

ABID CASE #10 Case Study by Jim Perkins MD (©, 2009)

History: This patient was an 81 year old man with a 4 year history of myelodysplastic syndrome for which he has received over 11 units of RBCs in the past. His transfusion requirement is alleviated by chronic erythropoietin therapy. His past history includes prostatectomy for cancer 2 years previously, severe osteoarthritis status post hip arthroplasty 4 years earlier, hypertension and type II diabetes. His blood group antibody screen has always been negative.

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	HPC*
OI	1+	w+
OII	0	

Direct Antiglobulin Test

	Poly	IgG	<C3
AHG	0		
CCC	2+		

Intial Panel

Lot #8RA168		Rh system						Kell						Duffy		Kidd		Xg	Lewis				MNSs				P	LutherAn		Other			HPC*		
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	+	0	+	C ^w	1	0					
2	R1R1	+	+	0	0	+	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	+		3	0					
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	+		5	0					
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	0	+	+	+	+	+		6	w+	w+				
7	rr	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	+		8	0					
9	rr	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	0	0	+		10	0					
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	+	+	+	+	+	0	+		11	0					
Patient																												AC	0						

*Tested with HPC adsorbed serum

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Additional cell panel

Lot #17749		Rh system						Kell						Duffy		Kidd		Lewis		P	MN				Lutheran		Xg	Other Typings	Cell	PEG IgG	Gel
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	Le ^a	Le ^b	P1	M	N	S	s	Lu ^a	Lu ^b	Xg ^a				
1	RzR1	+	+	+	0	+	0	0	+	0	+	0	+	+	+	+	+	0	+	+	+	0	+	+	0	+	+		1	0	
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	0	+	+	+	0	0	+	+	+	0	C ^w	2	w+	1+
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0		3	0	
4	Ror	+	0	0	+	+	+	0	+	0	+	+	+	0	0	+	0	0	0	0	+	+	+	0	0	0	+	+	4	0	
5	r'wr	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	+	0		6	0	
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	+	0	+	0	+	+	+	+	+	+	+	Co ^b	7	vw+	1+
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	+	+	0	+	+		8	0	
9	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+		9	0	
10	R1R1	+	+	0	0	+	0	0	+	+	+	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0		10	0	
11	R1r	+	+	0	+	+	0	+	0	0	+	0	+	0	+	+	0	0	+	+	+	+	0	+	0	+	0		11		
12	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	0	+	0	0	+	0	+	0	+	+	Co ^b	12		
13	r''r''	0	0	+	+	0	0	+	+	0	+	0	+	+	+	0	+	+	0	0	+	+	+	+	0	+	+		13		
14	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	+	+	+	0	+	+	+	+	+	0	+	+	+		14		
15	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	+	0	+	+	+	0	+	0	+	+	+		15		
16	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	0	+	+	0	0	+	+	0	+	0	0	+	0		16		
Patient																												AC			

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1. What is the identity of this antibody?
2. Is any further workup needed to prove it? Comment on the sensitivity of the gel and PEG techniques in this case.
3. Is the patient at risk for an immediate hemolytic transfusion reaction? A delayed hemolytic transfusion reaction? Would this antibody cause hemolytic disease of the newborn?
4. Four weeks earlier the patient's antibody screen was negative. Why wasn't the antibody detected at that time? Do you think the patient had not yet made it?
5. What is the biochemical nature of the antigen? To what family of structures does it belong?