CML-006: CML Blastic Crisis Diagnosis Based on a Lymph Node Biopsy in an Egyptian Male Patient: A Rare Case Report

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Background

Chronic myeloid leukemia (CML) is a clonal myeloproliferative triphasic clinical disorder characterized by a distinct genetic abnormality: the **BCR-ABL** fusion gene (**Philadelphia chromosome**). The presence of blasts in the lymph node (LN) is enough for a diagnosis of **blast-phase CML.**

Objective

The case study herein is a very rare presentation. A case report of a 53-year-old Egyptian male patient who presented in 2020 at Oncology Center Mansoura University with night fever and sweats, firm, non-tender, cervical and axillary lymphadenopathy and firm, non-tender splenomegaly.

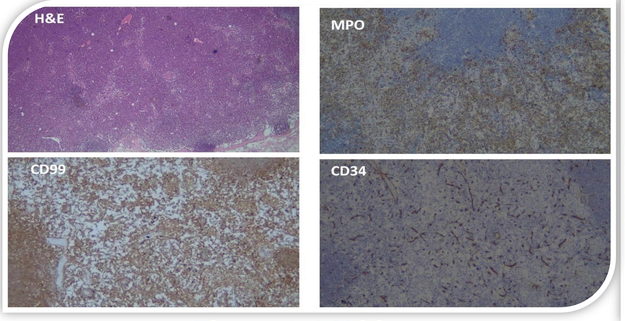


Figure 1. LN biopsy

Patient & Methods

Complete blood count: WBC count 239 k/µL, NN anemia with hemoglobin 11 g/dL, and platelet count 321 k/µL. **Differential leucocyte count** revealed blasts (1%), myelocytes (12%), metamyelocytes (25%), PMNLs (50%), eosinophils (2%), basophils (3%), and lymphocytes (2%). **Bone marrow (BM) examination** was hypercellular; 70% of the total BM cellularity was replaced by myeloid series highlighted by myeloperoxidase, and few blasts (<1%) were CD34$^+$, suggesting chronic-phase CML. BCR-ABL1 gene rearrangement by Q RT-PCR was 65.9% IS. The patient started imatinib 400 mg/d.

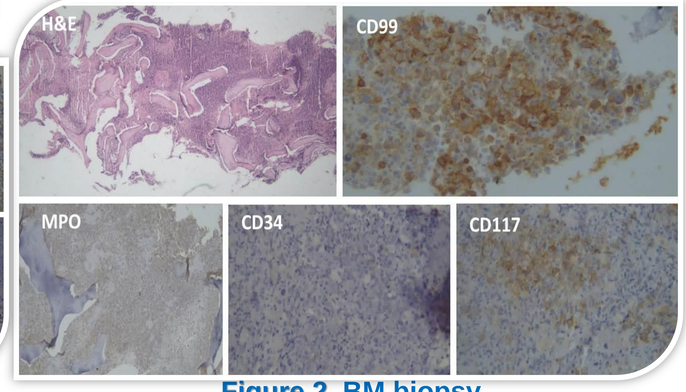


Figure 2. BM biopsy

Summary

LNs were suspicious, and excisional biopsy showed multiple fatty nodules ~3.5×3 cm; the cut section was firm, grayish white, M/E: partially effaced LN architecture, and replaced by infiltrates of myeloblasts (**MPO$^+$, CD99$^+$, CD3$^-$, CD30$^-$, and CD79a$^-$**) (fig.1) with a high Ki67 proliferation index. LN infiltration suggested a **CML blastic crisis** despite the fact that repeated BM aspirate samples revealed no increase in blasts. However, the new BM biopsy (BMB) revealed that most of the cellularity was replaced by myeloblasts revealing **CD99$^+$** (50%), **CD117$^+$** (20%), **CD34$^+$** (<1%) (fig.2).

Acute leukemia risk assessment revealed **FLT3$^-$** and **inv(16)$^+$**, and FISH analysis indicated **t(9:22).** The patient was refractory to ICT and imatinib and was shifted to salvage chemotherapy. Complete remission was confirmed by PET/CT scan and BMB (fig.3); however, he did not achieve a molecular response (**Q RT-PCR for BCR-ABL1 15% IS**). He was switched to dasatinib with consolidation chemotherapy, and HLA matching was done for results.

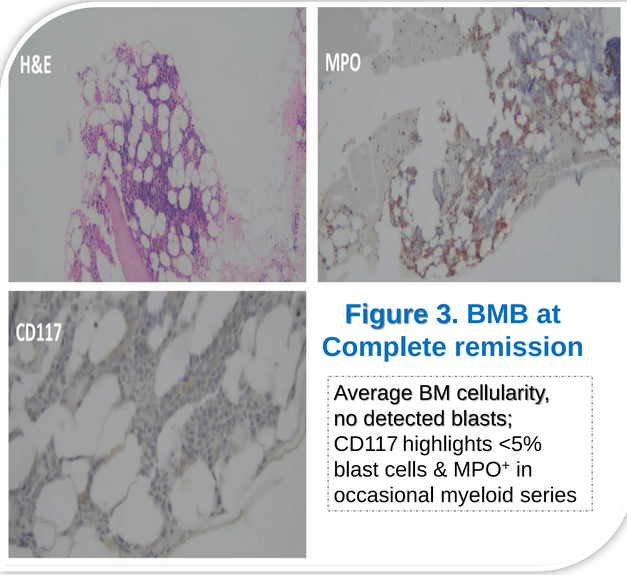


Figure 3. BMB at Complete remission

Average BM cellularity, no detected blasts; CD117 highlights <5% blast cells & MPO$^+$ in occasional myeloid series

Discussion

This case report highlights the importance of a rare CML presentation with extramedullary infiltrates. A myeloid sarcoma should be excluded before setting the treatment plan.

References

1. The 2016 revision to the World Health Organization classification of myeloid neoplasm and acute leukemia. *Blood*
2. Lymph Node Myeloid Sarcoma as a First Presentation of CML Blast Crisis: A Rare Case Report with Review of Literature. *Journal of Clinical & Diagnostic Research.*

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