A bloody mistake: unrecognized warm reactive anti-A1 resulting in acute hemolytic transfusion reaction

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A 67-year-old confirmed group AB female with plasma cell myeloma underwent autologous marrow transplant. Six days posttransplant she received a unit of group B apheresis platelets (PLTs) and a pool of group A PLTs. Eleven

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days posttransplant her hemoglobin (Hb) level was 82 g/L, and 1 unit of group A red blood cells (RBCs) was trans-
fused. Twenty-five minutes (60 mL) into the transfusion she developed back pain, dyspnea, wheeze, chills, and rigors.
Oxygen saturation was 87% on room air, she was tachycardic, and other vitals signs were stable. The transfusion was
ceased.

Laboratory investigation showed no error in the clerical check. Posttransfusion plasma sample revealed hemo-
globinemia (see figure, top, plasma samples before, immediately after, and 6 hours after RBC transfusion). The direct
antiglobulin test was positive for complement and immunoglobulin G, and anti-A1 was eluted from the RBCs. No
alloantibody was detected. The patient’s cells were nonreactive with Dolichos biflorus, and at 37°C her plasma
showed stronger agglutination of A1 cells than A2 cells, consistent with an A2B subgroup with an anti-A1. Her post-
transfusion Hb level was 79 g/L and lactate dehydrogenase level increased to 408 U/L (normal, <255 U/L) with
normal haptoglobin and bilirubin levels.

Review of her pretransfusion laboratory testing showed prior development of the anti-A1 (see figure, middle, ABO
group 48 hr before RBC transfusion, column technology [BioVue, Ortho Clinical Diagnostics]; and bottom, ABO group
24 hr before RBC transfusion, column technology [BioVue, Ortho Clinical Diagnostics]). The pretransfusion discrep-
ancy of front and back type had been misinterpreted as passive acquisition of anti-A from the transfused group B
apheresis PLTs.

These findings were consistent with a warm-reactive anti-A1 resulting in an acute hemolytic transfusion reaction.
The patient recovered without complications. Such reactions have been reported but are uncommon.

CONFLICT OF INTEREST

The authors declare no conflict of interest.