

Cytoplasmic crystal inclusions in lymphocytes of chronic lymphocytic leukemia

Òscar Villuendas Vázquez¹  | Maria José Herranz Martí^{2,3} | Pável Olivera^{3,4}

¹ Clinical Analysis Department, Sant Pau i Santa Tecla Hospital, Tarragona, Spain

² Department of Hematology, Sant Pau i Santa Tecla Hospital, Tarragona, Spain

³ Division of Clinical Hematology, Banc de Sang i Teixits, Barcelona, Spain

⁴ Sant Pau Biomedical Research Institute (IIB Sant Pau), Barcelona, Spain

Correspondence

Òscar Villuendas Vázquez, Clinical Analysis Department, Sant Pau i Santa Tecla Hospital, Tarragona, Spain.
Email: Ovilluendas@xarxatecla.cat

A 50-year-old male was attended in 2007 because of an absolute lymphocytosis of $10 \times 10^9/L$. Surface markers by flow cytometry were positive for cluster of differentiation (CD) 20, CD23, CD19, and CD5, and negative for CD10, CD103, CD38, and zeta-chain-associated protein kinase 70 (ZAP70), with kappa light chain restriction.

Karyotype was normal, while fluorescence in situ hybridization (FISH) revealed a deletion of chromosome 13 (del13q14) in 15% of the nuclei. The patient was asymptomatic and no lymph nodes were palpable. May-Grünwald-Giemsa stained peripheral blood smear examination showed mild-sized abnormal lymphocytes with irregular nuclei and moderate cytoplasm. Several intracytoplasmic pale inclusions, crystal-like shaped, were seen in 78% of lymphocytes (Figure 1). Transmission electron microscopy (TEM) images were collected using a JEOL 1011 Transmission Electron Microscope operating at 80 kV and showed several electron-dense rectangular inclusions in the cytoplasm (Figure 2). The patient was diagnosed with chronic lymphocytic leukemia (CLL) Binet stage A, with no markers of unfavorable prognosis.

During the follow up, the number of lymphocytes has been increasing slowly.

Currently, 13 years after diagnosis, the patient remains off treatment and has evolved to Binet stage B because of mild lymphadenopathy. Current white blood cells are $57 \times 10^9/L$, with 80% lymphocytes, and the same cytoplasmic inclusions in 75% of them.

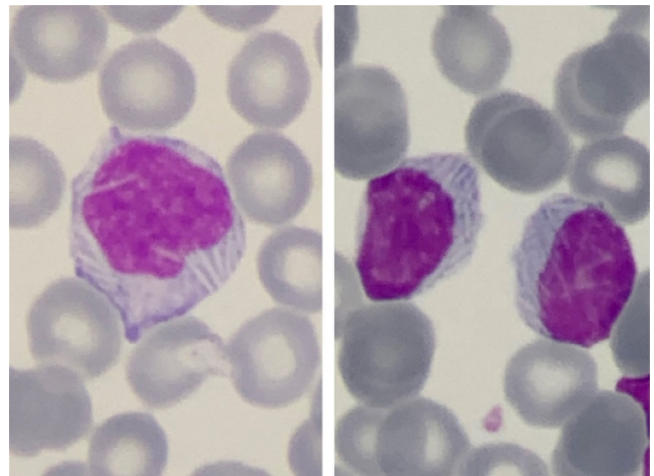


FIGURE 1 May-Grünwald-Giemsa stain; 100x magnification

Few cases of cytoplasmic inclusions in CLL have been described in the literature [1–3], and most believed to be of proteic nature of immunoglobulins. It is not clear, if any, the meaning of this feature.

Herein in our case, we conclude that this morphologic variant does not seem to confer worse prognosis “per se” in CLL.

ORCID

Òscar Villuendas Vázquez  <https://orcid.org/0000-0002-8788-4624>

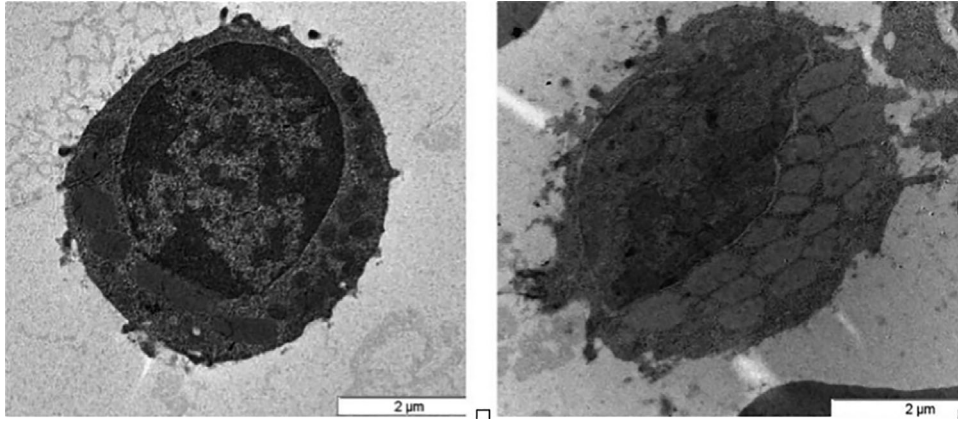


FIGURE 2 Ultrastructure of two lymphocytes showing cytoplasmic inclusions in different sections (TEM, original magnification 25 000x)

REFERENCES

1. Torres R, Tormey CA. Abnormal lymphocytes with filamentous-like cytoplasmic inclusions in chronic lymphocytic leukemia. *Blood*. 2014;124:1391.
2. Setia N, Connolly T, Levine W, Pantanowitz L. Chronic lymphocytic leukemia cytoplasmic inclusions. *Am J Hematol* 2009;85: 275-6.
3. Dorion RP, Shaw JH. Intracytoplasmic filamentous inclusions in the peripheral blood of a patient with chronic lymphocytic leukemia.

A bright-field, electron microscopic, immunofluorescent and flow cytometric study. *Arch Pathol Lab Med*. 2003;127:618-20.

How to cite this article: Vázquez ÒV, Martí MJH, Olivera P. Cytoplasmic crystal inclusions in lymphocytes of chronic lymphocytic leukemia. *eJHaem*. 2020;1:416–417. <https://doi.org/10.1002/jha2.118>