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A False-Positive Kleihauer-Betke Test

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A 29-year-old G1 woman presented at 28⁰ weeks after falling onto her abdomen. A Kleihauer-Betke test result was positive with 0.9% to 1.4% fetal cells (Figure 1, arrows; original magnification ×50), corresponding to a 54-mL fetal-maternal hemorrhage (FMH). Fetal monitoring with non-stress tests and fetal anemia studies remained normal. Thus, flow cytometry was performed confirming the presence of maternal fetal hemoglobin (5.8% HbF), but no fetal erythrocytes (Figure 2A; 50 000 red blood cells [RBC] stained with anti-fetal hemoglobin with phycoerythrin [anti-HbF PE], enabling separation of HbF-containing maternal erythrocytes from fetal erythrocytes. By comparison, Figure 2B shows the flow cytometry result of a different patient who had a FMH and 4.2% fetal cells in maternal circulation). The patient was managed conservatively. Repeat

flow cytometry at 31⁰ weeks and term no longer showed HbF in the maternal circulation.

Maternal production of HbF is seen in hemoglobinopathies, hereditary persistence of HbF, hematopoietic malignancies, and accelerated or “stress” erythropoiesis. In normal pregnancy, this occurs in the second trimester when blood volume expands rapidly or after iron supplementation in the anemic patient.^{1,2}

In the absence of signs of FMH, a positive Kleihauer-Betke test result should be followed by flow cytometry to differentiate between fetal and maternal origin of HbF.

Consent: Consent to publish these images was obtained from the patient.

Figure 1.

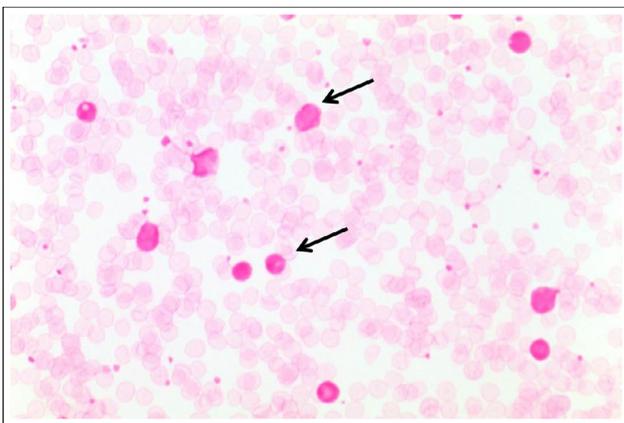
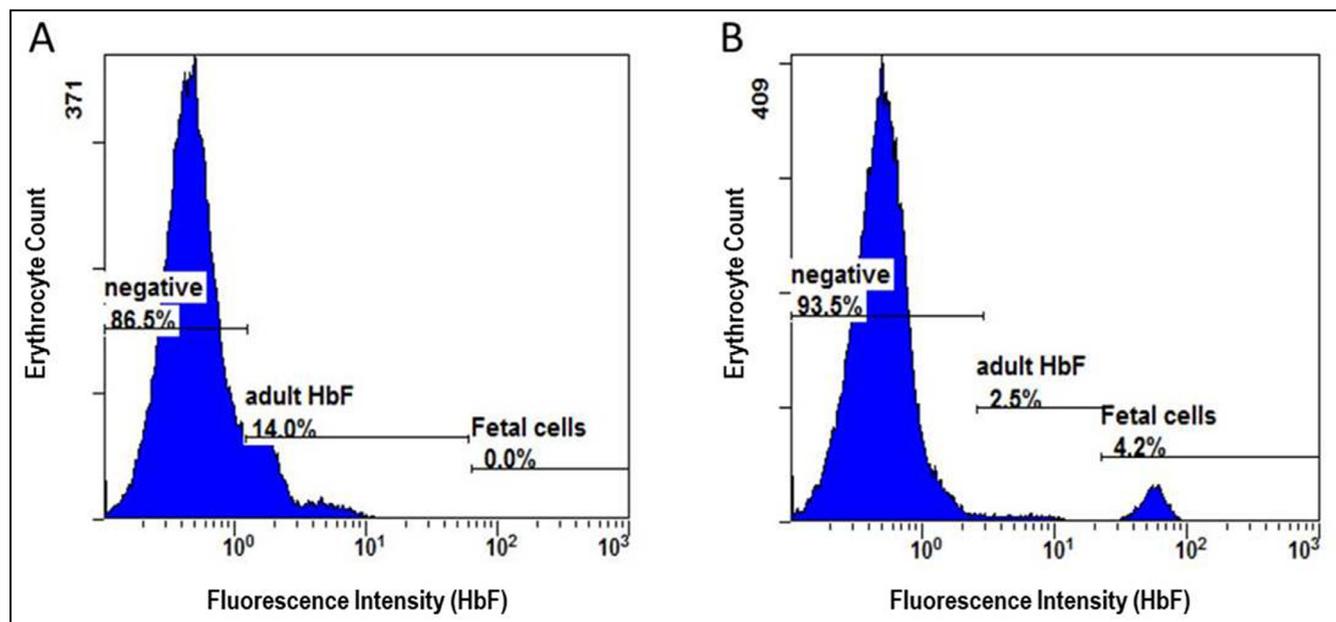


Figure 2.



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