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Case Report

Acute Promyelocytic Leukemia, Hypogranular Variant: A Rare Case Report

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ABSTRACT

Hypogranular variant of acute promyelocytic leukemia (APML) is a rare entity. Classically it presents with bleeding diathesis. Acute monocytic leukemia is it's closest differential diagnosis. In our case it was diagnosed in a 52 year old male presented with very non-specific symptoms. So, recognisation of morphological features is particularly important for its proper diagnosis as an all trans-retinoic acid (ATRA) is the drug of choice.

Keywords- APML, Hypogranular variant.

INTRODUCTION

Acute promyelocytic leukemia (M3 subtype) is a rare type of acute myeloid leukemia which is characterized by proliferation of neoplastic hypergranular promyelocytes and blasts in peripheral smear as well as bone marrow. [1] Hypogranular variant is encountered rarely. Acute promyelocytic leukemia is the most potentially rapidly fatal if untreated, yet most frequently cured if promptly diagnosed and treated without delay. [2] Hypogranular variant is an extremely rare entity easily gets confused with acute monocytic Leukemia (M5). Here with we report a case of acute promyelocytic leukemia- hypogranular variant that possess particular diagnostic challenge because of its atypical morphology.

CASE REPORT

A 52 year old male presented with fever with chills and breathlessness since last 10-15 days. Clinical examination revealed no hepatosplenomegaly, pallor (++), No icterus, no cyanosis, no lymphadenopathy. Hematological examination was carried out and it showed – Hemoglobin-10.8gm%, Total leucocyte count- 12000/cumm, Platelet- 45,000/cumm. Peripheral smear revealed atypical cells with suppression of neutrophils and lymphocytes. Red blood cells were predominantly normocytic normochromic. Because of presence of atypical cells in peripheral smear and markedly reduced platelet count possibility of acute leukemia was suspected and bone marrow examination was advised. After taking a proper informed written consent bone marrow aspirate was done. It

showed markedly hypercellular marrow with suppressed erythroid and megakaryocytic cells. Bone marrow markedly packed with cells having larger size, increased nucleocytoplasmic ratio, loose chromatin, prominent 2-3 nucleoli and cytoplasm either devoid of granules or containing few fine azurophilic granules many neoplastic cells with characteristic bilobed nuclei(fig-1,2,3) are also seen. Based on these findings diagnosis of hypogranular variant of AML-M3 was given. The patient was immediately started on all trans retinoic acid (ATRA) and cytarabine.

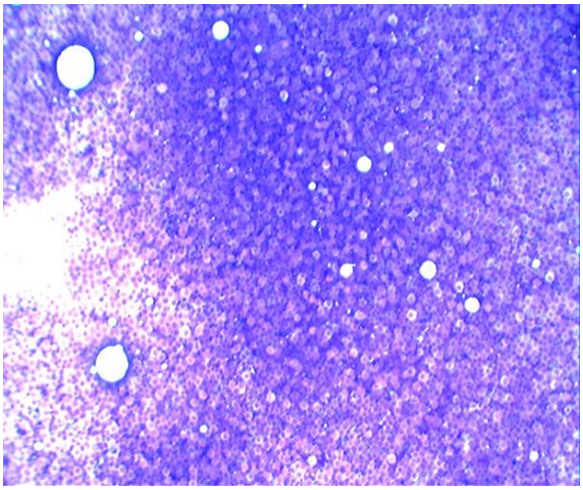

Fig-1 : Photomicrograph showing hypercellular marrow.

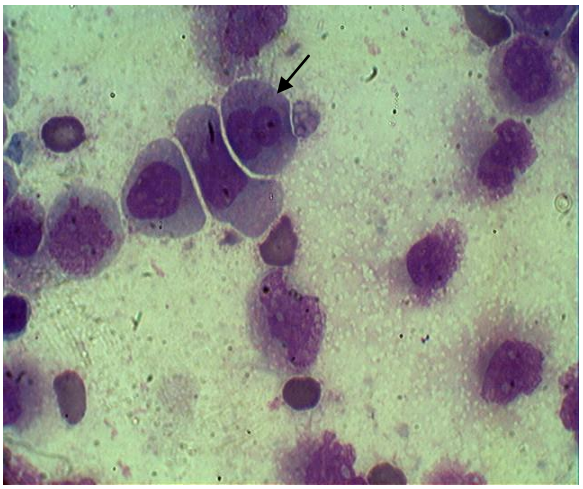

Fig-2: Photomicrograph showing hypogranular promyelocytes, binucleated cell (arrow)

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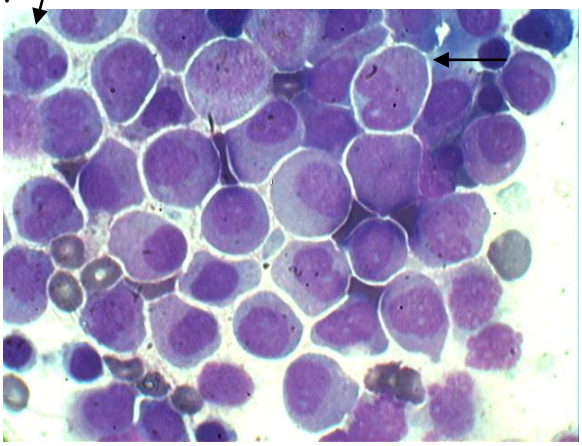

Fig-3: Photomicrograph showing hypogranular promyelocytes and binucleated cells(arrow).

DISCUSSION

As a special entity, acute promyelocytic leukemia was first described in 1957 by a Swedish author, Hillested, when he reported a patient characterized by a very rapid fatal course of only a few weeks duration, with a WBC picture dominantly promyelocytes and a severe bleeding tendency. More detailed features of APL were described by Bernard et al [3] in 1959. The introduction of ATRA opened a new page on the history of APL treatment.

Incidence of classical hypergranular and hypogranular variant constitutes 5-8% of cases of AML is different western series, and hypogranular variant comprises 1/3rd of all cases of acute promyelocytic leukemia. [4,5]

Both of these APL subtypes share a common pathogenic pathway, namely presence of t(15;17) (q21;q22) translocation. The cytomorphology of AML hypogranular variant (M3V) blasts is obviously different from hypergranular blasts on light microscopy. This case report emphasizes importance of high index of suspicion and its proper differentiation from acute monocytic leukemia (M5) as AML (M3V) responsive to all – trans-retinoic acid. [4,6]

M3V & M3 both are strongly positive for Myeloperoxidase, Sudan black,

PAS- cytoplasmic positivity and Acid phosphatase is also strongly positive. The cytochemical reactions in M3V are positive but may be weaker than in M3 hypergranular subtype. [6]

Leukaemic cells of AML-M5 are positive for Non- specific esterase(NSE), but AML-M3V is characteristically negative for NSE, this differentiation is essential as the management of AML- M3V involves the use of all trans retinoic acid(ATRA) while in AML -M5, ATRA has no role. [6]

Leukaemic cells of AML-M3V are CD13+ve, CD33+ve and negative for CD 34. Both M3 and M3V exhibit the unique t(15;17) translocation. [6]

Most of the patients of hypogranular variant presents as consumptive coagulopathy i.e. DIC in its clinical presentation but in this case patient presented with completely non- specific symptoms, non- conclusive peripheral smear findings. Because of this high degree of suspicion` is necessary and bone marrow should be carried out in such cases for a definitive diagnosis. [6]

In our case, clinical presentation was completely different, Total leucocyte count was mildly raised with many atypical cells, morphology of them was not appreciated properly on peripheral smear, that's why bone marrow examination was advised.

CONCLUSION

Thus to conclude, we report this case for its rarity, atypical clinical presentation and for its definitive diagnosis based on light microscopic findings.

REFERENCES

1. Sucić M, Zadro R, Burazer B, et al. Acute promyelocytic leukemia M3: cytomorphologic, immunophenotypic, cytogenetic, and molecular variants. J Hematother Stem Cell Res 2002;11:941-50.
2. Tallman MS, Andersen JW, Schiffer CA, et al. All- trans retinoic acid in acute promyelocytic leukemia: long-term outcome and prognostic factor analysis from the North American Intergroup protocol. Blood. Dec 15 2002;100(13):4298-302.
3. Yoo ES. Recent advances in the diagnosis and management of childhood acute promyelocytic leukemia, Pediator 2011; 54:95-105.
4. Redaelli A, Lee JM, Stephens JM, Pashos CL. Epidemiology and clinical burden of acute myeloid leukemia. Expert Rev Anticancer Ther 2003;3: 695-710.
5. Bennett JM, Catovsky D, Daniel MT, et al. Proposals for the classification of the acute leukemias. French-American-British (FAB) co-operative group. Br J Haematol 1976;33:451-8.
6. Singh T, Acute leukemia,I n: SinghT. Atlas and text of hematology. Delhi: Avichal Publishing company; 2011. p.147-149.

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