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Pseudo-Thrombocytosis Caused by Extreme Microcytosis in a Patient with Alpha Thalassemia Trait

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While automated blood counts have revolutionized laboratory medicine and hematology, there are instances in which visualization of a peripheral blood smear is superior to instrument values. We describe a 57-year-old African American male with alpha thalassemia trait with spurious thrombocytosis. While thrombocytopenia can be a complication of hypersplenism in thalassemia [1], thrombocytosis is rare in alpha thalassemia trait [2]. Our patient's baseline platelet count was $250 \times 10^9/L$. However, laboratory results noted transiently elevated platelet counts routinely between $1200 \times 10^9/L$ and $2000 \times 10^9/L$. He also had anemia (hemoglobin 85 g/L) and microcytosis (MCV 56.9 fl).

Extensive hematologic workup at a regional cancer center was subsequently pursued which showed negative JAK2 and BCR/ABL mutation studies. No dysplasia was seen on bone marrow examination. Upon referral to our institution, routine peripheral blood smear showed normal platelet count with marked anisocytosis, microcytosis, and poikilocytosis including elliptocytosis and tear drop cells (Fig. 1). The small sized microcytic red cells were being interpreted as platelets on the automated analyzer, leading to falsely elevated platelet count (Fig. 2). Platelet fluorescence was performed with Sysmex XN-1000, confirming a platelet count of $222 \times 10^9/L$, consistent with the baseline value. The purpose of this case is to emphasize the necessity to visualize blood smears prior to performing unnecessary and expensive workup for hematologic diseases.

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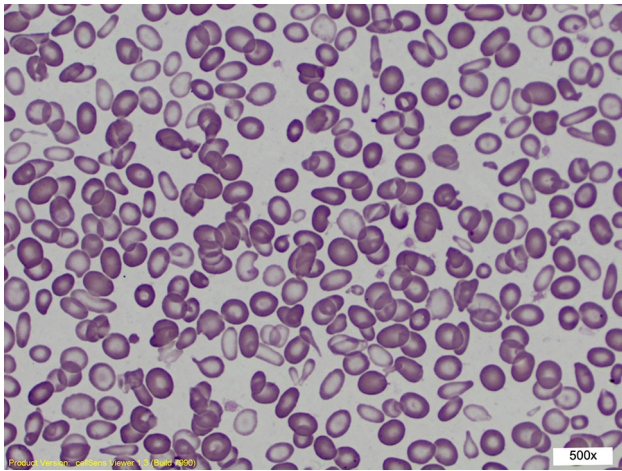


Fig. 1 Peripheral blood smear showing anisocytosis and marked microcytosis which was misinterpreted as platelets on the hematology analyzer. (Wright's stain, 500 ×)

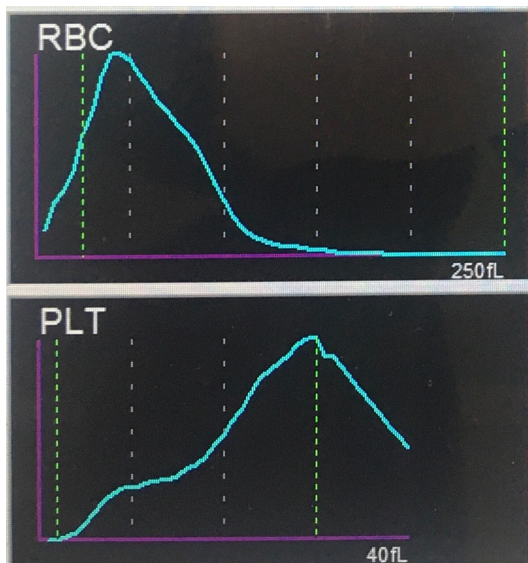


Fig. 2 RBC and platelet histograms, indicating low red cell volume in the setting of alpha thalassemia trait and resultant incorrect large mean platelet volume

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