T-cell lymphoblastic lymphoma of the uterus complicated by *Chlamydia trachomatis* pneumonia

David Cunningham¹, Nigel L. Gilchrist¹*, Frederick D. Lee², Michael Haxton³, Andrew Heppleston¹, Gordon J. Forrest¹ and Michael Soukop¹

Departments of ¹Medical Oncology, ²Pathology and ³Gynaecology, Royal Infirmary, Glasgow, Scotland, UK.

Summary: This is the first documented case of a T-cell lymphoblastic lymphoma arising in the uterus. At presentation, the patient also had a life-threatening pneumonia due to *Chlamydia trachomatis* which responded to erythromycin and tetracycline. Cytotoxic therapy produced partial tumour regression, but the patient died 14 weeks after diagnosis, probably as a result of intercurrent infection.

Introduction

Lymphoblastic lymphoma is a rare tumour occurring most commonly in young men (Nathwaini et al., 1976). The usual presentation is with an anterior mediastinal mass and cervical lymphadenopathy and unless treated there is rapid tumour spread and death. In its fulminant form it resembles acute lymphoblastic leukaemia, but with intensive cytotoxic therapy long term survival may be possible in 50% of cases (Levine et al., 1983). *Chlamydia trachomatis* pneumonia is rare and has only recently been recognized in healthy (Komanoff et al., 1981) and immunocompromised (Tack et al., 1980) patients. Confirmation of this infection involves either positive immunobiological culture or positive serology, coupled with clinical response to the appropriate antibiotic. We describe a case of lymphoblastic lymphoma that responded partially to cytotoxic chemotherapy but was complicated by compromised immunity leading to death 14 weeks after diagnosis.

Case report

A 25 year old female from poor social circumstances was admitted to hospital with persistent vaginal bleeding, malaise and increasing breathlessness 3 months after the birth of her fourth child. In the past, she had developed pneumococcal pneumonia after the delivery of her first child, and the delivery of her second child was complicated by maternal pneumococcal septicaemia and pneumococcal meningitis in the neonate. Examination revealed a thin, under-nourished woman (36 kg) who was pyrexial (39.5°C), tachypnoeic and dehydrated with bilateral basal lung crepitations and uterine enlargement compatible with a 15 week pregnancy.

The chest X-ray on admission demonstrated a diffuse nodular opacification of the lung fields with a superimposed coarse reticular pattern (Figure 1).

Figure 1 Chest X-ray: Diffuse nodular opacification with superimposed coarse reticular pattern is seen.

Correspondence: D. Cunningham, M.R.C.P.

*Present address: Department of Medicine, The Princess Margaret Hospital, New Zealand.

Accepted: 24 June 1985

© The Fellowship of Postgraduate Medicine, 1986
Routine haematology and biochemistry were normal except the serum albumin which was low at 29 g/l. Culture of blood, sputum and urine were negative for micro-organisms, yeasts and mycobacteria. Viral titres and serology for Mycoplasma pneumoniae and Legionella pneumophila were also negative. Serum titres for Chlamydia trachomatis were positive at 1/1024 with pool titres, A–C = 1/32, D–K = 1/256, LGV = 1/256 with negative titres for Chlamydia psittaci. Uterine and vaginal swabs were negative for Neisseria gonorrhoea, C. trachomatis, yeasts, and Actinomyces. An emergency dilatation and curettage was performed and the uterine scrapings showed a high grade lymphoma of T-cell type.

Initial treatment consisted of intravenous (i.v.) fluids, oxygen and i.v. ampicillin and metronidazole but the patient's condition deteriorated and she required intermittent positive pressure ventilation (IPPV). Intravenous tetracycline and erythromycin were added to the therapeutic regime and over the following 6 days the pneumonia improved with resolution of the abnormalities on the chest X-ray, apart from an area of opacification of the right lower zone, and IPPV was discontinued. At this point hepatomegaly developed and a liver biopsy showed infiltration by lymphoma. She was therefore commenced on combination chemotherapy comprising i.v. cyclophosphamide, doxorubicin, etoposide, methotrexate and vincristine with intramuscular bleomycin and oral prednisolone. Following this therapy the uterine mass regressed in size and the chest radiograph became normal. However, she continued to lose weight and after two febrile episodes unresponsive to antibiotics, and two courses of chemotherapy, proptosis and chemosis of the right eye developed. Thereafter there was progressive deterioration in her general clinical state, with pyrexia and further weight loss. Chemotherapy was stopped and the patient died shortly afterwards. From presentation to death was 14 weeks.

Pathology

The stroma of the endometrial curettings was replaced by an infiltrate of lymphoid cells with indistinct cytoplasm and nuclei which were similar in size or slightly smaller than those of reactive histiocytes (Figure 2). The nuclei of the tumour cells generally had a fine chromatin pattern with only small indistinct nucleoli, and were markedly irregular in outline. There was no evidence of immunoglobulin either on the surface or in the cytoplasm of the tumour cells but the majority of the cells showed positive surface reaction with the antibodies OKT3 and OKT8. Therefore, the tumour was diagnosed as a malignant lymphoblastic lymphoma of T-cell type.

At post-mortem the only evidence of residual tumour was in the portal tracts of the liver. The exophthalmos of the right eye was due to a pad of necrotic fatty tissue deposited in the posterior half of the orbit with no evidence of tumour. However, there was widespread erythrophagocytosis in the liver and bone marrow, which may have been due to a terminal viral infection (Wintrobe, 1974), although all post-mortem, viral and bacteriological cultures were negative.

Discussion

T-cell lymphoblastic lymphoma is a rare tumour and comprises only a small percentage (4%) of non-Hodgkin's lymphomas (NHL) (The Non-Hodgkin's Lymphoma Pathological Classification Project, 1982) and to our knowledge there are no previous reports of this tumour developing in the uterus as a primary site. Indeed, in an extensive retrospective review of 470 cases of NHL (Rosenberg et al., 1961), only five involved the female genital tract, one of which involved the uterus but the precise histology of this tumour was not established because immunocytochemistry was not then available. Moreover when Nathwani et al. (1976) reviewed the current literature they found that all well documented cases of T-cell lymphoblastic lymphoma occurred in children or teenagers and none involved the uterus.

Harris & Scully (1984) recently reviewed 27 cases of genitourinary NHL and two were localized to the uterus. Both presented with vaginal bleeding and difficult histological interpretation (diffuse histiocytic and Burkitt-like tumour) but T-cell markers were not performed. Tumour at time of staging was extensive, and neither surgery nor radiotherapy produced a

Figure 2  Endometrial biopsy: the abnormal infiltration consists of small lymphoid cells with indistinct cytoplasm and irregularly shaped nuclei. Occasional reactive histiocytes containing injected nuclear debris are seen. H & E x 500.
response, and both patients died within a year. Our patient’s tumour was sensitive to chemotherapy as reflected in the findings of minimal residual tumour at post-mortem following a relatively short period of chemotherapy. It is therefore likely that complete remission of tumour could have been obtained had the patient not died of what is assumed to be undiagnosed, intercurrent infection after the successful treatment of the Chlamydia trachomatis pneumonia.

This patient’s past infections, poor social circumstances (Frommel et al., 1979) and compromised immunity due to her lymphoma (Whisler et al., 1984) are well known predisposing factors for a life-threatening pneumonia. The typical radiographic features (Tack et al., 1980; Radkowski et al., 1981), positive serology and clinical response to erythromycin suggest that patient had C. trachomatis pneumonia.

Chlamydia trachomatis is a recognized cause of pneumonia in neonates and infants (Schacter et al., 1975) but recently this organism has also been implicated in community acquired pneumonia (Komanoff et al., 1981) and respiratory infections of immunocompromised patients (Tack et al., 1980). However, in this last group, respiratory infection has not been previously described in association with well documented diagnostic C. trachomatis serology. Our patient had titre of 1/1024 to C. trachomatis and although C. trachomatis was not isolated from the respiratory tract, C. trachomatis with pooled antigen D–K is well known to cause pneumonia in neonates (Harrison et al., 1978). Furthermore, the failure in this case to isolate C. trachomatis from the genital tract does not exclude it as the primary source of infection (Komanoff et al., 1981; Treharne et al., 1983).

In conclusion, we have documented that T-cell lymphoblastic lymphoma may arise as a primary tumour of the uterus and that in this site the tumour remains sensitive to chemotherapy.

Acknowledgements

The authors thank Miss A. Penrice for typing this manuscript and Mr Peter Mackie for technical advice.

References


