Case reports

A commentary on the following three case reports appears on pages 106-7.

Pleural non-Hodgkin's lymphoma arising in a patient with a chronic pyothorax

N Y Hsu, C Y Chen, S T Pan, C P Hsu

Abstract

A 69 year old man with a chronic left pyothorax was treated by decortication. Although the treatment rapidly improved respiratory function, histopathological examination revealed a diffuse large B cell non-Hodgkin's lymphoma. Subsequent bone marrow biopsy samples disclosed bone marrow involvement. It is possible that non-Hodgkin's lymphoma may develop from a chronic pyothorax.

(Thorax 1996;51:103-104)

Keywords: chronic pyothorax, decortication, non-Hodgkin's lymphoma.

Malignant lymphoma developing from a chronic pyothorax is very rare and has been reported mainly in Japanese series.¹⁻³ We present a case of chronic pyothorax causing chest pain and exertional dyspnoea. A non-Hodgkin's lymphoma with bone marrow involvement was diagnosed after decortication and a bone marrow biopsy.

Case report

A 69 year old man presented with a six month history of increasing dyspnoea and left chest pain. The patient had had a history of chronic pyothorax with some dyspnoea on exertion for 25 years. The pyothorax had resulted from pleuritis of unknown cause. On admission, physical examination revealed decreased breath sounds in his left chest. No lymphadenopathy was found. The full blood count revealed a haemoglobin of 13.2 g/dl, a white cell count of $9.8 \times 10^9/l$ (neutrophils 7.3, eosinophils 0.16, lymphocytes 1.6), and a platelet count of $251 \times 10^9/l$. A chest radiograph demonstrated a cavitating lesion with an air-fluid level and pleural thickening in the left pleural space. A computed tomographic (CT) scan of the chest showed an encapsulated pleural effusion containing inhomogeneous regions and pleural calcification in the posterior part of the left hemithorax. No mediastinal lymphadenopathy was seen. Bronchoscopy disclosed external compression of all bronchial orifices of the left bronchial tree. Thoracentesis under ultrasound control showed that the pleural fluid was an exudate, and cytological examination was negative for malignant cells. Culture of the pleural fluid for aerobic, anaerobic, and acid-fast bacteria was also negative.

A standard posterolateral thoracotomy was undertaken in an attempt to remove the thickening pleura and to re-expand the entrapped lung. At surgery all fluid, clotted blood, loose fibrin, and exudate was removed, and the thickened coating of the visceral pleura was excised. The postoperative course was uneventful, and the intercostal drain was removed on the sixth postoperative day.

Histopathological examination of the thickened pleura and soft tissue revealed sheets of large atypical lymphoid cells associated with extensive tumour necrosis and haemorrhage. Immunohistochemical investigation showed a non-Hodgkin's lymphoma of the diffuse large B cell type (figure). Subsequent bone marrow biopsy samples showed similar lymphoma cells representing 15% of the total nucleated cells (stage IV). Two weeks after the operation the serum titre of the Epstein-Barr capsid antigen IgG was 1:640 (normal serum titre 1:10 or less). The patient then received chemotherapy with cyclophosphamide, epirubicin, vincristine, and prednisolone. There was subjective improvement in the dyspnoea and chest pain, and he is currently alive three months after the operation.

Discussion

Although malignancies such as malignant mesothelioma,⁴ soft tissue sarcoma,⁵ and squamous cell carcinoma⁶ have been reported to develop in the pleural cavity of patients with chronic pyothorax, malignant lymphoma as a

Division of Thoracic Surgery,
Department of Surgery

N Y Hsu
C Y Chen
C P Hsu

Department of Pathology
S T Pan

Taichung Veterans General Hospital,
Taichung Kang Road,
Taichung 405,
Taiwan,
Republic of China

Correspondence to:
Dr N Y Hsu.

Received 13 January 1995
Returned to authors
18 April 1995
Revised version received
4 May 1995
Accepted for publication
1 June 1995

Non-Hodgkin's lymphoma of diffuse large B cells showing dark colouration (peroxidase-antiperoxidase [PAP] staining with L26). Original magnification $\times 400$ reduced to 86% in origination.

complication of chronic pyothorax has only been reported in Japan¹⁻³ and never in Western countries, possibly because of the rarity of chronic pyothorax in the West. Pleural lymphoma was reported in three of 134 patients (2.2%) with chronic tuberculous pyothorax at a Japanese hospital between 1971 and 1985.¹ The case reported here is the second from the Taiwan area.⁷

The mean interval between the start of the chronic pyothorax and the onset of pleural lymphoma was 33 years in the study of Iuchi *et al.*,² similar to the 25 years in this report. In the patients reported by Iuchi *et al.*² and in our patient chest pain, which is not a feature of chronic pyothorax, was the most common presenting symptom of non-Hodgkin's lymphoma. Positive cytological results may not be obtained by pleural aspiration alone, and thoracotomy may be necessary as in our case.

A diffuse large B cell lymphoma is the most common type of primary pleural non-Hodgkin's lymphoma developing in chronic pyothorax.^{1,2,7} The pathogenesis of pyothorax-associated pleural lymphoma is still unknown. Non-Hodgkin's lymphoma may develop in patients with autoimmune disease such as chronic lymphocytic thyroiditis by the process of chronic stimulation.^{8,9} Stimulation of a non-autoimmune nature by chronic inflammation

could also be an aetiological factor in the development of malignant lymphoma from long standing pyothorax.²

In Japan the present treatment for pleural non-Hodgkin's lymphoma is chemotherapy, with or without combined radiotherapy, and the actuarial two year survival rate is 32–42%.² Chemotherapy alone was used in our patient.

- 1 Iuchi K, Ichimiya A, Akashi A, Mizuta T, Lee YE, Tada H, *et al.* Non-Hodgkin's lymphoma of the pleural cavity developing from long-standing pyothorax. *Cancer* 1987;60:1771–5.
- 2 Iuchi K, Aozasa K, Yamamoto S, Mori T, Tajima K, Minato K, *et al.* Non-Hodgkin's lymphoma of the pleural cavity developing from long-standing pyothorax. Summary of clinical and pathological findings in thirty-seven cases. *Jpn J Clin Oncol* 1989;19:249–57.
- 3 Aozasa K, Ohsawa M, Iuchi K, Mori T, Komatsu H, Tajima K, *et al.* Prognostic factors for pleural lymphoma patients. *Jpn J Clin Oncol* 1991;21:417–21.
- 4 Hillerdal R, Berg J. Malignant mesothelioma secondary to chronic inflammation and old scars. *Cancer* 1972;55:1968–72.
- 5 Myoui A, Aozasa K, Iuchi K, Mori T, Yamamoto S, Kuratsu S. Soft tissue sarcoma of the pleural cavity. *Cancer* 1991;68:1550–4.
- 6 Willen R, Bruce T, Dahlstrom G, Dubiel WT. Squamous epithelial cancer in metaplastic pleura following extrapleural pneumothorax for pulmonary tuberculosis. *Virch Arch (A)* 1976;370:225–31.
- 7 Luh SP, Wu RM, Kuo MS, Lee YC. Pleural non-Hodgkin's lymphoma developing from long-standing pyothorax: report of a case. *J Formos Med Assoc* 1993;92:111–3.
- 8 Kato I, Tajima K, Suchi T, Aozasa K, Matsuzuka F, Kuma K, *et al.* Chronic thyroiditis as a risk factor of B-cell lymphoma in the thyroid gland. *Jpn J Cancer Res* 1985;76:1085–90.
- 9 Holm LE, Blomgren H, Lowhagen T. Cancer risk in patients with chronic lymphocytic thyroiditis. *N Engl J Med* 1985;312:601–4.

Thorax 1996;51:104–105

A malignant pleural effusion infected with *Salmonella enteritidis*

G V Gill, A Holden

Abstract

A patient is described with a unilateral pleural effusion persistently infected with *Salmonella enteritidis*. The infection was eventually eradicated with ciprofloxacin. A computed tomographic scan and mediastinal lymph node biopsy demonstrated an underlying small cell bronchogenic carcinoma.

(*Thorax* 1996;51:104–105)

Keywords: pleural effusion, salmonellosis, malignancy.

Food-borne *Salmonella* intestinal infection is increasing in prevalence in the United Kingdom.¹ *Salmonella* infection outside the gastrointestinal tract remains uncommon in western countries and pleural effusions or empyemas infected with *Salmonella* species are extremely rare.²⁻⁸ We report a patient with a small cell lung carcinoma and unilateral pleural effusion which was infected with *Salmonella enteritidis*.

Case report

A 70 year old man was admitted to hospital with increasing dyspnoea and weight loss of 10 kg in three months. He had a history of ischaemic heart disease with atrial fibrillation and congestive heart failure and was receiving treatment with digoxin, frusemide, and captopril. He had smoked 15 cigarettes per day up to six years previously.

Examination revealed an ill and wasted man who was clinically anaemic and had signs of a large left pleural effusion. The pulse rate was 80/min in atrial fibrillation, blood pressure was 140/85, and there were no signs of heart failure. Chest radiography confirmed the unilateral effusion, and the electrocardiogram showed atrial fibrillation with digitalis effect. Haemoglobin was 9.7 g/100 ml with a normochromic normocytic blood film. Serum levels of ferritin, vitamin B₁₂, and folate were normal, and a subsequent bone marrow aspirate was unremarkable. The erythrocyte sedimentation rate was 65 mm in the first hour. Serum urea, creatinine, and electrolyte levels were normal, as were blood glucose and serum calcium levels. Serum tests of liver and thyroid function were unremarkable, and the serum cholesterol concentration was 5.6 mmol/l.

Pleural aspiration was carried out and 1200 ml of cloudy fluid was obtained. The protein level was 45 g/l and glucose concentration 0.3 mmol/l. No malignant cells were seen but *Salmonella enteritidis* was grown on culture. The patient had no fever or clinical

Department of Medicine,
Walton Hospital,
Liverpool L9 1AE, UK
G V Gill
A Holden

Reprint requests to:
Dr G V Gill.

Received 10 August 1994
Returned to authors
19 October 1994
Revised version received
11 November 1994
Accepted for publication
14 November 1994