

ABID CASE #2

1. What is the probable identity of this antibody?

Anti-E

2. Is any further workup needed to prove it?

No; if you include the antibody screening cell there are 3 E positive cells reactive, 3 non-reactive cells, the patient is E negative, and the appropriate antibodies are ruled out (anti-D, -C, -c, -e, -K, -k, -Fy^a, -Fy^b, -Jk^a, -Jk^b, -Le^a, -Le^b, -S, -s, -M, -N, -P1)

3. What is the probable source of the immunizing stimulus in this case?

Fetal maternal hemorrhage

4. Does this antibody cause hemolytic transfusion reactions?

Yes, both immediate and delayed. Anti-E is a common cause of DHTRs.

5. Does this antibody cause hemolytic disease of the newborn?

Yes.

6. How would we select compatible blood for this patient? What percentage of donors are expected to be compatible with this recipient?

We would select group A or O, Rh negative, E negative RBCs, compatible in an indirect antiglobulin test crossmatch. Overall 70% of Caucasian donors are E negative, but virtually all Rh neg donors are E negative as well.

7. What is the biochemical nature of the antigen? (Review the outline of the features of the relevant blood group system.)

The E antigen is carried by a multi-pass membrane protein which also carries the C/c polymorphism. All Rh antigens are protease resistant, and agglutination by Rh antibodies is typically enhanced by protease treatment of RBCs. The RhD and RhCE proteins are associated with the RBC "skeleton", and Rh_{null} cells lacking both proteins have abnormal morphology. They also appear to function as pores of transporters, possibly for CO₂ or ammonium ion.