ABO Discrepancy #6; ANSWERS
Case study by Jim Perkins, M.D. (© 2009)

Indian Immunohematology Initiative

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

   The forward type is O. If the patient is group O, one must explain why the patient's plasma failed to agglutinate 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 A. If the patient is group A, one must explain why the anti-A typing serum failed to agglutinate 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 by incubating the reverse typing reaction, thus increasing its sensitivity for anti-A. The history suggested that the patient had previously been group A but had been transplanted, so the group O forward typing results were plausible.

4. What was the cause of the discrepancy in this case?

   The bone marrow donor was group O, and the circulating RBCs are derived from this donor's stem cells. Anti-A production by the donor's engrafted lymphocytes may be suppressed or masked by the fact that all of the patient's non-hematopoietic cells express A antigen.

   Patients who have had hematopoietic progenitor cell transplantation can present a bewildering combination of findings depending on the combination of donor and recipient blood types and the time that has elapsed after the transplant.

5. Why was the autocontrol done with the incubated forward typing? That is, what common abnormality needed to be ruled out? [Hint: there's one in a previous ABO discrepancy in this series.]

   A cold autoantibody could agglutinate the A and B cells, but would presumably agglutinate the patient's cells as well, so an autocontrol needed to be done to rule out this possibility.