Incidental finding of 3 Southeast Asian ovalocytosis cases by attentive examination of blood smears

A 52-year-old Malaysian man, a 24-year-old sub-Saharan woman, and a 28-year-old Madagascan woman (who was heterozygous for hemoglobin S) were admitted to North Hospital in Marseilles, France. Blood tests using an Advia2120i hematology analyzer (Siemens) showed no or mild anemia (109-150 g/L), normal or high mean corpuscular hemoglobin concentration (339-364 g/L), and borderline or slightly high red cell distribution width (15%-19.2%).

The red blood cell (RBC) volume and hemoglobin concentration cytogram clearly showed a typical distribution of comma-shaped RBCs, with an increased number of hyperchromic RBCs (panel A). Examination of the blood smear revealed anisocytosis and poikilocytosis, without spherocytes but with ovalocytes and macro-ovalocytes, some of them with more than 1 ridge (panel B; original magnification ×100, May-Grünwald Giemsa stain). The eosin-5′-maleimide binding test performed for each patient showed a reduced mean channel fluorescence between 26.2% and 30.9%, confirming an anomaly of the band-3 protein. A heterozygous 9-amino-acid deletion (residues 400 to 408) in band 3 (SLC4A1), which is the most common genetic abnormality in Southeast Asian ovalocytosis (SAO), was found in all 3 patients. Most cases of SAO are asymptomatic, so careful examination of a cytogram from the Advia2120i analyzer and close observation of the blood smear can help diagnose SAO.

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