

## Acute Promyelocytic Leukemia and its Molecular Composition

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### ABOUT THE STUDY

An 85-year old man was admitted while suffering weakness, vertigo, weight loss, and pallor for four weeks. We observed the blood test it showed in  $3 \times 10^9/L$  leukocytes, 9 g/dL haemoglobin,  $49 \times 10^9/L$  platelets, and no disseminated intravascular coagulation were seen in the blood. In the peripheral blood, there were 8% blast cells and 77% abnormal promyelocytes, and in the bone marrow, there were 77 % abnormal promyelocytes (Figure 1)[1,2].

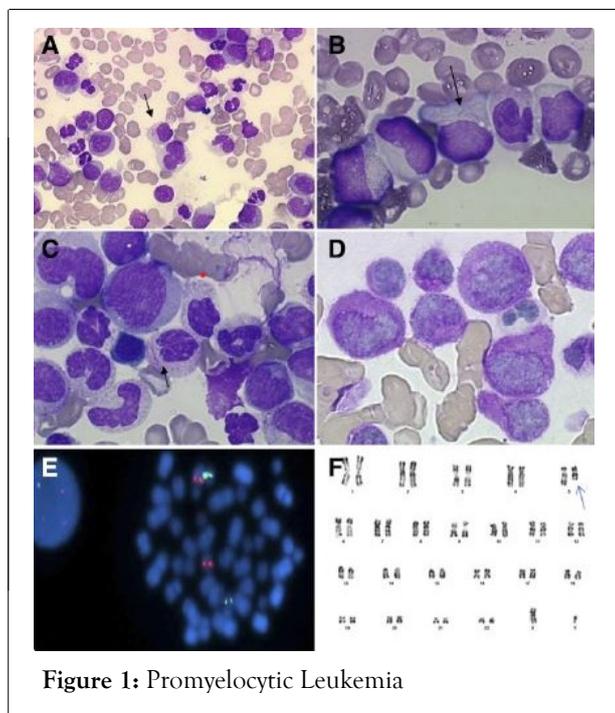


Figure 1: Promyelocytic Leukemia

**Panels A-C:** The cytoplasm of the blasts contained azurophilic granules and Auer rod bundles (faggot cells). The nuclei were regular, irregular, or non-regular. Acute promyelocytic leukaemia is bi-lobed (APL).

**Panel D:** Blast cells were found to be significantly stained by cytochemical stains.100 percent expressed myeloperoxidase. APL of the French-American-British subtype M3 was diagnosed, and the tretinoin was given to the patient. The treatment was halted since there was no reaction. In situ fluorescence hybridization was ruled out [3].

**Panel E:** A promyelocyte is a type of cell that is found in the lining of MLL gene rearrangement and another variant RARA translocation. The presence of promyelocytic leukaemia zinc finger-RARA and signal transducer and activator of transcription 5b-RARA fusion transcripts was ruled out by molecular analysis [4].

**Panel F:** A 5q deletion was found in the karyotype, which could indicate Acute Myeloblastic Leukaemia (AML) linked to myelodysplasia. The patient received only supportive care due to his serious heart ailment and senior age. Other kinds of AML can have bundles of Auer rods and typical APL shape, according to this study. In this case, the retinoid resistance and lack of RARA rearrangement prompted more investigation, which resulted in an alternative diagnosis.

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