and is associated with poor prognosis. This may lead strategies to further increase the understanding of drug resistant CML and may represent next frontier in the targeted therapy of CML patients.

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# Hepatocellular carcinoma developing years after extended field radiation for Hodgkin's lymphoma

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## To the Editor

Secondary malignancies (SMs) have been described as a complication of radiation therapy (RT) or combined chemoradiation therapy for Hodgkin's lymphoma (HL). In this article, I describe a patient who developed hepatocellular carcinoma (HCC), 34 years after "total lymphoid irradiation" for HL. Review of the literature suggests this to be the first reported case of HCC developing as a probable consequence of RT.

MN is a 49-year-old patient who, at age 14, was treated with total lymphoid irradiation in 1972 for HL. In 2006, she presented with abdominal pain, early satiety, and a 25-pound weight loss over several months. A CT scan revealed a 17 cm mass involving the right and left lobes of the liver. Hepatitis B and C panels were negative. Alphafetoprotein (AFP) was 6.1 (normal). Core needle biopsy of the liver mass was interpreted as showing HCC with a background of only non-cirrhotic liver tissue. The patient had no history of liver disease. The patient was treated with repeated transhepatic artery chemoembolization and later sorafenib after disease progression. Her disease remains stable approximately four months after starting sorafenib.

SMs have been extensively reported as a consequence of radiation therapy. This subject was reviewed in Acta Oncologica [1], wherein the authors described a 20-year cumulative risk of SMs after HL treatment of 15–20%. They also noted a "much longer latent period" for solid tumors com-

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pared to leukaemias and non-Hodgkin's lymphoma. They also reported that RT is considered to have the "major carcinogenic role" in the development of solid cancers, and that the risk is "greatly increased" for patients treated at a younger age. The authors also noted that while lung cancer, breast cancer, and a variety of other solid tumours have followed HL treatment, no cases of HCC were described after RT alone as treatment for HL. Similarly, a recent review involving 6946 HL survivors from Sweden described no cases of HCC after HL treatment [2]. Finally, a gateway.ovid.com literature search similarly revealed no described cases of HCC after RT for HL.

In summary, I believe this is the first reported case of HCC following RT for HL and that the HCC is likely related to the prior RT since the patient was treated for HL at a young age, the liver was likely included in the RT field, hepatitis panels were negative, and the liver was non-cirrhotic in the uninvolved tissue. Compared to average patients with HCC, the HCC in this patient seems to have behaved in a somewhat different biological manner. While approximately 80% of patients with HCC will demonstrate an elevated AFP, even with her massive tumour, AFP was normal in this patient. In addition, her survival at one year is unusual for patients with extensive unresectable HCC. Since the risk factor for tumourigenesis in this case is different from the usual risk factors for HCC, future work should focus on studying the molecular abnormalities that characterize cancers that develop as a consequence of RT. Such studies may translate into choosing more specific targeted therapies for RT-induced tumors as these therapies become available. Also, this case underscores the need to consider surveillance for SMs in patients when RT or chemoradiation is used to treat HL.

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# Pemetrexed-associated radiation recall dermatitis

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## To the Editor

A 71-year-old man was treated for a left pleural epitheloid malignant mesothelioma in August 2005. The tumour was found unresectable during thoracoscopy and was staged as pT4N1M0 disease. Following pleurodesis, radiation therapy to the thoracoscopy and drainage tracks was delivered with 21 Gy in three fractions of 7 Gy via a lateral field (orthovoltage therapy). The patient developed transient mild erythema over the treated area. Five days later, pemetrexed chemotherapy (500 mg/m$^2$ iv day 1 every 21 days) was instituted with prophylactic corticotherapy and Vitamin B12 and folic acid supplementation. Following the second course, 41 days after the end of radiotherapy, the patient was noted to have a confluent erythematous macular rash limited within the previously irradiated skin area. The dermatitis resolved in one week with local corticotherapy, without recurrence during the following last 4 cycles of pemetrexed. In August 2006, due to progressive disease and worsening respiratory symptoms after a partial remission, the patient underwent a second pleurodesis. A new course of

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