blood work
images in hematology

FISH for EBV genome in a patient with diffuse large B-cell lymphoma harboring t(14;18)(q32;q21)

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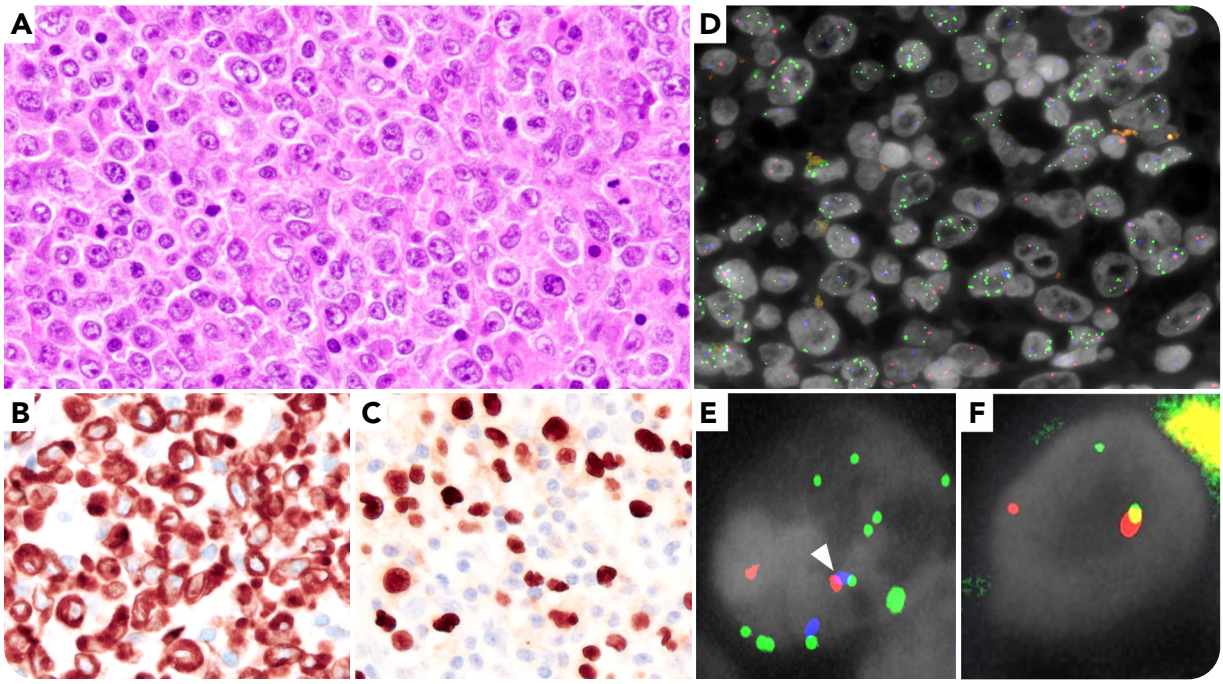

An 82-year-old woman exhibited abdominal lymphadenopathy. Diffuse proliferation of large lymphoid cells with prominent nucleoli in irregular nuclei was observed in a biopsied abdominal lymph node (panel A; 40× objective, hematoxylin and eosin stain). These large cells were positive for CD20, CD10, BCL2 (panel B; 40× objective), BCL6, and multiple myeloma oncogene 1. Epstein-Barr virus (EBV)–encoded small RNA in situ hybridization was also positive (panel C; 40× objective). The t(14;18)(q32;q21) abnormality was identified via karyotyping. EBV infection of lymphoma cells with *BCL2* rearrangement is rare, so we performed fluorescence in situ hybridization (FISH) analyses on formalin-fixed, paraffin-embedded specimens using probes for *BCL2*, immunoglobulin heavy chain (IGH), and EBV (which was made from EBV whole genome). In the assay using EBV (green), 3′IGH (blue), and 5′*BCL2* (red) probes (panel D; 40× objective), *BCL2*::IGH translocation (arrowhead) was observed in the cells both with (panel E; 60× objective) (≈90%) and without (≈10%) EBV infection. Using EBV (blue), 5′*BCL2* (red), and 3′*BCL2* (green) probes, this result was confirmed, and EBV-negative cells with *BCL2* rearrangement were clearly shown (panel F; 60× objective).

BCL2::IGH translocation is acquired in pro-B cells as a result of a mistake of IGH recombination during early B-cell development. In the present case, FISH for EBV genome, IGH, and *BCL2* showed that EBV infection occurred in the course of lymphomagenesis probably after the *BCL2* rearrangement.

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