**ABID Case #11** Case Study by Jim Perkins MD (©, 2009)

**History:** The patient was a 30 year old pregnant woman, G7P6 with a history of anti-D formation, noted 5 years earlier at the time of transfusion of 2 units of RBCs. She was a previous emigrant from Mexico. A routine prenatal workup was performed with the following results:

**ABO and Rh Typing**

| <A | <B | A1 cells | B cells | 6% alb | <D | <D/AHG | CCC | Interp |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 4+ | 4+ | | 4+ | | | O, pos |

**Antibody Screen (LISS)** **Direct Antiglobulin Test**

| | I.S. | 37° | AHG | CC | | Poly | IgG | <C3 |
|---|---|---|---|---|---|---|---|---|
| OI | 0 | 0 | 1+ | | AHG | 0 | | |
| OII | 0 | 0 | 3+ | | CCC | 2+ | | |

**Additional antibody screening cells**

| | Saline | | | | Albumin | | | | Ficin | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cells | IS | 30'RT | 4° | | IS | 30'37°C | AHG | CC | 30'37°C | AHG | CC |
| OI | 0 | 0 | 3+ | | 0 | 0 | vw+ | | 3+ | 3+ | |
| OII | 0 | 0 | 4+ | | 0 | 0 | 3+ | | 3+ | 3+ | |
| Auto | 0 | 0 | 4+ | | 0 | 0 | 0 | 2+ | 0 | 0 | 2+ |
| $A_1$ | | | | | | | | | | | |
| $A_2$ | | | | | | | | | | | |
| B | | | | | | | | | | | |
| O Cord | 0 | 0 | 0 | | | | | | | | |

**Antigen Phenotype**

| | Rh system | | | | Kell | | | | Duffy | | Kidd | | Lewis | | MNSs | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | E | c | e | K | k | $Kp^a$ | $Js^a$ | $Fy^a$ | $Fy^b$ | $Jk^a$ | $Jk^b$ | $Le^a$ | $Le^b$ | S | s | M | N | P1 | I | H | $A_1$ |
| Patient | 0 | 0 | 4+ | | | | | | | | | | | | | | | | | | | |
| Pos control | 3+ | 3+ | 3+ | | | | | | | | | | | | | | | | | | | |
| Neg Control | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | |

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**Raw Serum panel** (Note: Coombs' control cell reactions aren't shown but were performed and were as expected.)

| Lot #0320 | | Rh | | | | | | MNSs | | | | P | Lewis | | Lutheran | | Kell | | | | Duffy | | Kidd | | Xg | | LISS | | | | | FICIN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cell | Rh | D | C | E | c | e | V | M | N | S | s | P1 | $Le^a$ | $Le^b$ | $Lu^a$ | $Lu^b$ | K | k | $Kp^a$ | $Js^a$ | $Fy^a$ | $Fy^b$ | $Jk^a$ | $Jk^b$ | $Xg^a$ | Cell | IS | RT | 37 | AHG | 37 | AHG |
| 1 | r'r | 0 | + | 0 | + | + | 0 | + | + | + | + | + | + | 0 | 0 | + | 0 | + | 0 | 0 | + | 0 | + | + | + | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | R1R1w | + | + | 0 | 0 | + | 0 | + | + | 0 | + | + | + | 0 | 0 | + | 0 | + | 0 | 0 | + | + | 0 | + | + | 2 | 0 | 0 | 0 | 1+ | 3+ | 3+ |
| 3 | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | + | 0 | 0 | 0 | + | + | + | 0 | 0 | 0 | + | + | 0 | + | 3 | 0 | 0 | 0 | 1+ | 3+ | 3+ |
| 4 | R2R2 | + | 0 | + | + | 0 | 0 | + | + | + | + | 0 | + | 0 | 0 | + | 0 | + | 0 | 0 | + | + | + | + | + | 4 | 0 | 0 | 0 | 2+ | 3+ | 3+ |
| 5 | r"r | 0 | 0 | + | + | + | 0 | + | 0 | + | 0 | 0 | + | 0 | + | + | 0 | + | 0 | 0 | + | + | + | + | + | 5 | 0 | 0 | 0 | vw+ | 3+ | w+ |
| 6 | rr | 0 | 0 | 0 | + | + | + | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | 0 | 0 | 0 | 0 | + | + | + | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | + | + | 0 | 0 | + | 0 | + | + | + | 0 | 0 | + | + | 0 | + | + | 7 | 0 | 0 | 0 | 0 | w+ | 0 |
| 8 | rr | 0 | 0 | 0 | + | + | 0 | + | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | 0 | 0 | 0 | + | 0 | + | 8 | 0 | 0 | 0 | 0 | w+ | 0 |
| 9 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | + | + | 0 | 0 | + | 0 | + | 0 | 0 | 0 | + | + | + | + | 9 | 0 | 0 | 0 | 0 | w+ | 0 |
| 10 | rr | 0 | 0 | 0 | + | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | 0 | + | 0 | 0 | 10 | 0 | 0 | 0 | 0 | w+ | 0 |
| 11 | rr | 0 | 0 | 0 | + | + | 0 | + | 0 | + | + | 0 | + | + | 0 | + | 0 | + | 0 | 0 | 0 | + | + | 0 | + | 11 | 0 | 0 | 0 | 0 | w+ | 0 |
| AC | | | | | | | | | | | | | | | | | | | | | | | | | | AC | 0 | 0 | 0 | 0 | w+ | 0 |

**Additional cells**

| | | Rh | | | | | | MNSs | | | | P | Lewis | | Lutheran | | Kell | | | | Duffy | | Kidd | | Xg | LISS | | | | | FICIN | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cell | Rh | D | C | E | c | e | V | M | N | S | s | P1 | $Le^a$ | $Le^b$ | $Lu^a$ | $Lu^b$ | K | k | $Kp^a$ | $Js^a$ | $Fy^a$ | $Fy^b$ | $Jk^a$ | $Jk^b$ | $Xg^a$ | IS | RT | 37 | AHG | CC | 37 | AHG | CC |
| | r"r | 0 | 0 | + | + | + | 0 | + | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | 0 | 0 | + | + | + | + | 0 | 0 | 0 | vw+ | 2+ | 3+ | w+ | |
| | r"r | 0 | 0 | + | + | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | + | + | 0 | 0 | 0 | 0 | vw+ | | 3+ | w+ | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Additional Testing**

| | Anti-D, IV | | Anti-$Go^a$ | |
|---|---|---|---|---|
| | AHG | CC | AHG | CC |
| Pt. cells | 0 | 2+ | 2+ | |
| Pos Control | w+ (R1R1) | | w+ ($Go^a$ pos) | |
| Neg control | 0 | 2+ | 0 | 2+ |

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**1.** What antibody(ies) is present in this case?

**2.** What is the corresponding antigen phenotype? How is this possible?

**3.** How could your hypothesis be confirmed?

4. Discuss the variation in reaction strength with different test systems and antigen positive phenotypes.

5. Is this patient at risk for hemolytic transfusion reactions? Is her infant at risk for HDN?