blood work
images in hematology

Paroxysmal cold hemoglobinuria with acute renal failure

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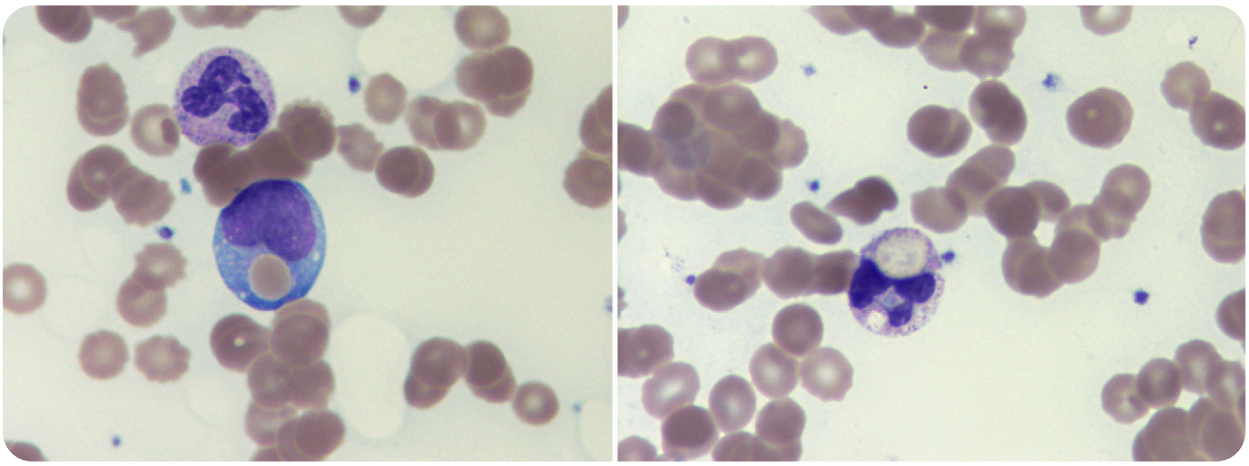

A 27-year-old woman was admitted to the hospital with cough and myalgia. She had no significant past medical history. Blood work showed hemoglobin 97 g/L (reference range, 120-160 g/L), bilirubin 113 μmol/L (reference range, <20 μmol/L), and lactate dehydrogenase 3420 IU/L (reference range, 120-250 IU/L). The patient had acute kidney injury, creatinine (Cr) 368 μmol/L (reference range, 45-90 μmol/L), and estimated glomerular filtration rate (eGFR) 14 mL/min per 1.73 m^2 (reference range, >90 mL/min per 1.73 m^2). Review of the blood film showed agglutination and erythrophagocytosis (Wright stain, original magnification ×100), suggestive of paroxysmal cold hemoglobinuria. Direct antiglobulin test was positive for C3d, and blood specimens appeared grossly hemolyzed. Nucleic acid amplification on a nasopharyngeal swab was positive for influenza A virus, respiratory syncytial virus, and adenovirus. The patient deteriorated rapidly. Twenty-four hours postadmission, hemoglobin fell to 54 g/L, requiring transfusion, and she developed oliguric renal failure (Cr 607 μmol/L, eGFR 8 mL/min per 1.73 m^2), needing urgent hemodialysis. She was commenced on methylprednisolone, followed by oral prednisone with gradual resolution of hemolysis and anemia. Testing confirmed Donath-Landsteiner antibody when her plasma was not grossly hemolytic. Dialysis was ceased and renal function normalized over the ensuing weeks.

Paroxysmal cold hemoglobinuria with renal failure is rare, with only 3 adult cases reported in the literature. This case highlights the acute clinical deterioration that can occur and the blood film features, such as erythrophagocytosis, that may aid diagnosis.

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