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Unexpected Onset of Concomitant Acute Monoblastic Leukemia and Chronic Lymphocytic Leukemia

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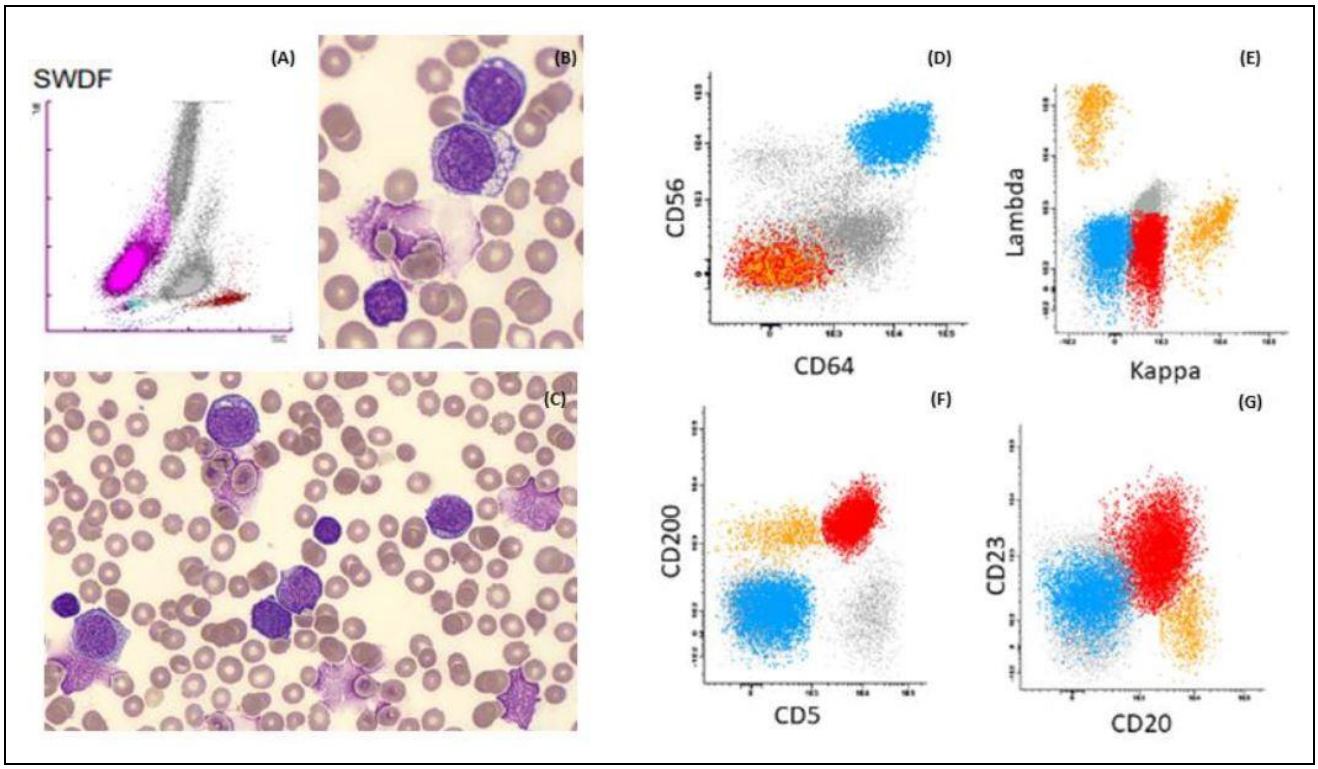

Figure 1: (A): Anomalous WBC scattergram for differential leukocyte count in SWDF channel of a hematological analyzer; **(B-C):** Morphological anomalies in the peripheral blood film: Small to medium-sized lymphocytes with scant cytoplasm and "clod" nuclear chromatin, nuclear shadows and medium to large-sized elements, with immature cromatine, monocytoid aspect, basophilic cytoplasm sometimes vacuolized and evident nucleoli; **(D-G):** Flow-cytometry results: Blast cells in blue, normal B cells in orange, pathological B cells in red. Blast cells overexpressing CD64 and CD56 **(D)**; CLL cells showing weak expression of kappa light chain **(E),** coexpression of CD200 and CD5 **(F)** and weak expression of CD20 and CD23 **(G).**

Clinical Image

A 94-year-old patient presented to the emergency department with retrosternal and epigastric pain; he was diabetic and hypertensive, in therapy with oral anticoagulants and with a history of prostate cancer, without on-going cytotoxic drug treatment. He had no fever or dyspnea. By a routine check-up performed four months ago, no biochemical tests or blood count abnormalities were found.

Complete blood count performed on a haematological analyser registered a newly elevated WBC count (48.7 x 10^9/L), a mild anemia (Hb = 12.7 g/dL) and thrombocytopenia (39 x 10^9/L).
In the SWDF channel for differential leukocyte count there was an anomalous WBC scattergram, with unseparated cell clusters and specific instrumental flags.

The morphological examination of the peripheral blood smear, performed with an automated digital morphology analyzer, showed the presence of numerous small to medium-sized lymphocytes (27.5%), with scant cytoplasm and "clod" nuclear chromatin, and the presence of some nuclear shadows, suggesting a diagnosis of chronic lymphocytic Leukemia (CLL). Surprisingly, it was also noted the presence of some medium to large-sized elements (25.0%), with immature chromatin, monocytoid aspect, basophilic cytoplasm sometimes vacuolized and evident nucleoli.

A comprehensive flow-cytometry (FC) antigen panel was used. Acquisition of data was performed using a flow cytometer. FC analysis revealed a subset of mature clonal B-cell population with the classical immunophenotype of CLL (CD19+, CD20+dim, CD5+, CD200+, CD23+ and clonal kappa+ light chain with weak expression) and a second pathological blast cells population was found, characterized by a monocytic differentiation, with lack of expression of mature monocytic antigens (CD14 and CD300) and aberrant overexpression of CD56.

WBC count doubled after 2 days, with the increase of both populations (respectively, 34.2% lymphocytes and 39.0% blasts). The patient, unfortunately, had a poor prognosis and he died three days after hospitalization, for acute kidney injury and heart failure.