Cavitation of pulmonary nodules appears to be an extremely rare radiographic finding in both forms of pulmonary lymphoma. COOLEY *et al.* [7] described a case of PPL (a "lymphosarcoma of the large lymphocytic type") with a large mass in the lingula of the left lung, containing a central necrotic cavity, 8 cm in greatest diameter. STERNBERG *et al.* [8] reported a case of PPL (a "small cell lymphocytic lymphoma") having a large consolidation in the left upper lobe with a large cavity, 6 cm in greatest diameter, and a fluid level. One of the cases in the series of BARON and WHITEHOUSE [9], reported to be a case of PPL (a "lymphosarcoma"), displayed a rounded lesion in the right middle lobe showing excavation. BALIKIAN and HERMAN [10] described cavitation in a solitary nodule in two patients with SPL (both of the "histiocytic type"), following chemotherapy in one case. Finally, CORDIER *et al.* [4], mention one case with a cavitary mass on chest X-ray in their series of 70 cases of PPL; this patient had a low-grade NHL.

The occurrence of multiple cavitating pulmonary nodules in NHL, as was the case in our patient, is extremely rare. To the best of our knowledge, only one such case has been reported; NORTH *et al.* [11] depicted the chest radiograph of a patient with a large cell lymphoma, showing multiple excavating lesions. It was not specified whether this was a case of PPL or SPL.

Our case emphasizes the fact that NHL has to be included in the differential diagnosis of multiple cavitating pulmonary nodules.

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