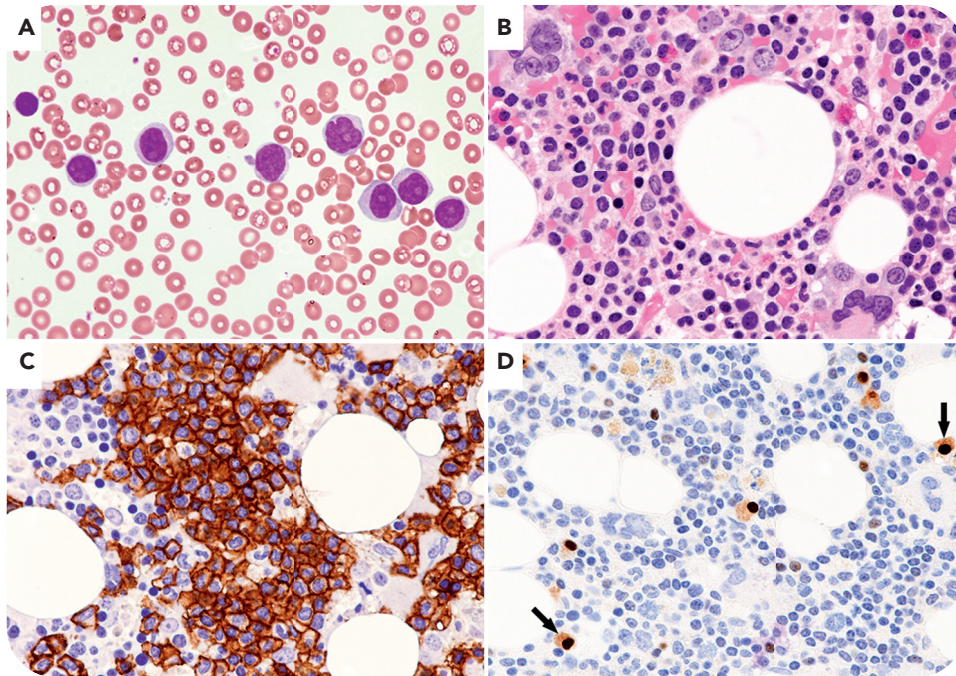


B-cell prolymphocytic leukemia after COVID-19 infection

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A 63-year-old man with 4-year history of CD19⁺/CD5⁻/CD23⁻/CD25⁻/CD103⁻/CD10⁻ non-CLL (chronic lymphocytic leukemia) monoclonal B-cell lymphocytosis ($14.5 \times 10^9/L$) without lymphadenopathy/splenomegaly presented 3 weeks after COVID-19 pneumonia with a marked, stable increase of white blood cell count ($128 \times 10^9/L$) and huge splenomegaly (23 cm). The peripheral blood smear showed >80% prolymphocytes with mature chromatin and single nucleolus (panel A, May-Grunwald-Giemsa stain, original magnification $\times 400$). The bone marrow biopsy was diffusely infiltrated by prolymphocytes (panel B, hematoxylin-eosin stain, original magnification $\times 400$) CD20⁺ (panel C, immunoperoxidase, hematoxylin counterstaining, original magnification $\times 400$)/CD79b⁺ but negative for CD200, CD5, CD23, CD10, MUM1-IRF4 (panel D, immunoperoxidase, hematoxylin counterstaining, original magnification $\times 400$; arrows indicate positive normal plasma cells), CD103, cyclin-D1, SOX11,

BRAF-V600E. The karyotype was 46,X-Y, add(7)(p15),?t(9;9)(q32p23), +mar1. Targeted sequencing showed mutations of *TP53*, *CCND3*, and *S1PR2* genes.

The case is presented due to its unique, unexplained association with COVID-19 infection and because B-cell prolymphocytic leukemia (B-PLL), regarded as an entity in International Consensus Classification, has been deleted in the 5th edition of World Health Organization classification and renamed "splenic B-cell leukemia with prominent nucleoli," a basket category that also includes hairy cell leukemia variant (HCLv). The cytological features and immunophenotype of tumor cells, lack of intrasinusoidal marrow involvement, and mutational analysis excluded B-CLL prolymphocytoid transformation, HCLv (usually CD103⁺/CD25⁺, *MAP2K1*-mutated), splenic marginal zone lymphoma, and leukemic mantle cell lymphoma. The patient was diagnosed with B-PLL and started on chemotherapy followed by ibrutinib.