ABID CASE #8

Case study by Jim Perkins, M.D. (© 2005)

Indian Immunohematology Initiative

History: This patient is a 74-year-old woman, former smoker, who presents with an enlarging 1.1 cm non-calcified lung nodule in the right lower lobe. She has a history of a right upper lobectomy 3 years earlier for an early stage lung cancer. Although, PET scan is negative on this lesion, it is clearly enlarging, and she presents for surgical removal. The patient denies previous transfusion.

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	2+
SCII	0

Direct Antiglobulin Test

	Poly	IgG	<C3
AHG	0		
CCC	2+		

Screening cell phenotype

8S641		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		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	Xg^a	Le^a	Le^b	S	s	M	N	P1	Lu^a	Lu^b	
SCI	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	0	+	+	+	0	0	0	+	2+
SCII	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	+	+	+	0	+	0

Initial Panel

Lot # 8RA177		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings		
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		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	+		2	0
3	R2R2	+	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	+		4	0
5	r'r	0	+	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	0
7	rr	0	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	+	+	0	+	0	0	0	+		8	2+
9	rr	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	2+
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	+	0	0	0	0	+	+	+	+	0	+		11	0
Patient																													AC	

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Additional cells tested with "pre-warmed technique" (Saline/tube method with 4 drops plasma and 1 drop RBCs warmed to 37°C before mixing.)

Lot # 44643		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings	Prewarmed testing, 4 drops/saline			
Cell	Rh	D	C	c	E	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	M	N	S	s	P1	Lu^a	Lu^b		Cell	37°	AHG	CC
1	RzR1	+	+	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	+	0	+	+	+	0	+		1	0	0	2+
2	R1wR1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	+	0	+	C^w	2	0	0	2+
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	+	+	0	0	+	Yt^b	3	0	0	2+
4	Ror	w	0	+	0	+	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	+	0	+	He+	4			
5	r'wr	0	+	+	0	+	0	0	+	0	+	0	+	+	+	+	0	+	0	+	+	0	0	+	0	0	+	C^w	5			
6	r"r	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	+	+	0	0	+	0	+	+	0	+		6			
7	rr	0	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	0	0	+	0	+	+	+	+	0	+	Bg^a	7			
8	rr	0	0	+	0	+	0	0	+	0	+	0	+	+	0	+	0	+	+	0	+	+	+	+	+	0	+		8			
9	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	0	0	+	0	+	0	0	+	0	0	+		9			
10	rr	0	0	+	0	+	0	0	+	0	+	0	+	0	0	+	+	0	0	0	+	+	+	0	+	0	+		10			
11	R2r	+	0	+	+	+	0	0	+	0	+	0	+	+	0	0	+	+	+	0	0	+	0	+	+	0	+		11			
Patient																													AC			

Patient Antigen 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	4+										
Pos control																	3+	3+										
Neg Control																	0	0										

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Questions:

1. What is the probable identity of this antibody?

2. Why aren't many of the antigen positive cells reacting?

3. Is any further workup needed to prove it? Why were the selected cells from the second panel run?

4. What would we require to consider a unit of RBCs compatible for this patient? (See the procedure "Blood Component Compatibility Requirements".)

5. What would you expect to find after dithiothreitol (DTT) treatment of the serum and rerunning the panel (DTT denatures sulfhydryl bonds)? What about after ficin or papain treatment of the panel RBCs?

6. Is the patient at risk for an immediate hemolytic transfusion reaction? A delayed hemolytic transfusion reaction?

7. Would this antibody be expected to cause hemolytic disease of the fetus and newborn?

8. What is the biochemical nature of the antigen? What is the basis for the polymorphism between this and its antithetical antigen?