

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

### Pediatric Hematology Quiz – Case 1

A ten year-old girl was diagnosed with anaplastic ependymoma a year ago. She required initially a right ventriculoperitoneal shunt due to obstructive hydrocephalus. Afterwards, the tumour located in the conarium area, was surgically removed. She received craniospinal irradiation with a total dose of 3220 cGy given to the spinal cord and 5640 cGy to the brain, and chemotherapy with vincristine, carboplatin and etoposide alternately with vincristine, cyclophosphamide and etoposide every 21 days. During the first 6 months of therapy she presented moderate leukopenia, thrombocytopenia and anemia that were treated with packed RBCs and platelets trans-

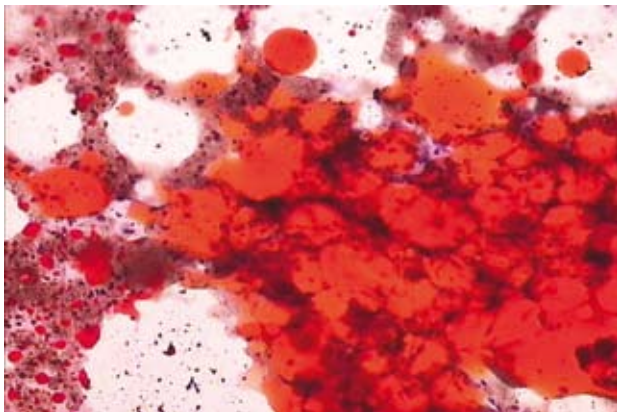


Figure 1

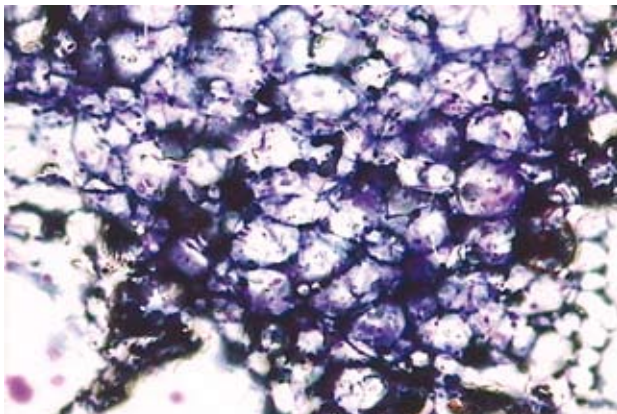


Figure 2

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2008, 25(5):690

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fusions. After 8 courses of chemotherapy, she was admitted with pancytopenia. She was transfused with packed RBCs and platelets, while G-CSF was also administered. Because of the severe bone marrow suppression, especially the prolonged thrombocytopenia, laboratory investigations were performed. Antiplatelet antibodies were not found and bone marrow aspirates revealed the following images that established the cause of thrombocytopenia. Bone marrow aspirates demonstrated extensive fat infiltration due to radiotherapy and chemotherapy (figures 1 and 2). She continued on RBCs, platelets transfusions and G-CSF administration. Leukopenia and anemia were gradually restored two months later, while the platelet count was restored three months later.

#### Comment

*Fatty infiltration of the bone marrow is a relatively common finding in patients with cancer that receive spinal irradiation and must taken under consideration in cases of prolonged bone marrow suppression. Fatty replacement is observed after radiotherapy, caused by the depletion of radiosensitive hematopoietic cells, in addition to microvascular changes, such as arteriolo-capillary occlusion and fibrosis. Thus hematopoietic cells and blood vessels are replaced by yellow fat cells. Bone marrow aspirate and biopsy as well as magnetic resonance imaging (MRI) of the spine can establish the diagnosis. Yellow bone marrow is visualised as areas of high signal intensity in the T1-weighted MRI images. The patient we described unfortunately died six months later, due to the development of her main disease.*

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*Diagnosis: Fatty infiltration of bone marrow*