Lymphomatoid granulomatosis mimicking bronchial carcinoma

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Summary: This report concerns a patient with lymphomatoid granulomatosis who presented with multiple ulcerated skin nodules, a solitary pulmonary mass and a cerebral mass. Biopsies taken from the skin and lung lesion showed necrotic tissue only. This combination of physical signs and the initial non-specific histological changes suggested a diagnosis of primary bronchial carcinoma with secondary spread. However, the subsequent temporary improvement and a further histological examination enabled a diagnosis of lymphomatoid granulomatosis to be made and this was confirmed at post-mortem. This report emphasizes the difficulty in obtaining diagnostic material in lymphomatoid granulomatosis and highlights the need to consider this diagnosis in a patient with suspected carcinoma when biopsy material shows necrotic tissue only.

Introduction

Lymphomatoid granulomatosis was first described in 1972¹ as an angiocentric angiodestructive lymphoreticular and granulomatous process which predominantly affects the lung, although the skin, kidney, nervous system and adrenal glands may also be involved. The prognosis of lymphomatoid granulomatosis is poor although early diagnosis and treatment may induce remission and prevent the development of a lymphoma which is reported to occur in about 13% of cases.² Pulmonary involvement usually presents as multiple bilateral opacities, although solitary lesions have been reported.³ The combination of a solitary pulmonary mass, skin nodules and other systemic symptoms may wrongly suggest the diagnosis of disseminated carcinoma of the bronchus. Furthermore it is often difficult to obtain diagnostic material from involved areas in lymphomatoid granulomatosis because biopsies commonly show necrotic tissue only.⁴ Thus it is important to consider the diagnosis of lymphomatoid granulomatosis before embarking on a course of radiotherapy for a suspected bronchial carcinoma when histological confirmation has not been obtained.

Case report

A 79 year old female non-smoker was admitted with a

two month history of malaise, hoarseness and skin nodules with ulceration. Individual lesions began as red raised non-tender nodules before breaking down to leave deep ulcers.

Examination revealed three necrotic indurated ulcers of 2–3 cm in diameter on the left shoulder, left side of abdomen and left groin and two dusky red nodules on the left buttock. Physical examination was otherwise normal except for diminished air entry anteriorly over the lower zone of the chest on the right side. On the basis of the history and physical signs a working diagnosis of carcinoma of bronchus with skin metastases was made.

Investigations including full blood count, urea and electrolytes, liver function tests, blood and skin biopsy cultures and sputum cytology were normal or negative. Erythrocyte sedimentation rate was 83 mm in the first hour. Chest X-ray showed a mass postero-inferior to the right hilum with collapse and consolidation of the right middle lobe (Figure 1). A biopsy of one of the skin ulcers showed necrotic material only. Bronchoscopy revealed what was thought to be a necrotic tumour affecting the right middle and lower lobe and carina in between. Bronchial biopsy showed only inflamed necrotic material.

On the basis of these findings a clinical diagnosis of bronchial carcinoma was made and localized radiotherapy was commenced to the chest lesion. Two days later she developed a gradually progressive right hemiparesis. Computerized axial tomogram of the brain showed an area of reduced attenuation in the left

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Figure 1 Chest X-rays on presentation.

Figure 2 A computed tomographic scan, with contrast, showing a round area of enhancement in the left hemisphere.

hemisphere in the region of the thalamus and basal ganglia. The appearances were consistent with a metastatic deposit (Figure 2) and this was thought to be added evidence of a metastatic bronchial carcinoma. However, 3 weeks after the presentation some of the cutaneous ulcers started to heal spontaneously. One persistent nodule was biopsied and this showed a dense deep atypical lymphoid infiltrate with areas of necrosis, vasculitis and granulomatous change (Figure 3). These features were considered to be diagnostic of lymphomatoid granulomatosis.

In view of these findings our patient was commenced on dexamethasone 12 mg/day. However, her general condition continued to deteriorate and she died 3 days later.

At post-mortem external examination revealed three skin ulcers. There was a mass arising from the right lower lobe bronchus and infiltrating the right middle and lower lobes. In the brain a solitary 1 cm nodule was found and a similar tumour involved the left kidney. These gross pathological changes were considered to be consistent with a diagnosis of bron-

Figure 3 Skin biopsy showing dermal vasculitis with a surrounding atypical lymphoid infiltrate (H & E $\times$ 160).

Figure 4 Brain tissue showing a lymphomatous cellular infiltrate with atypical cells invading a blood vessel wall. This is consistent with development of immunoblastic lymphoma (H & E $\times$ 640).

chial carcinoma with secondary spread. However, histology of the lung and kidney specimens revealed areas of necrosis together with a polymorphous cellular infiltrate consisting of lymphocytes, some with atypical features, plasma cells and histiocytes. The brain nodule showed areas of necrosis surrounded by a pleomorphic cellular infiltrate within which large immunoblast-like cells with prominent nucleoli were noted. In addition there were occasional large cells with abundant cytoplasm and bizarre kidney-shaped nuclei which were infiltrating and destroying the muscular wall of the blood vessels (Figure 4). These findings were consistent with lymphomatoid granulomatosis which had progressed to an immunoblastic lymphoma in the brain.

Discussion

Our patient presented with ulcerated skin nodules, hoarseness, collapse of right middle lobe and a mass in the right middle lobe on bronchoscopy. Despite the negative histology these changes were considered to be sufficiently diagnostic of carcinoma of bronchus for deep X-ray therapy to be started and the subsequent development of a hemiparesis with a space occupying lesion in the left hemisphere was thought to be consistent with the diagnosis. However, a repeated skin biopsy showed changes consistent with a diagnosis of lymphomatoid granulomatosis and this was confirmed on post-mortem.

Lymphomatoid granulomatosis usually presents with pulmonary symptoms in middle age. In 90% of

cases pulmonary involvement occurs as multiple oval opacities in the lower zones. Solitary nodules have also been reported.³ It is well recognized that inadequate biopsies may only show necrotic material and open lung biopsy has been advocated.⁴ An adequate biopsy may also offer an opportunity of determining whether or not progression to frank lymphoma has taken place.

Cutaneous involvement occurs in about 50% of cases and may be the presenting feature. Pruritus, skin nodules with ulceration, acquired ichthyosis, patchy alopecia and loss of sweating have all been reported.³

Central nervous system involvement occurs in about 30% of cases.³ A peripheral neuropathy¹ and mononeuritis may also occur.

Although there is no definitive treatment, radiotherapy^{3,6} has been shown to be effective for symptomatic treatment of local lesions. In a prospective study Fauci *et al.*² reported that early treatment with corticosteroids and cyclophosphamide produced complete remission and also prevented development of lymphoma. Our patient had central nervous system involvement and lymphomatous transformation both of which are associated with resistance to treatment and a very poor prognosis.⁷

This case report emphasizes the need to consider the diagnosis of lymphomatoid granulomatosis in patients considered to have bronchial carcinoma in whom no firm biopsy diagnosis has been made. Although the overall prognosis of lymphomatoid granulomatosis is poor, early treatment may arrest the progress of the disease and prevent the progression to lymphoma.

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