



Synchronous follicular non-Hodgkin's lymphoma and hairy cell leukaemia: a case report

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Dear Editor,

Follicular lymphoma (FL) is a common form of non-Hodgkin's lymphoma (NHL), accounting for approximately 22% of cases [1]. FL usually follows an indolent course but can transform to high-grade disease (commonly diffuse large B cell lymphoma (DLBCL)). Patients with FL have an increased risk of the later development of second malignancies [2]. Hairy cell leukaemia (HCL) is an uncommon malignancy, derived from lymphoid cells with a distinctive morphology and immunophenotype. Patients with HCL have also been reported to have a higher incidence of other malignancies [3]. These are usually non-haematopoietic, but patients with HCL have also, rarely, developed other lymphoid malignancies, primarily chronic lymphocytic leukaemia (CLL) [4, 5]. We describe a patient who simultaneously presented with follicular lymphoma and HCL. To our knowledge, only one similar case has been reported in the literature, and, interestingly, this patient also had an incidentally found renal cell carcinoma [6].

A 48-year-old woman presented with night sweats, weight loss and widespread lymphadenopathy (cervical, supraclavicular, axillary, mediastinal, retroperitoneal and inguinal). She had massive splenomegaly (21 cm on imaging). Her white cell count was normal with differential count showing $2.3 \times 10^9/l$ neutrophils, $3.3 \times 10^9/l$ lymphocytes and $0.4 \times 10^9/l$ monocytes. Biopsy of an axillary lymph node revealed FL (Fig. 1a). Immunohistochemistry showed CD20, CD10, and Bcl-2-positive cells, and FISH analysis revealed a translocation between chromosomes 14 and 18, confirming the diagnosis of follicular lymphoma.

PET-CT showed FDG uptake within the marrow, and a marrow biopsy was performed. Pathology showed an infiltrate of lymphoid cells morphologically suggestive of HCL (Fig. 1b). Immunophenotyping by flow cytometry demonstrated a clonal population of B cells which were SmIg lambda light chain restricted, CD19+, CD20+, CD22+, CD43+, CD38+, CD11c, CD103+ (Fig. 1d), CD25+, FCM7+, and negative for CD5, CD10, CD23 and CD1a. Of note, BRAF V600E mutation analysis performed on the lymph node and bone marrow was negative. Marrow trephine suggested involvement by HCL (Fig. 1c).

She was treated initially with R-CHOP, but relapsed 18 months later when she presented with extensive intra-abdominal lymphadenopathy. Lymph node biopsy showed transformation to DLBCL. Marrow aspirate morphology and immunophenotyping showed, in addition, a residual HCL infiltrate. She subsequently underwent allogeneic transplantation after a second relapse.

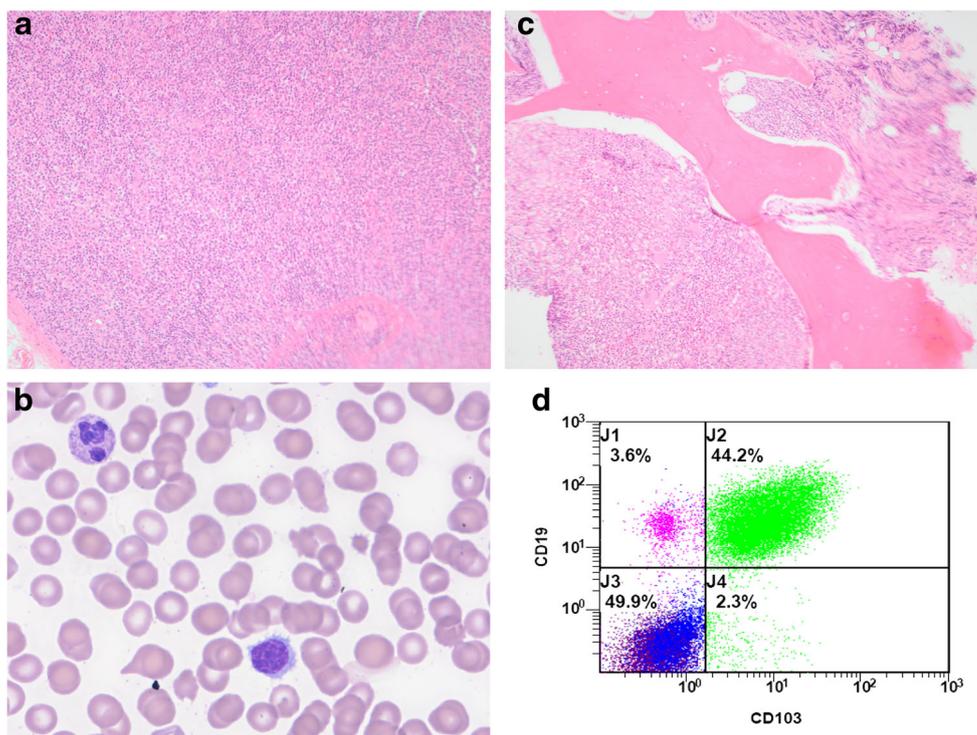
Published data show that the incidence of second malignancy is increased in HCL patients compared to that of the general population both before and after diagnosis of HCL [2–5]. The incidence of second malignancies is highest in the 2-year period following diagnosis, and it has been speculated that the increased cancer risk is primarily related to therapy for HCL. However, the rate of concurrent diagnosis of HCL and another malignancy is estimated at 2.6% [4], which suggests that a predisposition to malignancy cannot be solely explained by immunosuppression associated with HCL therapy. Thus, patients with HCL may have an inherent predisposition to malignancy [2].

Second haematological malignancies are less common than non-haematopoietic malignancies in HCL patients [4, 5]. A number of cases have been reported of HCL co-existing with aggressive T cell lymphomas and CLL [7, 8], but co-existence with NHL is rare. The identification of two concurrent B cell malignancies in this case, one a highly unusual BRAF

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Fig. 1 **a** Lymph node biopsy (showing follicular lymphoma (haematoxylin and eosin). FISH was positive for *t(14:18)*. **b** Marrow aspirate showing hairy cell morphology (Giemsa). **c** Marrow trephine showing a diffuse infiltrate of small lymphoid cells with cytoplasmic clearing, consistent with involvement by HCL (haematoxylin and eosin). **d** Immunophenotyping of the marrow aspirate showing CD103 positivity. FISH, fluorescence in situ hybridization



mutation-negative HCL, had a significant impact on therapeutic decisions and prognosis.

Compliance with ethical standards

This article does not contain any studies with animals or human participants. The patient in question gave her informed consent for the use of anonymous details in this case report.

Conflict of interest The authors declare that they have no conflicts of interest.

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