

ABO Discrepancy #5

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 fails 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 fails to agglutinate the patient's RBCs.

3. Which of these hypotheses did the technologist investigate? What information in the history and type-and-screen results prompted him or her to do so? What is the cause of this ABO discrepancy?

The tech pursued both hypotheses but concentrated on the second one, namely that the patient had a weak form of the A antigen that was not agglutinated by the anti-A reagent used in the initial forward typing. She first incubated all of the reactions, the forward typing at room temperature and the reverse typing at room temperature and 4°C. Then she repeated the forward typing with enzyme treated patient cells. Incubation of the forward typing allowed the reagent anti-A to agglutinate the patient's cells, as did enzyme treatment, consistent with a weak form of anti-A on the cells. Of note, there was mixed field agglutination with the enzyme treated cells.

She then performed an adsorption-elution test with polyclonal anti-A and anti-A,B. After incubating these reagents with the patient's RBCs, both could be eluted off the patient's RBCs, demonstrating that there was A antigen on the cells. In contrast, the two antibodies could not be adsorbed and eluted from group O cells.

A weak A subgroup was suggested by the history of agglutination of the patient's RBCs by anti-A in the past. In addition, if one entertained the first hypothesis, there is no ready explanation why the patient would make anti-B but fail to make anti-A.

So the cause of this discrepancy appears to be very weak expression of the A antigen.

4. What is the most likely diagnosis?

The findings fit most closely with those described for the A_{end} subgroup of A.

5. What further tests would you like to do?

A study to determine whether the patient secreted A or H would allow further characterization of the patient's phenotype.