

## AIHA CASE #1

Case study by Jim Perkins, M.D. (© 2009)



**History:** The patient was a 51 year old woman with a history of warm autoimmune hemolytic anemia who was referred to a hematologist at our institution for a second opinion and management of her disease.

Two months earlier she had been admitted to another hospital with fatigue, dyspnea on exertion, and cold sensitivity. Her hemoglobin level was 6.5 gm/dL. She was transfused and started on prednisone, 40 mg/d. The latter was tapered over 3 weeks and then discontinued, at which time her hemoglobin level was 11.7 gm/dL.

Four days previously she was again feeling tired with a hemoglobin of 9.6 gm/dL, and she had been restarted on prednisone, 20mg/D.

Physical examination was essentially normal.

Notable laboratory findings included:

- Hgb = 9.6 G/dL 4 days earlier, dawn from 11.7 G/dL 39 days earlier
- Reticulocyte % =12.5% (nml = 0.5 – 3.3%)
- Absolute reticulocytes = 347,000/mm<sup>3</sup> (nml = 15,000 – 127,000)
- Total bilirubin = 1.6 (nml = 0.1 – 1.4)
- LDH = 311 (nml = 0 - 200)
- Haptoglobin = 190 (nml = 36.0 – 195.0)

Immunohematologic testing was ordered with the following results:

### **ABO and Rh Typing**

<A	<B	A1 cells	B cells	6% alb	<D	<D/AHG	CCC	Interp
0	0	4+	3+		4+			

### **Antibody Screen**

### **Direct Antiglobulin Test (tube method)**

	Gel	IS	RT	4oC		Poly	IgG	<C3
SCI	3+	0	0	2+	AHG	3+	3+	2+
SCH	3+	0	0	3+	CCC			
AC		0	0	3+				
Cord		0	0	2+				

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**Initial Panel**

8RA178		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	P1	Lu <sup>a</sup>	Lu <sup>b</sup>	Typings	Cell	Gel		
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	0	+	0	+	C <sup>w</sup>	1	3+	
2	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	+	0	0	0	+	+	+	0	+	+		2	2+		
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	0	+		3	2+		
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	+	+	0	0	+	+	+	+	+	0	+		4	2+		
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	0	+	+	0	+	0	+	+	+	+	+	+	0	+		5	2+		
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	+	+	+	+	+	0	+	+	0	+	+	0	0	+		6	2+		
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	+	+	+	+	+	0	+		7	2+		
8	rr	0	0	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	+	+	0	+	0	+	0	+		9	2+		
10	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	0	0	+		10	2+		
11	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+	0	+		11	2+		
Patient																													AC			

**Eluate and Autoadsorption (saline/tube method with 2 drops eluate/adsorbed serum, 1 drop RBCs, tested at AHG phase)**

Lot #48796		Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs				Lutheran		Xg	Other		Eluate	3x Ads serum	
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	AHG	AHG	
1	RzR1	+	+	0	+	+	0	0	+	0	+	0	+	+	+	+	+	0	+	+	+	0	0	+	0	+	0		1	3+	2+	
2	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	0	+	0	+	0	+	0	C <sup>w</sup>	2	3+	0
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+	+	+	+	+		3	3+	0	
4	Ror	+	0	+	0	+	+	0	+	0	+	+	+	0	0	+	0	0	+	+	+	0	+	0	0	+	0		4	3+	2+	
5	r'r	0	+	+	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	0	0	+	0	+	0		5	3+	0	
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	+	0	+	+	+	+	0	+	0	+	+		6	3+	2+	
7	rr	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	+	+	0	+	+	+	0	+	+		7	3+	2+	
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	0	+	0	Yt <sup>b+</sup>	8	3+	2+	
9	rr	0	0	+	0	+	0	0	+	+	+	0	+	+	w	+	0	0	+	0	0	+	+	+	0	+	+	Yt <sup>b+</sup>	9	3+	2+	
10	rr	0	0	+	0	+	+	+	+	0	+	0	+	+	0	+	+	0	0	w+	+	0	0	+	0	+	+		10	3+	2+	
11	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	0	+	+	0	+	0	+	+	Yt <sup>b+</sup> , I-	11	3+	2+	
																												Last wash	SCI	0		
																													SCII	0		

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**Selected cells** (saline/tube method with 2 drops 3x autoadsorbed serum & 1 drop RBCs, tested at AHG phase)

Lot #4879		Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs				Lutheran		Xg	Other Typings	3x Ads serum		
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>		Cell	AHG	CC
3	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	0	+	0	0	+	0		1	0	2+
4	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	0	+	0	+	+	0	+	0	+	0	+	0		2	0	2+
16	rr	0	0	+	0	+	0	+	+	0	+	0	+	+	0	0	+	0	+	+	+	0	+	+	0	+	+	7	0	2+	

**Questions:**

1. What antibody(ies) are present? Is this allo- or auto-antibody?
2. What does the auto-adsorption demonstrate? Is this auto-adsorption result valid?
3. No antigen phenotype(s) was done. What is the problem(s) for performing an antigen phenotype in such a case? Could one have been done? How?
4. How would we select compatible blood for this patient?