

AIHA CASE #2, ANSWERS

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



1. What antibody(ies) is present? Is this an allo- or auto-antibody? Could it be due to one of the patient's medicines?

This patient appears to have a warm-reactive auto-antibody on his RBCs but not in the serum. Presumably, although the patient is making enough autoantibody to cause hemolysis of his RBCs (he has elevated LDH and indirect bilirubin levels, and his haptoglobin is below the limit of detection), the autoantibody is not yet "spilling over" into the serum.

Drug related antibodies, whether in the serum or the eluate, typically react only with drug coated RBCs or in the presence of the drug, whereas this patient's eluate reacts with panel cells without addition of drug. However, aldomet, and a few other drugs NOT including the ones that he is on, can cause an antibody which reacts in the absence of drug. When aldomet is stopped, the antibody gradually disappears.

2. What is a "last wash" test? What is it meant to demonstrate? Does it do so in this case? How might you do it differently?

The last wash test is a control reaction that meant to demonstrate adequacy of the washing steps performed prior to elution of antibody from the RBCs. A few mL of the supernatant from the RBCs after the last washing step are saved and tested along with the eluate. In cases in which there is antibody detectable in the serum, the test demonstrates that washing has been sufficient to remove all of the serum antibody, so that one knows that any antibody recovered in the eluate is indeed from the RBCs. Thus the target cells selected for the test should be RBCs that reacted with the individual's serum.

In this case however, the screening cells tested against the last wash did NOT react with the patient's serum; the patient had a negative antibody screen. Since the patient is group A, the last wash should have been tested against group B cells to demonstrate that the patient's RBCs had been adequately washed.

3. How would you explain the patient's normal reticulocyte count in spite of the fact other laboratory data suggests that the patient is hemolyzing?

The reticulocyte count is normal at in as many as 30% of patients presenting with warm autoimmune hemolytic anemia (WAIHA). Presumably this happens because there has not been enough time for the patient respond by increasing their rate of erythropoiesis, which may take a week or more. Note that this patient's dark urine only started 3 days earlier. A low or normal reticulocyte count might also represent an inability to respond, for example in a patient with a hematopoietic malignancy like CLL underlying their WAIHA.

4. How would we select blood for this patient?

No special selection of units is required. Since there is no antibody detectable in the serum, we would simply select group A donor RBCs units that are compatible by an AHG crossmatch.