

## A case of acute promyelocytic leukemia co-harboring with PML-RARA and BCR-ABL rearrangement

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**Introduction:** Acute promyelocytic leukemia (APL) is characterized by PML-RARA fusion and shows distinctly biologic and clinical differences from other types of acute myeloid leukemia (AML). BCR-ABL rearrangement, a hallmark of chronic myeloid leukemia, is rarely expressed in AML, and extremely rare in APL. Here we present a case of a complete remission to induction chemotherapy in a patient with APL co-harboring with PML-RARA and BCR-ABL fusion genes.

**Case report:** A 49-year-old woman presented with menorrhagia for a month. Laboratory findings on admission included; leukocyte counts: 64,800/ $\mu$ L, hemoglobin: 6.9g/dL, platelet counts: 27,000/ $\mu$ L. Bone marrow examination revealed hypercellular marrow with 7.8% of blasts and 82.8% of promyelocytes, rendering to diagnose with APL. However, chromosomal assay displayed t(9;22) in addition to 46,XX, t(15;17) and polymerase chain reaction assay also showed co-existence of PML-RARA and BCR-ABL corresponding to chromosomal abnormalities. All-trans retinoid acid (ATRA) was given promptly after diagnosis but cytotoxic chemotherapy was delayed due to sudden-onset of intracranial hemorrhage (ICH). After one-week use of ATRA, ICH was nearly resolved in the follow-up brain image and then, idarubicin chemotherapy was started at the day 9 after diagnosis. Although a therapy with BCR-ABL tyrosine kinase inhibitors (TKI) such as imatinib, or dasatinib seems to be reasonable, but due to a lack of systematic clinical data in AML, we didn't use these TKIs in the induction regimen. After four weeks of induction therapy, complete remission of APL was achieved and complete molecular response of BCR-ABL was also achieved. She is now undergoing the 2nd cycle of APL consolidation with a favorable clinical course.

**Discussion:** Considering that co-existence of PML-RARA and BCR-ABL is rare, we present a case of patient with APL co-harboring with these genes, who has achieved complete remission with conventional ATRA and idarubicin treatment.

