Squamous Cell Carcinoma Associated with Sarcoidosis in the Lung

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Key Words

Sarcoidosis
Squamous cell carcinoma
Immune deficiency

Abstract

A male patient, operated for squamous cell carcinoma of the lung, in whom sarcoidosis was discovered in the resected lung specimen, is reported. The increased association of sarcoidosis along with malignant diseases is discussed, as well as the various mechanisms probably responsible for this association.

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Introduction

According to the immune surveillance theory in humans, a well-functioning immune mechanism is one of the conditions necessary for the prevention or limitation of the development of malignant neoplasms [1–2]. In congenital as well as acquired immune deficiency states, a higher incidence of malignancies has been observed [2].

Since various immunological disturbances are characteristic of sarcoidosis [3], in particular those due to dysfunction of the cellular immune system [4–6], a higher incidence of malignancies associated with this disease is to be expected. Till now, only a few cases describing this combination have been reported [7–8] and attempts have even been made to estimate their frequency [9].

We hereby report a patient who underwent surgery for squamous cell carcinoma of the lung, in whom sarcoidosis was accidentally discovered.

Case Report

A 66 year old male was admitted to our hospital because of a cough which appeared three months prior to his admission,

Figure 1: Squamous cell carcinoma of the lung (H.E $\times$ 250).

without a history of bloody sputum, fever, chest pain, or weight loss. His chest X-Ray revealed a round shadow in a segment of the lingula of the upper lobe as well as a bilateral hilar enlargement. On admission he was in good general condition. No shortness of breath, pallor, or jaundice was observed. There were no auscultatory findings over the lungs. Lymph nodes, liver, and spleen were not palpable. Routine laboratory tests, including serum proteins and calcium, were normal. Skin tests (SK-SD, Candida and trychophyton in both strengths) revealed complete anergy. The number of T lymphocytes was 45 % (controls $\geq$ 60%). The test for graft versus host reaction was negative. Pre-operative pulmonary function tests showed marked emphysema. Therefore only left upper lobectomy was performed. There was no evidence of interlobar extension. A mass of 8 cm in diameter was palpated. Enlarged lymph nodes were noted around the hilus of the upper lobe, but none around the lower lobe. The post operative course was uneventful except for transitory jaundice attributed to halothane anaesthesia.

The histological examination of the excised lung tissue revealed an area of squamous cell carcinoma (figure 1) as well as other areas of sarcoidosis with non-caseating granulomas (figures 2—3).

A chest X-Ray done 3 weeks after surgery showed nothing out of the ordinary except for widening of the hili and pleural thickening.

Discussion

Since sarcoidosis is a disease associated with immunological defects [3–6], a high incidence of combination with malignancies should be expected. However, to our knowledge, this association has only been reported in a small number of cases [7–9]. In the study carried out by Brincker [8], of among 1500 patients with lymphoma, 5 had sarcoidosis as well. This frequency of sarcoidosis in patients with lymphoma is high, considering the fact that the incidence of sarcoidosis alone in a normal population of 100,000 is five [9–11]. In each case, sarcoidosis was diagnosed before the malignancy. Brincker and Wilbek [9] in their attempt to estimate the frequency of the aforementioned association, studied 2544 patients with sarcoidosis between the years 1962 and 1971: among them 48 developed malignancies. According to their calculations, the incidence of neoplasms among patients with sarcoidosis is significantly higher ($p < 0.02$) than in the general population. In their survey, no significant correlation was noted as far as the frequency of sarcoidosis with specific types

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Figure 2: Lymph node of hilus showing sarcoid granulomas (H.E. X 100).

sarcoidosis and immunological defects with malignancy is an interesting one although difficult to prove with certainty owing to the paucity of cases describing this

combination of diseases. According to Brincker and Wilbek, importance must be delegated to the chronic pulmonary changes caused by sarcoidosis in that they might cause additional carcinogenous stimuli [9].

Nevertheless, sarcoid-like changes in the lymph nodes of patients with epithelial neoplasms of the lungs [8], as well as in cases of lymphoma [7], should not be attributed to sarcoid disease.

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of malignancies is concerned. The most common neoplasm was that of the lung (9 out of 48 patients). The next were skin tumors (7 patients) Hodgkin's disease, and carcinoma of breast (4 patients each).

It is interesting to note that pulmonary neoplasms were more common among males (8 out of 9 patients), as seen in the presently described patient.

The association of sarcoidosis and pulmonary malignancy is of utmost importance, due to the diagnostic problem arising in a patient with sarcoidosis in whom an additional shadow in the lung is discovered, which may be unjustifiably attributed to sarcoidosis when it is in fact a malignancy. In our patient sarcoidosis was discovered accidentally, and did not actually express itself clinically or in laboratory tests.

The problem concerning the possible correlation between

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Figure 3: Lung parenchyma with three sarcoid granulomas (H.E. X 100).