ABID CASE #15

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

Indian Immunohematology Initiative

History: This patient was a 40 year old woman with cancer of the liver who had been transfused on multiple occasions. Her last transfusion was 3 weeks earlier at which time her antibody detection test ('antibody screen') was negative.

ABO and Rh Typing

<A	<B	A1 cells	B cells	6% alb	<D	<D/AHG	CCC	Interp
0	4+	4+	0		4+			

Antibody Screen

	Gel
SCI	0
SCII	1+

Direct Antiglobulin Test (tube method)

	Poly	IgG	<C3
AHG	0		
5' incub.	0		
CCC	2+		

Antibody screening cells phenotype; gel column agglutination technique

Lot #VS169		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings	
Cell	Rh	D	C	E	c	e	V	K	k	Kp^a	Kp^b	Js^a	Js^b	Fy^a	Fy^b	Jk^a	Jk^b	Xg^a	Le^a	Le^b	S	s	M	N	P1	Lu^a	Lu^b		Gel
OI	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	+s	0	+		0
OII	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	0	0	+	0	0	+	0	+	+	0	+		1+

Initial Panel; gel column agglutination technique

VRA112		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings		
Cell	Rh	D	C	E	c	e	V	K	k	Kp^a	Kp^b	Js^a	Js^b	Fy^a	Fy^b	Jk^a	Jk^b	Xg^a	Le^a	Le^b	S	s	M	N	P1	Lu^a	Lu^b		Cell	Gel
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	+	+	0	0	+	0	+	+	0	+	C^w	1	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	0	+	+	0	+	0	+	0	+s	0	+		2	0
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	+	+	+	+	0	+	0	+		3	1+
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	+	+	0	+	0	+	0	+	+	0	+		4	0
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	0	+	0	0	0	+	0	+	0	+	0	0	+		5	0
6	r"r	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	0	+	+	0	0	+	+	0	+	0	+		6	0
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	0	0	0	0	+	+	+	+	0	0	+		7	0
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	+	+	0	+	0	+	0	0	0	+		8	0
9	rr	0	0	0	+	+	0	+	+	0	+	0	+	+	0	0	+	+	0	0	+	+	+	0	+	0	+		9	0
10	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	+		10	0
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	0	0	+	0	0	+	+	0	+	0	+		11	0
Patient																													AC	0

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Additional antibody identification cells, tube agglutination technique, PEG enhancement

Lot #03475		Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs				Lutheran		Xg	Other Typings		PEG	
Cell	Rh	D	C	c	E	e	V	K	k	Kp^a	Kp^b	Js^a	Js^b	Fy^a	Fy^b	Jk^a	Jk^b	Le^a	Le^b	P1	M	N	S	s	Lu^a	Lu^b	Xg^a		Cell	AHG	CC
1	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	+	0	+	+	0	+	+		1	0	2+
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	+	0	+	0	+	0	C^w, Co^b+	2	0	2+
3	R2R2	+	0	+	+	0	0	+	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	+		3	w+	
4	Ror	+	0	+	0	+	+	0	+	0	+	+	+	0	0	+	0	+	0	+	+	+	+	0	+	+	0		4	0	2+
5	r'r	0	+	+	0	+	0	0	+	0	+	0	+	0	+	+	0	+	0	+	+	+	+	+	0	+	0		5	0	2+
6	r"r	0	0	+	+	+	0	+	+	0	+	0	+	0	+	+	+	0	+	+	+	0	+	+	0	+	0	Co^b+	6	0	2+
7	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	0	0	+	+	+	0	+	0	0	+	+		7		
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	0	0	0	0	+	0	0	+	0	+	0	Bg^a+	8		
9	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	0	+	0	+	+	+	+	+	0	0	+	+		9		
10	R1R1	+	+	0	0	+	0	+	0	0	+	0	+	0	+	+	+	+	0	+	+	0	+	+	0	+	+		10		
11	R2r	+	0	+	+	+	0	0	+	0	+	0	+	0	0	0	+	0	+	+	0	+	0	+	0	+	0	He+	11		
Patient																													AC		

Patient 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+	NT																								
Pos control	3+	3+	3+																									
Neg Control	0	0	0																									

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Questions:

1. What is the probable identity of this antibody?

2. Is any further workup needed to prove it?

3. Why doesn't the antibody react with all cells carrying the corresponding antigen? What is this phenomenon called? Why do you suppose the technologist chose to try the PEG/tube technique for the second panel?

4. Does this antibody cause hemolytic transfusion reactions? (Hint: if the patient was transfused 3 weeks earlier, why isn't there a mixed field typing for C and/or E showing transfused cells of the common Rh phenotypes R1 or R2.)

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

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