

FEATURED CASE #19-09

Selected Cell Panel

VRB181		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other		
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	Typings	Cell	Gel, 30'
15	R2R2	+	0	+	+	0	0	+	+	0	+	/	+	+	+	0	+	+	+	0	0	+	+	+	+	+	+	+	15	1+
16	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	+	+	0	+	0	+	+	+	+	0	+	16	1+	

Extended 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	+																				

Questions:

1. What is the specificity of the patient's antibody? Is it proven? Would this problem meet the CDC/AABB criteria for a delayed hemolytic transfusion reaction (DHTR)?

The patient received 6 units of RBCs over 3 days, 7/15, 7/16, and 7/17. Another specimen received on 8/2 yielded the following test results.

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	2+
SCII	0

Direct Antiglobulin Test

	Poly (gel)	IgG (gel)	<C3 (tube)
AHG	0		

Antibody Screen Cell phenotype

VS647		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran				
	Rh	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	P1	Lu ^a	Lu ^b		Cell	Gel	
SC I	R1R1	+	+	0	0	+	+	+	0	+	0	+	0	+	0	+	+	0	+	+	+	+	+	+	0	0	+	SC I	2+	
SC II	R2R2	+	0	+	+	0	0	+	0	+	0	+	+	+	0	+	+	0	+	+	+	+	0	+	0	+	SC II	0		

FEATURED CASE #19-09

Plasma Panel

VRA184		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other			
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	Typings	Cell	Gel	
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	0	+	+	+	+	0	0	+		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	+	HLA+	3	0	
4	Ror	+	0	0	+	+	+	0	+	0	+	/	+	0	0	+	0	0	0	0	0	+	+	0	+	+	0	+	HLA+	4	1+
5	r'r	0	+	0	+	+	0	0	+	+	+	0	+	0	+	+	+	+	0	0	+	0	+	+	+s	0	+		5	0	
6	r''r	0	0	+	+	+	0	0	+	0	+	/	+	+	0	+	+	+	0	+	+	+	+	+	0	+	0	+		6	0
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	0	+	+	+	+s	0	+	Co ^{b+}	7	2+	
8	rr	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	+	0	0	+		9	0	
10	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	0	+	+	0	0	+	+	+	+	+	0	+	0	+		10	w+
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	0	+	+	+	+s	+	+		11	2+	
Patient																													AC	0	

Extended 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																	

Questions:

2. What is the specificity of the patient's antibody(ies) now? What antibody(ies) is proven? What other tests would you like to do?

Retained segments were retrieved from the 6 units of RBCs transfused between 7/15 and 7/17. Two (2) were K-positive, both of which were given on 7/16.

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Questions:

4. What antibodies does the patient have now? Are any new antibody specificities proven? What other tests would you like to do? Is this another DHTR?
5. What phenotype of RBCs would you reserve for the patient? What percentage of Caucasian donor would be expected to have that phenotype? Is there anything else you would like to do?

The patient underwent hindquarter amputation on 8/21. After a couple of hours it became obvious that the 10 units of compatible RBCs would not be sufficient. The blood center was contacted for additional units, but since their stock of E-, K-, and Jk^a-negative units had already been depleted the blood bank was informed that the order could not be filled for several hours. Luckily the hospital is part of a 4-hospital system, all within 30 minutes travel time. Typing of the hospital's remaining inventory of group B and O RBCs for this phenotype was instituted, and the other 3 hospitals were enlisted in the same search. Additional units were identified within the system and delivered emergently. The patient ended up using 18 units of RBCs, 1 unit of Platelets, Apheresis, 8 units of plasma, and 3 pools (15 units total) of cryoprecipitate. Two additional units of RBCs were transfused the following day (post-operative day 1).

On post-operative day 2 additional platelets were requested and a new patient specimen was submitted. The antibody screening test on this specimen was negative.

Questions:

6. Why do you think the antibody screen is negative? Could he have been transfused differently?

On 9/15 (23 days after massive transfusion) an additional unit of RBCs was requested, and a new patient specimen was received. The antibody screening test was still negative. The patient died of respiratory failure due to pulmonary metastases 2 weeks later, about 14 months from diagnosis.

7. Why do you think the patient's antibody screen was still negative 23 days after the massive transfusion?