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Unexpected parvovirus B19 infection in a patient with multiple myeloma

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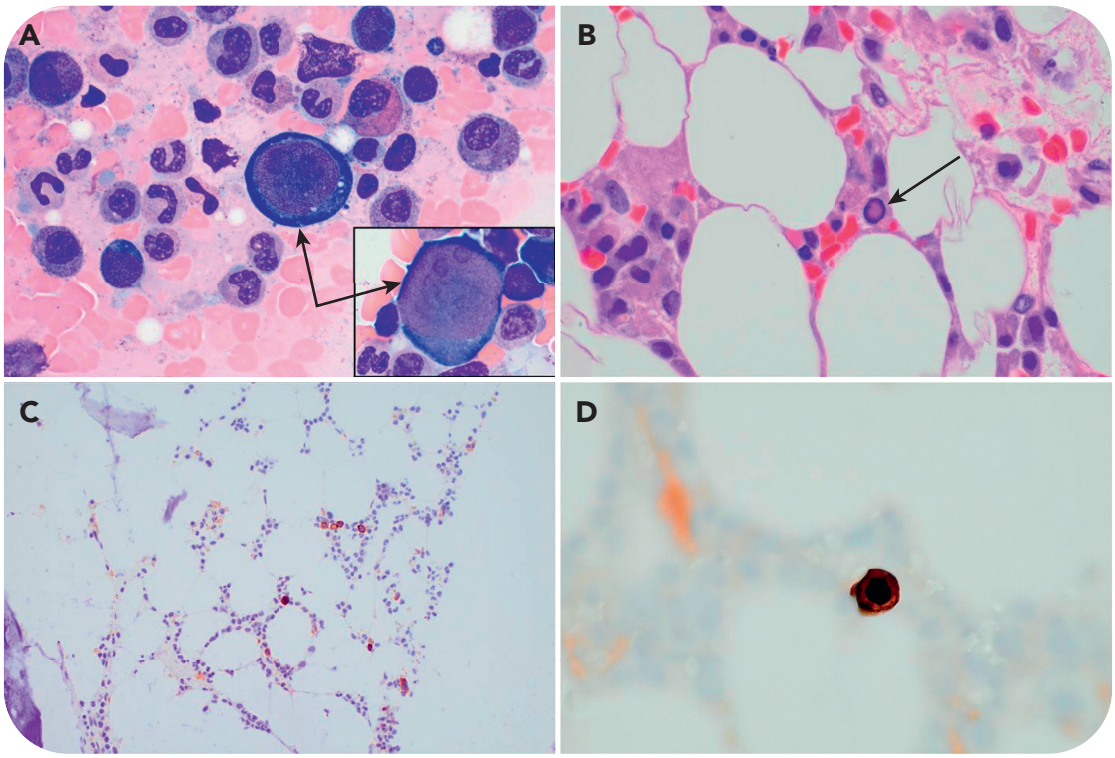

An 81-year-old man, with immunoglobulin G κ multiple myeloma (MM) treated with multiple lines of chemotherapy and 4 months post–anti-B-cell maturation antigen chimeric antigen receptor T-cell therapy, presented with pancytopenia (hemoglobin, 10.7 g/dL; absolute neutrophil count, 1.17 × 10^3/μL; and platelets, 53 × 10^3/μL), clinically assumed to be caused by recent COVID infection. Marrow aspirate smears showed myeloid predominance and marked left-shifted erythroid hypoplasia with maturation arrest. A few giant erythroid precursors exhibited intranuclear inclusions and vacuolated cytoplasm (panel A: original magnification ×1000; Wright-Giemsa stain). Core biopsy revealed prominent intranuclear viral inclusions in a few erythroid precursors (panel B: original magnification ×1000; hematoxylin-eosin stain). Spectrin demonstrated significantly reduced erythroid cells (panel C: original magnification ×200). A few erythroid precursors exhibited parvovirus B19 nuclear staining (panel D: original magnification ×1000). Serum parvovirus B19 polymerase chain reaction (PCR) was positive.

Parvovirus B19 is a single-stranded DNA virus that primarily targets rapidly dividing cell lines, especially marrow erythroid progenitor cells, resulting in anemia and, less commonly, neutropenia and thrombocytopenia. PCR for parvovirus B19 DNA is recommended in patients with insufficient antibody-mediated immune response, rather than relying solely on serology antibody levels. Parvovirus infection may be missed in patients with MM owing to a lack of suspicion. When left-shifted erythroid hypoplasia is present, evaluating for parvovirus B19 infection is warranted.

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