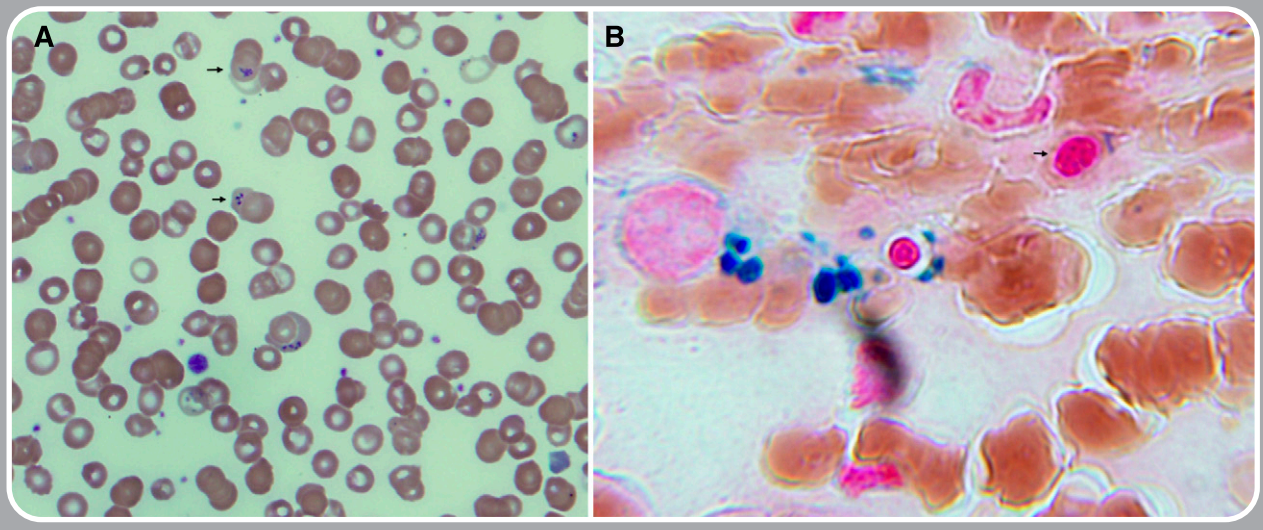
bloodwork
IMAGES IN HEMATOLOGY

Sideroblastic anemia secondary to zinc toxicity



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A 52-year-old African-American woman with a history of allergic rhinitis and alcohol abuse presented with a presyncope. The following levels were found: hemoglobin, 3.7 g/dL; mean cell volume, 82 fL; white blood cell count, 9.2 $\times$ 10^3/μL; and platelets, 168 $\times$ 10^3/μL. The workup was negative for hemolysis or bleeding. Her blood alcohol level was normal. B_{12} and folate levels were normal. A peripheral smear showed dimorphic red blood cells with Pappenheimer bodies (panel A). A bone marrow biopsy showed slightly hypercellular marrow with intact trilineage hematopoiesis and mild erythroid dyspoiesis. An iron stain showed adequate iron content and occasional ring sideroblasts (panel B). Marrow morphology and cytogenetic analysis did not support a myelodysplastic syndrome. Copper and ceruloplasmin levels were low at 515 μg/L and 16 mg/dL (normal ranges, 810-1990 μg/L and 20-60 mg/dL), respectively. The zinc level was elevated at 186 μg/dL (normal range, 60-130 μg/dL). The patient admitted to self-treating her chronic cough with zinc lozenges for the last 4 months.

Our impression was that sideroblastic anemia caused by copper deficiency induced by zinc lozenge use was a significant component of the severe anemia. Zinc lozenges were discontinued, and copper supplements were initiated, with complete hematologic recovery in 4 weeks.