

Concurrent Primary Mediastinal Germ Cell Tumor and Acute Myeloid Leukemia: Case Report of Sustained Remission and Review of the Literature

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Abstract

Abstract: Introduction: Germ cell tumors (GCT) encompass a wide variety of neoplasms with varying clinical behavior dependent on histology, staging, and site. GCT remain relatively uncommon in the pediatric population and most patients have a favorable prognosis. However, the well-established co-occurrence of primary mediastinal GCT (PMGCT) and acute myeloid leukemia (AML) has a dismal prognosis with few reported patients achieving sustained remission. Case presentation: An 18 y.o. male was concurrently diagnosed with PMGCT and AML, type M7. Cytogenetic analysis revealed a complex set of chromosomal alterations along with homozygous deletion of TP53. His concurrent oncologic processes were managed with a variety of chemotherapy regimens, complete surgical resection of the mediastinal mass, and hematopoietic stem cell transplant (HSCT). He is one of few patients with concurrent PMGCT and AML able to achieve remission with no evidence of disease nearly 5 years after completion of treatment. Conclusion: The rare, but well-identified, association between PMGCT and concurrent or subsequent AML has a dismal prognosis. Modern genetics sequencing has identified common aberrations, including i(12p), trisomy/tetrasomy 8, TP53, and PTEN mutations. With this knowledge, it may allow for future tailoring of therapy to improve the predicted outcome of patients with PMGCT and AML.

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