

FEATURED CASE #19-06

(Case study by Jim Perkins, © 2019)



History: This patient was a 69 year old woman with a history of oral and cervical cancers, S/P chemo- and radiotherapy for both. She was transfused one unit of RBCs 8 days earlier, at which time the antibody detection (screening) test was negative. Over the intervening 8 days the patient's hemoglobin (Hb) fell below baseline (Hb 9.1 gm/dL on the day of transfusion, Hb 10.4 6 days later, Hb 8.4 on the day of the repeat specimen) and a new sample yielded the following results:

ABO and Rh Typing

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

Antibody Screen

	Gel
SCI	0
SCII	w+

Direct Antiglobulin Test

	Poly (gel)	IgG (gel)	<C3 (tube)
AHG	w+	vw+	0

Antibody Screen Cell phenotype

	Rh system	Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Cell	Gel	HPC™ adsorbed						
		D	C	E	c	e	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	PI	Lu ^a	Lu ^b	Gel
SC I	R1R1	+	+	0	0	+	+	+	0	+	/	+	0	+	+	0	+	0	+	+	+	+	0	+	0	+	SC I	0	
SC II	R2R2	+	0	+	+	0	0	+	0	+	/	+	0	+	+	0	+	0	0	+	0	+	+	+	0	+	SC II	w+	0

Initial Plasma Panel

VRA314	Rh system							Kell					Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other	Plasma	HPC adsorbed	Eluate		
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	PI	Lu ^a	Lu ^b		Cell	Gel	Gel	Gel
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	+	+	+	+	+	+	+	1	0		0
2	R1R1	+	+	0	0	+	0	+	+	0	+	/	+	+	0	+	+	+	0	0	0	+	0	+	+	0	+	2	0		2+	
3	R2R2	+	0	+	+	0	0	+	+	0	+	/	+	0	0	+	+	+	0	0	0	+	+	+	+	0	+	3	0		0	
4	Ror	+	0	0	+	+	+	0	+	0	+	/	+	0	0	+	+	+	+	0	0	+	+	+	+	0	+	4	0		0	
5	r'r	0	+	0	+	+	0	0	+	+	+	/	+	+	+	+	+	+	0	+	0	+	+	+	+	0	+	HLA+	5	1+	0	2+
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	+	0	+	+	0	+	0	+	0	+	6	0		0	
7	rr	0	0	0	+	+	0	+	+	0	+	/	+	0	+	0	+	0	0	+	0	+	+	0	0	0	+	HLA+	7	1+ ^w	0	0
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	0	0	+	8	0		2+	
9	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	+	0	+	+	0	0	+	0	+	0	0	+	9	0		2+		
10	rr	0	0	0	+	+	0	0	+	+	+	0	+	+	+	+	0	0	0	+	+	0	+	0	+	0	+	HLA+	10	0		2+
11	R1R1	+	+	0	0	+	0	0	+	0	+	/	+	0	+	+	0	+	+	0	0	+	0	+	+	0	+	HLA+	11	0		0
Patient																												AC	w+			

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Extended Phenotype

	Rh system				Kell				Kidd		Duffy		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	+						0*	+*														

*Tested using pretransfusion specimen of 8 days earlier.

Questions:

1. What is your interpretation of the plasma antibody? What about the antibody on the RBCs? Would you like to do additional testing based on what you see?

The technologist elected to test the patient eluate against one additional donor cell sample as follows.

Selected cells tested with the eluate

		Rh system						Kell						Duffy		Kidd	Xg	Lewis		MNSs				P	Lutheran		Other	Eluate		
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	
	R1R1	+	+	0	0	+	0	0	+	+	+	0	+	0	+	+	+	+	0	+	+	+	+	+	+	+	+	+		0

Questions

2. Why did the technologist perform the additional test? What is your diagnosis in this case? Why does the patient plasma give a different result than the eluate? Is this common?