

## ABID CASE # 6

Case study by Jim Perkins, M.D. (© 2008)



**History:** This patient was a 53 year old nulliparous woman admitted for a D&C. She had received 6 units of RBCs between 6 and 7 weeks earlier for anemia related to menorrhagia. At that time her antibody screen was negative.

### 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

	Gel
SCI	w+
SCII	1+

### Direct Antiglobulin Test (tube method)

	Poly	IgG	<C3
AHG	vw+, mf	vw+, mf	vw+, mf
CCC			

### Initial panel

Lot #8RA126	Rh system	Kell											Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other				
Cell	Rh	D	C	E	c	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Xg <sup>a</sup>	Le <sup>a</sup>	Le <sup>b</sup>	S	s	M	N	PI	Lu <sup>a</sup>	Lu <sup>b</sup>	Typings	Cell	Gel	
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	C <sup>w</sup>	1	0
2	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	0	+	+	0	+	0	+	0	+	+	0	+		2	0	
3	R2R2	+	0	+	+	0	0	0	+	+	+	0	+	0	+	+	+	+	0	+	0	+	0	+	0	+w	0	+	3	0	
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	0	+	0	0	+	+	+	+	0	+s	0	+	4	0*	
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	+	0	0	+	0	+	0	+	0	+	0	+	+		5	vw+	
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	+	+w	0	+	7	0		
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	+	0	0	+	0	+	+	+	0	0	0	+	8	w+		
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	0	0	0	+	0	+	0	+	0	+	0	+	9	1+		
10	rr	0	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	+	+	+	+	+s	0	+	11	w+		
Patient																												AC			

\*Read as "rough" by technologist, meaning that the RBCs coming off the cell button appeared possibly to contain agglutinates but nevertheless suspended evenly at the reaction endpoint.

### Additional panel

Lot# 8RB124	Rh system	Kell											Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other			
Cell	Rh	D	C	E	c	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Xg <sup>a</sup>	Le <sup>a</sup>	Le <sup>b</sup>	S	s	M	N	PI	Lu <sup>a</sup>	Lu <sup>b</sup>	Typings	Cell	Gel
1	rr	0	0	0	+	+	0	+	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	0	+	0	0	+	1	0
2	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	+	+	0	+	0	+	0	+	2	0
3	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	0	0	+	0	+	+	0	+	0	+w	0	+	3	vw+	
4	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	+	0	0	+	+	+	+	0	+s	+	+	4	vw+	
5	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	0	0	0	+	0	+	+	+	+w	0	+	5	0	
6	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	0	+	0	0	+	+	+	+	+	0	0	+	Di <sup>a</sup>	6	0
7	R1Rw1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	+	+	+	0	+	7	0	
8	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	0	+	0	0	+	+	0	+	0	+w	0	+	8	0*	
9	RzR1	+	+	+	0	+	0	0	+	0	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+w	0	+	9	0	
10	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	+	0	+	+	0	+	0	+	0	+	+	0	+	10	0	
11	R1R2	+	+	+	+	+	0	+	0	0	+	0	+	+	+	+	+	+	+	0	+	0	+	+	0	+	+	11	0	
Patient																												AC		

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**Plasma panel tested by LISS/tube and PEG/tube method; Eluate tested by PEG/tube method**

Lot #09584	Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg	Other	LISS				PEG	Eluate		
Cell	Rh	D	C	c	E	e	V	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Js <sup>a</sup>	Js <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P1	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	Typings	Cell	IS	RT	37°	<IgG	<IgG	PEG/IgG	
1	RZR1	+	+	0	+	+	0	0	+	0	0	0	+	+	0	+	+	0	+	+	+	0	+	+	0	+	+		1	0	0	0	0	0	0	0
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	+	0	+	+	Sc:2	2	0	0	0	0	0	0	0
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	+	0	+	0	+	0	+	+	+	+	+		3	0	0	0	0	0	w+	1+
4	Ror	+	0	+	0	+	+	0	+	0	+	0	+	0	0	+	0	0	+	+	0	+	+	0	0	+	+		4	0	0	0	vw+	1+	w+	
5	r'r	0	+	+	0	+	0	0	+	0	+	0	+	+	+	+	0	0	+	+	+	+	0	+	0	+	+		5	0	0	0	0*	1+	w+	
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	+	+	+	+	+	+	+	Yt <sup>b+</sup>	6	0	0	0	0	0	0	0
7	rr	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	+	+	0	0	+	0	+	0	Co <sup>b+</sup>	7	0	0	0	0	0	w+	1+
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	0	+	+		8	0	0	0	vw+	1+	1+	
9	R1R2	+	+	+	+	+	0	0	+	0	+	0	+	+	0	+	+	0	0	0	+	+	0	+	0	+	+	Bg <sup>a+</sup>	9	0	0	0	0	0	w+	1+
10	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	0	+	+	+	0	0	+	+	0	+		10	0	0	0	0	0	w+	1+
11	RZR2	+	+	+	+	0	0	0	+	0	+	0	+	+	+	0	+	+	0	0	+	+	0	+	0	+	+		11					0	0	
12	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	+	0	+	+	+	0	+	0	+	+	+		12						w+	
13	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	+	0	+	+	+	0	0	0	0	+	+		13					0	0	
14	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	+	+	+	0	+	+	+	+	0	0	+	+	+		14					0	0	
15	rr	0	0	+	0	+	+	0	+	0	+	0	+	+	0	0	+	0	0	0	+	+	+	+	+	0	+	+		15					1+	1+
16	rr	0	0	+	0	+	0	0	+	0	+	+	+	+	0	0	+	0	+	+	+	+	+	+	0	+	+		16					1+		
Patient																												AC	0	0	0	0	W+		0**	

\*Read as "rough" by technologist

\*\*Last wash

**Antigen Phenotype**

	Rh system				Kell				Duffy		Kidd		Lewis		MNSs													
	C	E	c	e	K	k	Kp <sup>a</sup>	Js <sup>a</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	S	s	M	N	P1	I	H	A <sub>1</sub>						
Patient											0*	3+																
Pos control											2+	2+																
Neg Control											0	0																

\*Macroscopic reading only

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**Questions:**

1. What is the probable identity of this antibody? Is it alloantibody or autoantibody?
2. Is any further workup needed to prove it?
3. What is the probable source of the immunizing stimulus in this case? Why is the DAT positive?
4. Comment on the varying strength of reactivity of the serum in the initial panel and in the various test systems used.
5. Does this antibody cause hemolytic transfusion reactions? Hemolytic disease of the fetus and newborn?
6. How should we select compatible blood for this patient? What percentage of donors are expected to be compatible with this recipient?
7. What is the biochemical nature of the antigen? (Review the relevant blood group system, including disease associations and population differences in antigen prevalence.)