Cryoglobulinemia Diagnosed by Peripheral Smear Examination: Value of a Basic Underestimated Test

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A 58-year-old female with a history of vasculitis presented to the hospital with sudden onset hemoptysis, ulceration over bilateral lower limbs, and low-grade intermittent fever. Computed tomographic scan of chest revealed pulmonary hemorrhage. Investigations showed a hemoglobin of 5.8 g/dL, pseudoleukocytosis (46 × 10^3/μL), and platelet count of 483 × 10^3/μL. Examination of the Leishman-stained peripheral smear showed blue background with grossly visible agglutinates (Fig. 1A) and a normal total white blood cell count. Pseudoleukocytosis could have been the result of counting of precipitated cryoglobulin deposits as leukocytes by the automated cell counter.1 Basophilic to faint eosinophilic amorphous globular and granular deposits in the background (Fig. 1B and inset) and intracytoplasmic vacuoles within the neutrophils (Fig. 1C) were observed suggestive of cryoglobulin precipitates. Qualitative determination of cryoglobulin was positive—cryoglobulin deposits at 4°C (Fig. 2A) and

Fig. 1 (A) Peripheral smear showing a blue background and visible agglutinates. (B) Basophilic amorphous globular deposits in the background. (C) Intracytoplasmic faint basophilic deposits within neutrophils.

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absence of deposits at 37°C (► Fig. 2B). Further workup showed elevated serum cryoglobulin (880.8 mg/L), low C3 (109.10 mg/dL), near-normal C4 (3.02 mg/dL), and antineutrophil cytoplasmic antibodies—proteinase 3 positive, supporting the diagnosis. She was negative for hepatitis C virus, hepatitis B virus, and human immunodeficiency virus. Renal function tests revealed elevated urea (112 mg/dL) and creatinine (6.32 mg/dL) levels. The patient improved following treatment with steroids, cyclophosphamide, and plasmapheresis.

Cryoglobulin deposits on peripheral smear serving as an initial manifestation of the underlying disease process have been reported previously.²–⁴

The purpose of this case is to remind the importance of manual screening of peripheral smears in an era of automation. Findings, as observed in our case, can pave the way for early identification and treatment of clinically unsuspected cases.

Informed Consent
Waiver of consent has been obtained.

References