Primary anaplastic large-cell lymphoma, ALK1 negative, of the liver: A case report

A Tsavari¹, K Koulia¹, E Skafida*, D Myoteri¹, A Zisi², X Grammatoglou¹, T Vasilakaki¹

Abstract
Introduction
Primary extranodal lymphomas of the liver are notably rare. A proportion of cases are associated with infection with hepatitis C or B, HIV, EBV or primary biliary cirrhosis. We report the case of a 45-year-old man who presented with abdominal pain and weight loss.

Case report
Physical examination revealed an enlarged liver, but ascites, jaundice, splenomegaly and peripheral lymphadenopathy were absent. Laboratory studies showed elevated hepatic enzymes. Tumour markers CEA and AFP were normal. Abdominal computed tomography revealed multiple hypodense lesions in both lobes of the liver. Liver biopsy examination confirmed a diagnosis of non-Hodgkin’s anaplastic large-cell lymphoma of T phenotype. Immunohistochemically, the neoplastic cells were positive for CD43, CD4, CD2, CD3, CD30, CD5 and granulocyte and negative for CD20, CD79a, CD10, EBV, CD15, CEA, CD56, CD57 and ALK1. Bone marrow biopsy did not reveal lymphomatous involvement. The patient received combination chemotherapy, and he was alive 2 years after diagnosis.

Conclusion
Although primary lymphoma of liver is rare compared with secondary hepatic involvement by lymphoma, primary epithelial neoplasms and metastatic carcinoma, the diagnosis should be considered in certain clinical circumstances. The prognosis relates to the specific disease entity.

Introduction
Primary hepatic lymphoma (PHL) is defined as an extranodal lymphoma arising in the liver. Primary lymphoma of the liver is very rare and mainly a disease of middle-aged men. It represents 0.4% of all extranodal lymphomas¹⁻³. Most are diffuse large B-cell lymphoma; mucosa-associated lymphoid tissue lymphomas are the second most common. The exact cause of PHL is still unclear. A proportion of cases are associated with infection with hepatitis C virus, hepatitis B virus, HIV, EBV or primary biliary cirrhosis⁴⁻⁶. We present a very rare case of primary anaplastic large-cell lymphoma, ALK1 negative, of the liver.

Case report
We report the case of a 45-year-old man who presented with abdominal pain and weight loss for the last 3 months. Physical examination revealed an enlarged liver, but ascites, jaundice, splenomegaly and peripheral lymphadenopathy were absent. Laboratory studies showed elevated hepatic enzymes such as alkaline phosphatase, LDH and SGOT. Tumour markers CEA and AFP were normal, but the tumour marker Ca 19.9 was increased (143.25 U/ml). Serology was negative for HIV and for hepatitis C and B viruses. Abdominal computed tomography (CT) revealed multiple hypodense lesions in both lobes of the liver but no signs of lymphadenopathy or ascitic fluid. The pancreas, spleen and biliary tract were normal. CT of the chest did not reveal any mediastinal lymphadenopathy. Past history did not appear to be contributory regarding the aetiology. Liver biopsy examination confirmed a diagnosis of non-Hodgkin’s anaplastic large-cell lymphoma of T phenotype. The tumour consisted of a population of medium- to large-sized cells with irregular, sometimes cerebriform nuclei (Figures 1 and 2). Immunohistochemically, the neoplastic cells were positive for CD43, CD4, CD2, CD3, UCHL1, CD30, CD5 and granulocyte B and negative for CD20, CD79a, CD10, EBV, CD15, CEA, CD56, CD57, TIA-1 and ALK1 (Figure 3). Among the tumour cells, there were non-neoplastic cells consisting of small lymphocytes and histiocytes. Bone marrow biopsy did not reveal lymphomatous involvement. The patient received combination chemotherapy, and he was alive 2 years after diagnosis.

Discussion
Although primary lymphoma of liver is rare compared with secondary hepatic involvement by lymphoma, primary epithelial neoplasms and metastatic carcinoma, the diagnosis should be considered in certain clinical circumstances. In a middle-aged patient presenting with an enlarged liver, upper abdominal pain, weight loss, nausea and fever and having laboratory studies that demonstrate elevated liver function tests but normal alpha-fetoprotein and CEA levels, lymphomatous involvement of the liver is more likely than metastatic or primary carcinoma¹⁻⁵. The exact cause of PHL is unknown⁶⁻⁷. The cell of origin of primary liver lymphoma has been
disputed, and some have postulated the Kupffer cell, but today all point to a transformed lymphocyte as the cell of origin. The majority of PHLs are diffuse large B-cell lymphomas. Low-grade B-cell lymphomas of mucosa-associated lymphoid tissue type are characterized by a dense lymphoid infiltrate within the portal tracks. Primary non-Hodgkin's lymphomas of T or null phenotype are very rare in the liver. Anaplastic large-cell lymphoma were first described by Stein et al. in 1985, and the most common involvement site is the lymph nodes followed by skin, bone, soft tissue and lung. Treatment includes surgery, chemotherapy and radiotherapy, all of which give good results. Surgical resection when feasible is beneficial. Most patients are treated with chemotherapy. The standard treatment for patients with diffuse large B-cell lymphoma is CHOP. The prognosis for patients with PHL relates to the specific disease entity.

**Conclusion**

Although primary lymphoma of liver is rare compared with secondary hepatic involvement by lymphoma, primary epithelial neoplasms and metastatic carcinoma, the diagnosis should be considered in certain clinical circumstances. The prognosis relates to the specific disease entity.

**Consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**Abbreviations list**

CT, computed tomography; PHL, primary hepatic lymphoma.

**References**

Case report


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Figure 3: Anaplastic lymphoma, CD34, ×400.