A Case of HDN??

Are you Sure??

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Patient X - History

DOB: 4/10/2016 (About 3 weeks old)

Admitted: 04/30/2016 (born at another facility)

Sample Submitted: 05/02/2016

Hospital Testing: Baby: O Pos, 2+ DAT (IgG)

Mom: O Pos, Neg Antibody Screen

Sample is sent to the Reference Lab for an Eluate ONLY workup.

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Patient X - Initial Testing

Reference Lab Initial Results:

O Pos

DAT (IgG): 2+ (gel)

Suspect: HDN caused by Antibody from Mom.

Eluate - Patient X

D	C	c	E	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	M	N	S	s	Elu-gel
+	+	o	o	+	o	+	+	o	o	+	o	+	+	+	o	+	3+
+	+	o	o	+	o	+	o	+	o	+	o	+	+	o	+	+	3+
+	o	+	+	o	o	+	o	+	o	+	o	+	+	o	+	+	3+
+	o	+	+	+	o	+	o	+	+	+	o	+	o	+	o	+	3+
+	o	+	o	+	o	+	o	o	+	o	o	o	+	o	+	o	3+
o	o	+	o	+	+	+	+	o	+	o	o	+	o	+	+	o	3+
o	o	+	o	+	o	+	+	+	+	+	o	+	o	+	+	+	3+
o	o	+	o	+	+	+	o	+	o	+	+	o	+	+	o	+	3+
o	o	+	o	+	o	+	o	+	+	+	o	+	+	+	o	+	3+

Last Wash - Neg with SCI, SCII, and SCIII

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Patient X - Not Expected

Based on the Eluate-

What do you think?

A. Warm auto from Mom?

B. Warm auto from Baby?

C. HDN from alloantibody

D. Something else?

What should we do next to differentiate?

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Patient X - Next Steps

How do you determine if an antibody is allo or auto?

Autocontrol?

If the patient has a positive DAT, does that make it auto?

When does this rule not apply? Why?

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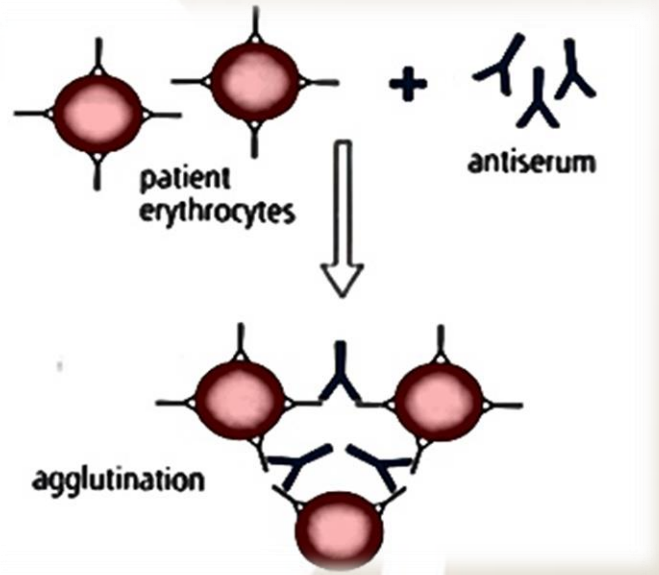
Patient X - More Testing

EGA (EDTA Glycine Acid)

-Used to remove antibody (IgG) from the patient's red cells

EGA DAT: Negative

EGA Cells tested with eluate: 3+



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Patient X - Answers?

Blood Bank Principle:

If a patient posses an antigen, they will not produce an alloantibody to that antigen.

EGA Auto is used to determine if the antibody is allo (NEG) or auto (POS).

Patient EGA auto tested with eluate: 3+

We're Done!.....?

Patient X - So it Continues…

What special situation would require us to think a little differently with this patient?

Just a few weeks ago, this patient was inside another human being.

Hemolytic Disease of the Newborn:

Mom antibody crosses placenta and attaches to baby cells

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Patient X - Getting Closer?

We cannot assume AUTO antibody

What are the other possibilities?

- Antibody to a high incidence ag - Aby from mom
- Multiple antibodies - Aby from mom

How do we investigate / differentiate?

Patient X - More Testing

Best approach-

Test mother's plasma for antibody

No Sample available

Still had Eluate from baby

Test several cells negative for high incidence antigens

Eluate – Patient X

D	C	c	E	e	K	k	Fya	Fyb	Jka	Jkb	M	N	S	s	Lub	Coa	U	gel
+	+	0	0	+	+	0	+	0	0	+	+	+	0	+	+	+	+	3+
+	+	0	0	+	0	+	0	+	0	+	+	0	+	+	0	+	+	3+
+	0	+	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	3+
+	0	+	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	0

Ah HA!..... or..... OH NO! ?

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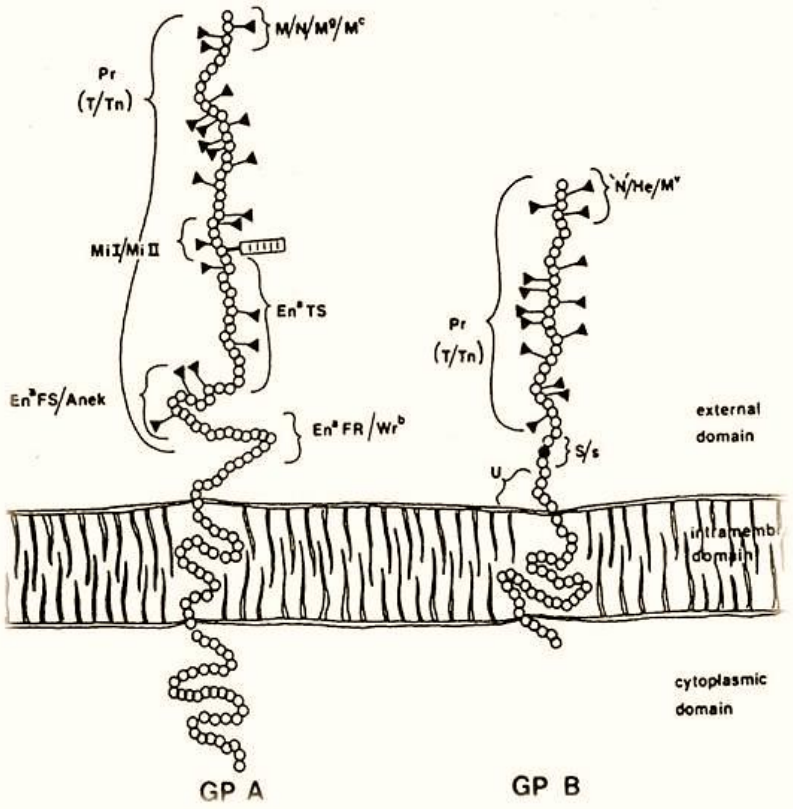
U (MNS5)

Part of the MNS Group

Located on Glycophorin B



Present in 99.9% of the population

99% in the Black population

S-s-

U variant- weaker U expression, not all the same

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Patient X - More Testing

Tested additional U- cells to confirm

So…..

Mom makes anti-U which crosses the placenta and attaches to baby's RBCs causing destruction and anemia

But wait……

Initial testing from the hospital reported Mom had a negative aby screen

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Patient X - Let's Think About This…

Anti-U in baby eluate but not present in Aby Screen

- Mom has anti-U - all bound by baby RBCs
  - New antibody?
  - Low level of antibody?
- Mom has anti-U - not detected by method at the hospital
  - Some abys prefer LISS, or PeG, or other methods
- Human Error-
  - Always consider that there was an error in testing

Any other possibilities ??

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Patient X - Continued Investigation

Would like to test Mom sample using multiple methods

Needed sample - waiting

Tested baby plasma for antibody

Neg antibody screen

Neg panel- ficin treated cells

U antigen resistant to ficin

Mother's Sample

Hospital reported:

Mom: O Pos, Neg Screen

Our Testing:

Antibody panel (gel): Neg

Antibody panel (ficin): Neg

Antigen testing: S+s+

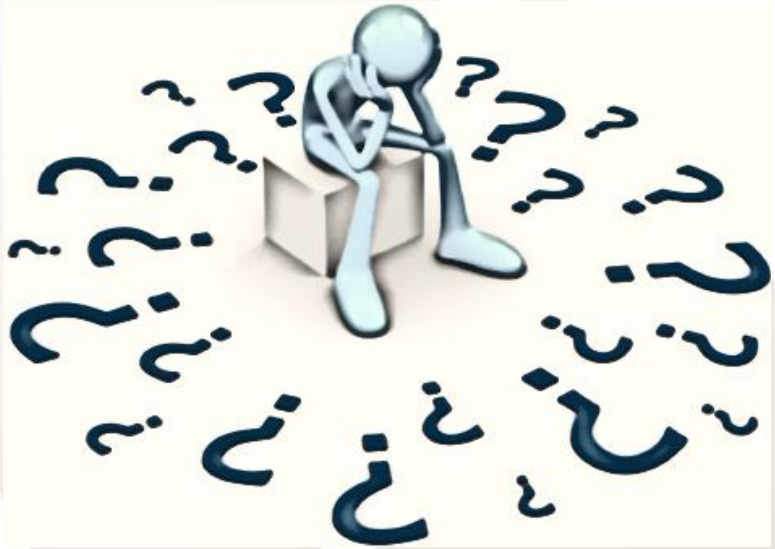
Mother's RBCs with baby eluate: 3+

Mother's Sample

Sent for molecular human erythrocyte antigen testing.

Determined by molecular testing to be: S+, s+

No mutation was detected by the beadchip assay



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Patient X - Looking Further

Additional lab results for Patient X:

Blood Gases:

- pH ↓
- pCO_2 ↑
- pO_2 ↓
- O_2 sat ↓

Chem:

- Potassium ↑

Micro/ Virology:

Respiratory Syncytial Virus - Detected

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Patient X - More Questions than Answers

Did the infant produce the antibody?

Was there a treatment given for the RSV that caused a passive, transient, antibody to be detected?

Was there antibody present in the mom that was undetectable?

Was it truly anti-U, or another antibody that was cross reacting?

Questions…

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