Images from the Haematologica Atlas of Hematologic Cytology: parvovirus-induced pure red cell aplasia

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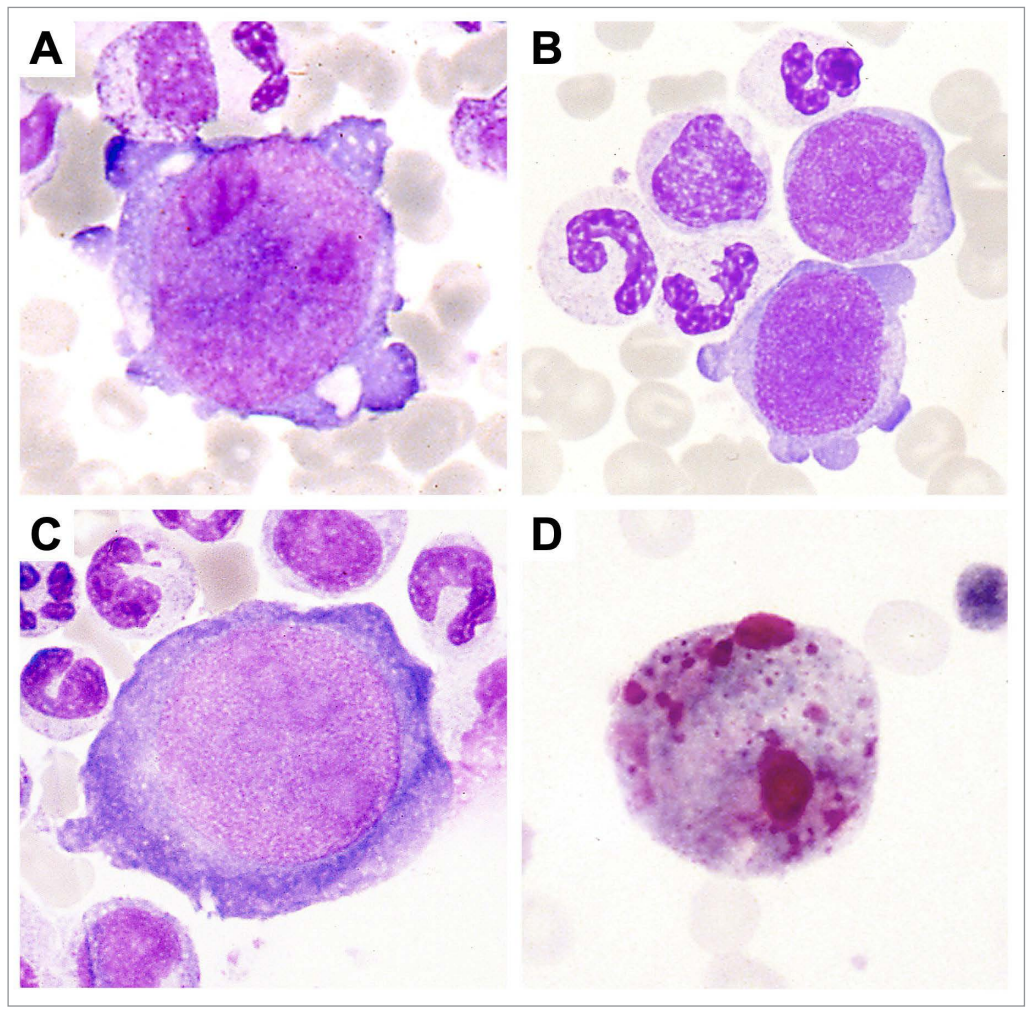

Pure red cell aplasia (PRCA) is a rare disorder characterized by normochromic-normocytic or normochromic-macrocytic anemia, marked reticulocytopenia and almost complete absence of erythroid precursors in the bone marrow. In most cases the granulocytic and megakaryocytic lineages are normal. This disorder includes congenital and acquired conditions. In older children and adults the most common form of acute PRCA is due to parvovirus B19 infection. The virus invades and destroys red cell progenitors, and the aplasia is terminated when neutralizing antibodies develop. In immunocompromised patients, parvovirus B19 infection can cause a chronic form of PRCA. Distinctive morphological features of parvovirus-induced PRCA are illustrated in the Figure showing bone marrow smears from a heart transplant recipient presenting with severe normochromic normocytic anemia, a low reticulocyte count, and normal leukocyte, differential and platelet counts, as well as high levels of erythropoietin. (A and B) There is marked hypoplasia of the erythroblastic lineage with almost total absence of maturing erythroblasts. Note the atypical hyperbasophilic giant cells with very large, prominent nucleoli, cytoplasmic vacuolization and blebs. These giant cells are proerythroblasts with morphological features pathognomonic for parvovirus B19 infection. Panel C shows an enormous proerythroblast with numerous nuclear inclusions. (D) The atypical erythroblasts show an abnormal, very strongly positive periodic acid Schiff (PAS) reaction. The diagnosis of parvovirus B19-induced PRCA was confirmed by immunocytochemical and molecular tests; however, serology was negative, demonstrating its limited diagnostic usefulness in cases with immunodeficiency.

Disclosures
No conflicts of interest to disclose.

References

1. Invernizzi R. Pure red cell aplasia. Haematologica. 2020;105(Suppl 1):184-187.