

CLINICAL IMAGE

Intracytoplasmic crystalline inclusions in chronic lymphocytic leukemia

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Abstract

Neoplastic B cells may have cytoplasmic inclusions that are visible in routine peripheral blood smears by light microscopy.

KEYWORDS

chronic lymphocytic leukemia, cytoplasmic inclusions, flow cytometry, lymphoproliferative disorder

Upon admission to the hospital for acute myocardial infarction, a 58-year-old man was found to have an absolute lymphocytosis (55 440/uL) and normocytic anemia (hemoglobin: 11.6 g/dL; MCV: 95 fL) with a normal platelet count (195 000/uL). Morphologic review of his peripheral blood smear revealed numerous small lymphoid cells with round to ovoid nuclei, coarsely condensed chromatin, and varying amounts of cytoplasm filled with rectangular crystalline

inclusions (Figure 1). Flow cytometry performed on the peripheral blood revealed a weakly lambda-restricted B-cell population, positive for CD5, CD19, CD20 (dim), CD23, and CD200, without expression of CD10 or FMC7, diagnostic of chronic lymphocytic leukemia (CLL).

The presence of intracytoplasmic crystalline inclusions in B-cell lymphoproliferative disorders (most frequently CLL) is uncommon.^{1,2} These inclusions, which

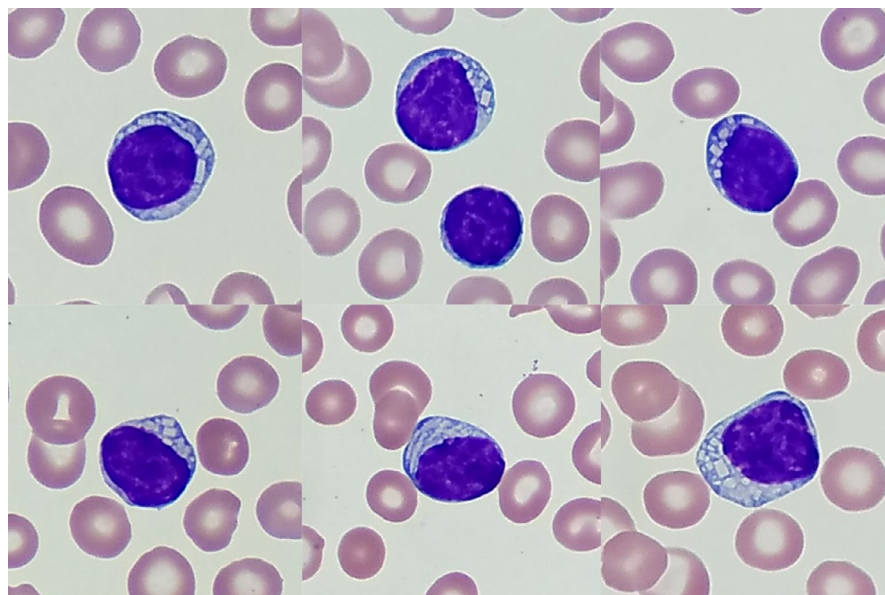


FIGURE 1 Photomicrographs of 6 representative high-power (1000× magnification) fields taken from the patient's Wright-stained peripheral blood smear. The neoplastic cells are small lymphocytes with round to ovoid nuclei, coarsely condensed chromatin, and varying amounts of cytoplasm filled with rectangular crystalline inclusions

may appear rectangular or globular by light microscopy, localize within rough endoplasmic reticulum by electron microscopy and typically consist of the immunoglobulin heavy and light chains detected on the cell surface (most commonly IgM lambda). Although these inclusions are not known to have prognostic significance, their recognition should facilitate prompt diagnosis of a lymphoproliferative disorder.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTION

BR: captured the microscopic images and wrote the manuscript. JAD: conceived the study and wrote the manuscript.

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