

## FEATURED CASE #19-05

(Case study by Jim Perkins, © 2019)

**History:** This patient was a 28 year old woman admitted to labor and delivery.

### ABO and Rh Typing

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

### Antibody Screen

	Gel
SCI	1+
SCII	0

### Direct Antiglobulin Test

	Poly (gel)	IgG (gel)	<C3 (tube)
AHG	0		
5' incub.			
CCC			

### Antibody Screen Cell phenotype

		Rh system					Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran					
		Rh	D	C	E	c	e	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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>		
SC I	R1R1	+	+	0	0	+	+	0	+	0	+	0	+	0	+	0	0	+	0	0	+	+	+s	0	+		SC I	1+	
SC II	R2R2	+	0	+	+	0	+	+	0	+	/	+	+	0	0	+	+	0	+	+	+	+	0	+s	0	+		SC II	0

### Initial Plasma Panel; Column agglutination (gel) technique

Cell	Rh	Rh system					Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheren		Other Typings				
		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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>			
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	+	0	0	0	+	HLA+	1	0		
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	0	0	+	0	+	0	+	0	+		2	0		
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	0	0	+	+	0	0	0	+	HLA+	3	0		
4	Ror	+	0	0	+	+	+	+	+	0	+	/	+	0	0	+	0	0	+	+	0	0	+	+s	+	+		4	0	
5	r'r	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	+	HLA+	7	0			
8	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	0	0	+	+	0	0	+	+	0	+	0	+		8	2+	
9	rr	0	0	0	+	+	0	0	+	0	+	/	+	0	+	+	0	+	0	+	+	0	+	+	+	0	+	HLA+	9	0
10	rr	0	0	0	+	+	0	0	+	+	+	0	+	+	+	+	0	+	0	+	+	+	+	+	+	+		10	0	
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+	+	0	+		11	0	
Patient																									AC	0				

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### Questions:

- What do you think might be going on here? Based on your hypothesis(ies) how might we proceed?

The technologist elected to run a PEG/tube panel in the hope of finding additional reactive cells as well as to rule out gel-dependent reactivity. In addition, in order to investigate the possibility of an HLA antibody they adsorbed the patient's plasma with human platelet concentrate™ (HPC) and re-tested it against the previously-reactive RBC samples. The results are shown below.

### Second panel; PEG tube technique

Cell	Rh	Rh system					Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings	PEG			
		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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>	Cell	AHG	
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+s	0	+		1	0 <sup>v</sup>	
2	R1R1	+	+	0	0	+	0	+	+	0	+	/	+	+	+	+	+	0	+	0	+	+	+	0	+s	0	+		2	1+
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+	0	0	+	HLA+	3	0 <sup>v</sup>	
4	Ror	+	0	0	+	+	+	+	+	0	+	/	+	0	+	+	0	+	0	0	0	+	+	+	+	0	+	HLA+	4	0 <sup>v</sup>
5	r <sup>v</sup> r	0	+	0	+	+	0	0	+	0	+	/	+	+	0	+	+	0	+	0	+	+	+	+s	0	+		5	0 <sup>v</sup>	
6	r <sup>v</sup> r	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	0	+s	0	+		6	0 <sup>v</sup>	
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+s	0	+		7	0 <sup>v</sup>		
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+		8	1+	
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	0	+	0	0	0	+	0	+	+	0	+	HLA+	9	0 <sup>v</sup>	
10	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	0	+	0	+	0	+	+	0	0	+		10	0 <sup>v</sup>		
11	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+			11	0 <sup>v</sup>		

### Selected cells tested with HPC treated plasma; gel method

		Rh system					Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings	HPC		
		Rh	D	C	E	c	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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>	Cell	Gel	
SC 1	R1R1	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+	+s	0	+		SC 1	0
8	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	0	0	+	+	0	0	+	+	0	0	+		8	0	

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2. What is your impression now? Is any additional work-up required?

On the request of the supervisor reviewing the investigation and conclusions, additional selected cells were tested as follows:

### **Selected cell panel; manual gel technique**

		Rh system					Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings				
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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>	Cell	Gel	
1	R1R1	+	+	0	0	+	0	0	+	0	+	/	+	+	+	+	0	+	+	0	0	+	+	0	0	0	+		1	1+
2	R2R2	+	0	+	+	0	0	0	+	0	+	/	+	0	+	+	+	+	0	+	+	+	+	0	0	+		2	1+	
3	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	+	0	+	+	+	0	0	+	0	+	+	0	+	3	2+	
4	R2R2	+	0	+	+	0	0	0	+	0	+	/	+	+	+	0	+	0	+	0	+	+	+	0	0	+		4	1+	
5	rr	0	0	0	+	+	0	+	+	0	+	/	+	0	+	+	+	+	0	0	+	+	+	0	0	+		5	1+	
6	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	+	0	+s	0	+	6	1+	

### **Questions/discussion**

3. What is your interpretation now? What was the problem with the initial workup as presented above? What other approaches can be used to identify these antibodies?