

ABO Discrepancy #3; ANSWERS

Case study by Jim Perkins (© 2009)



1. What is the forward ABO type? If that is correct, what anomaly must one explain?

The forward type is A. If that is correct, one must explain why the patient's plasma agglutinates the group A reverse typing cell.

2. What is the reverse ABO type? If that is correct, what anomaly must one explain?

The reverse type is O. If that is correct, one must explain why the anti-A typing serum agglutinates the patient's RBCs.

3. Which of these two possibilities did the technologist investigate? What information in the history and type-and-screen results prompted them to do so?

The technologist investigated the first possibility, seeking an unexpected antibody reacting with the group A reverse typing cell. This approach was prompted by the weakly positive antibody screen. The initial gel panel did not help, but the DAT was positive, mostly due to complement on the patient's cells, consistent with a cold autoantibody. Also note that cold autoantibodies often show a "mixed field" type reaction by the gel method. Therefore a panel using the saline/tube method, which included an "immediate spin phase", and a cold panel were performed.

4. What is REST^R, and what did REST^R adsorption demonstrate? What other procedure could have demonstrated this? What is the serologic diagnosis?

REST^R is a commercial reagent preparation of Rabbit Erythrocyte Stroma made by the IMMUCOR company. REST adsorbs human cold agglutinins, and it is generally used to remove their interference in order to identify or rule out clinically significant alloantibodies. It also is known to adsorb anti-B and anti-PI, and may adsorb other IgM alloantibodies. Elimination of the IS reactivity of the patient plasma with the screening and group A reverse typing cells is consistent with a cold-reactive autoantibody. Because REST adsorbs anti-B, REST-adsorbed plasma can't be used for crossmatching, since the latter is depended upon to catch clerical errors in typing and selection of AB)-compatible RBCs..

A cold autoadsorption procedure would have eliminated the cold autoantibody without the concern for elimination of other cold-reactive alloantibodies, and therefore would have provided more definitive identification. However, REST adsorption is much easier to perform than autoadsorption and given the negative gel panel and the consistency of the rest of the findings the diagnosis of a cold autoantibody causing an ABO discrepancy and positive DAT and antibody screen was made.

5. Is there an antibody specificity?

The cold panel shows that the patient's autoantibody reacts well with all group O adult RBCs at room temperature but not with umbilical cord RBCs, consistent with anti-I. Reactivity with the cord cells at 40C is not evidence against this diagnosis.