

# Marked Thrombocytosis and Megakaryocytic Dysplasia in NPM1 Mutated De-Novo Acute Myeloid Leukemia

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44 year old female presented with gum bleeding since 1 week. No organomegaly was seen. The hemogram revealed hemoglobin—100 g/L, total leucocyte count— $4.2 \times 10^9$ /L and platelet— $1500 \times 10^9$ /L. Previous counts, done 2 months back were normal. Peripheral smear showed marked thrombocytosis and 41% blasts with Auer rod (Fig. 1). Marrow showed similar blasts (47%). Megakaryocytes were adequate with bizarre morphology including large and hyper lobulated forms with some showing separated nuclei (Fig. 2). Maturing myeloid and erythroid components were seen without significant dysplasia. On immunophenotyping, the blasts were positive for MPO, CD34 (weak), CD117 and were negative for HLA-DR. Cytogenetics was normal (46, XX). Molecular genetic

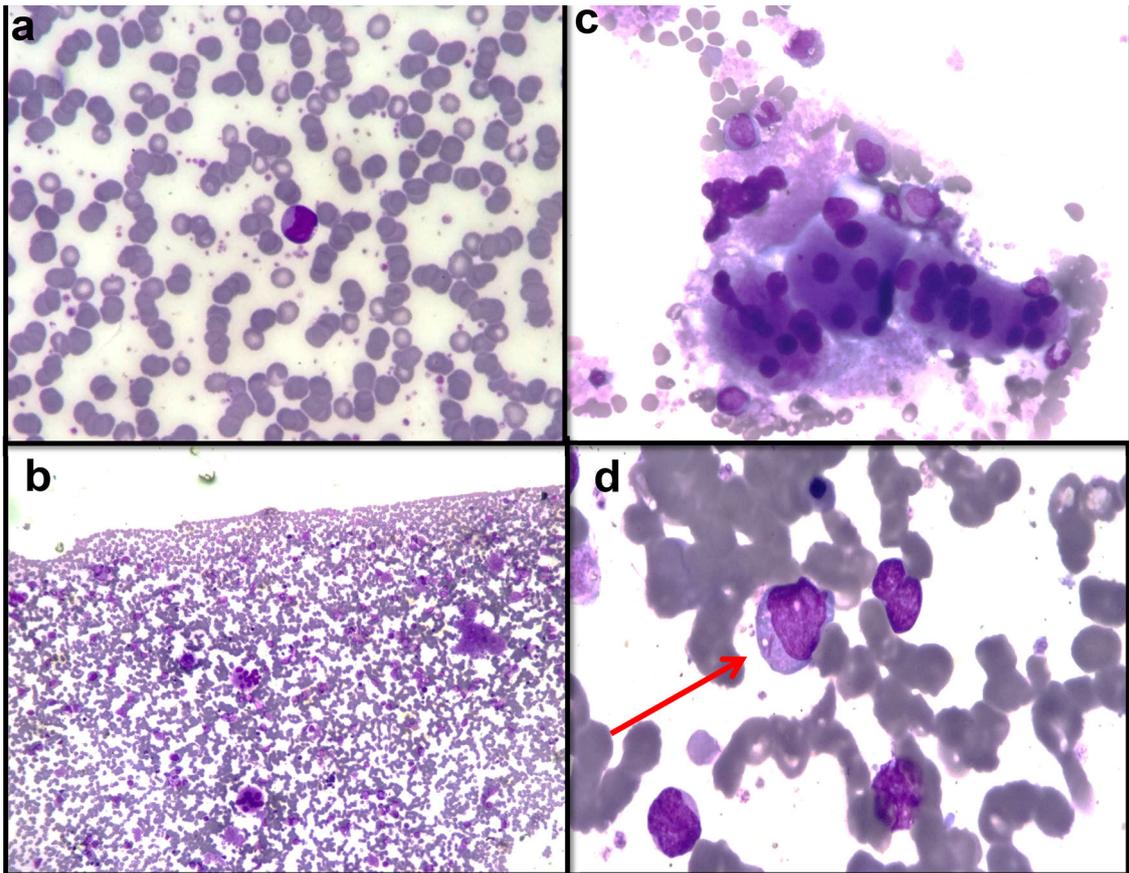
analysis showed mutation of NPM1 (by RT-PCR) with no FLT3-ITD (by RT-PCR) mutation. Subtyping of the NPM1 mutation could not be done due to availability issue. Underlying myeloproliferative neoplasm (MPN) was excluded with negative result for BCR-ABL1 (by multiplex PCR), JAK2 (by ARMS-PCR), calreticulin and MPL mutation. Final diagnosis of acute myeloid leukemia (AML) with mutated NPM1 was made.

Rare cases of de novo AML with thrombocytosis in absence of any recurrent cytogenetic abnormality have been described [1]. NPM1 mutation is only rarely associated with MPN [2]. Ours is an unusual case of NPM1 mutated de-novo AML with marked thrombocytosis.

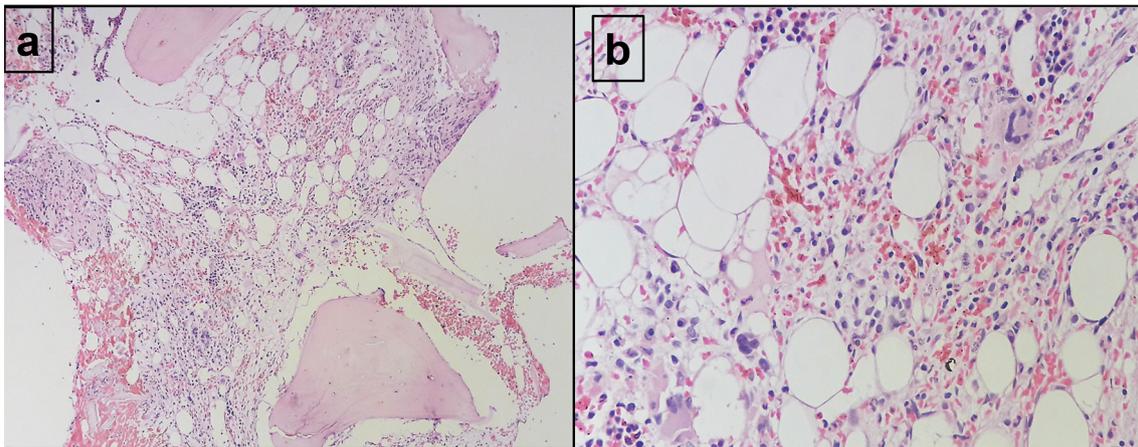
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**Fig. 1** Peripheral smear ( $\times 400$ ) showing thrombocytosis and a blast with cup shaped nucleus (a). Bone marrow ( $\times 100$ ) showing platelet pools and megakaryocytes (b).  $\times 1000$  shows dysplastic megakaryocytes (c). Blast with Auer rod (arrow) (d)



**Fig. 2** End of induction bone marrow biopsy  $\times 100$  showing normal cellularity (a).  $\times 400$  shows mild fibrosis with normal megakaryocytic morphology (b)

## References

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