Cannibalism in Relapsed B-acute Lymphoblastic Leukemia

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A 28 years old male with B-acute lymphoblastic leukemia (B-ALL) on treatment with BFM protocol since 2 years presented with complaints of pain in lower limbs for 2 weeks. Complete blood count showed leucopenia (total leukocyte count- $3.09 \times 10^9/l$) with rare circulating blasts. Bone marrow aspiration showed 82% blasts, 12–20 μm in size with high N:C ratio, immature chromatin, prominent nucleoli and scant basophilic cytoplasm. A few (4–5 per 10 high power fields) of the blasts showed cannibalism with engulfment of adjoining intact blasts. Figure 1a, b No hemophagocytosis by histiocytes or

leukemic blasts was seen. Immunophenotyping by flow cytometry showed the blasts to be positive for CD19, CD10, TdT, CD22 and CD79a. A diagnosis of B-ALL relapse was made. The patient opted for palliation and expired 3 weeks later.

Cell cannibalism is the ability of a cell to phagocytose another live cell. It is a rare phenomenon and relates to a tumor cell engulfing neighboring neoplastic cell. Often reported in solid tumors, it is very rare in hematological malignancies [1]. Cannibalism of blasts implies the engulfment of leukemic blasts by other blast. The possible mechanisms include nutrient deprivation, cytokine

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Fig. 1 Shows sheets of blasts in the bone marrow aspirate. Few of the larger blasts show cannibalism with engulfment of neighboring smaller blasts within a phagocytic vacuole (1a, b). (MGG $\times 1000$)

production and phagocytic potential due to aberrant gene expression [2].

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Animal Rights Statement No animals were used in this study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was not taken as this is an image based report with no patient intervention specific to the study.

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