

## **ABO Discrepancy #4; ANSWERS**

Case study by Jim Perkins, M.D. (© 2009)

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

*The forward group is A. If that is correct, one must explain the lack of the expected anti-B.*

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

*The reverse group is AB. If that is correct, one must explain why the reagent anti-B failed to react with 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 him or her to do so? What other testing might have been done easily? What is the cause of this ABO discrepancy?

*The technologist investigated both possibilities. A weak anti-B was sought by incubating the patient's serum with reverse typing cells at lower temperatures, as well as by testing for anti-B in an indirect antiglobulin test.*

*A weak B antigen was sought by testing the patient's cells with multiple anti-B reagents and incubating the tests at room temperature and below. Testing the patient's cells with anti-A,B might be an even more sensitive way to detect a weak B subgroup, and if one were really pursuing this possibility, one might adsorb anti-B with his cells and attempt to elute it. .*

4. Given the clinical information, what is a possible diagnosis?

*The patient has had multiple infections suggesting that he might be immunodeficient. Bruton's agammaglobulinemia or some other severe form of humoral immunodeficiency could cause absence of the anti-B that we expect a group A individual to make.*

5. What further clinical laboratory tests would you like to order?

*Agammaglobulinemia could be substantiated by determining his immunoglobulin levels. A serum protein electrophoresis could be done, but regardless of the result one would probably measure immunoglobulin levels.*

6. What other patients might present with weaker than expected reverse grouping tests?

*Infants and elderly individuals may have weak or absent ABO agglutinins, but these findings are probably seen most commonly in patients with multiple myeloma.*