

Haemolytic Transfusion Reactions



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HOBART
PATHOLOGY

Case Presentation

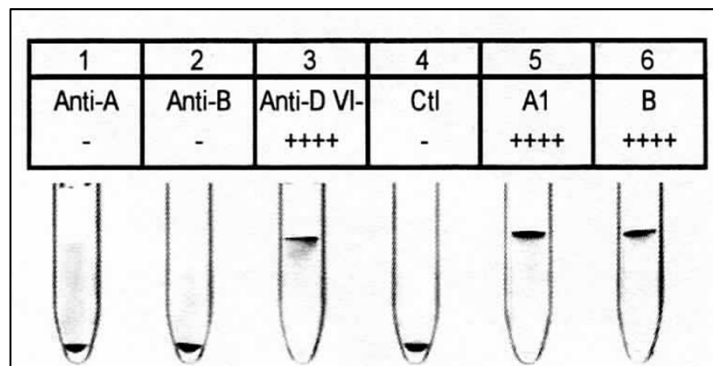
- 57 year old female presented to Calvary A&E with:
 - Anaemia
 - Epistaxis
 - GI bleed
 - Petechiae
- Extensive medical history
 - Cholangiocarcinoma
 - Systemic Lupus Erythematosus (SLE)
- Full blood examination requested

Full Blood Examination

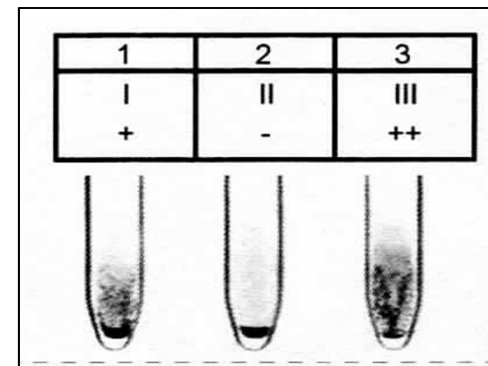
	Results	Normal Reference Range
Haemoglobin	78 g/L	150-165 g/L
HCT	0.22 l/L	0.36-0.47 L/L
MCV	84 fL	80-100 fL
WCC	0.6 x10 ⁹ /L	4.0-11.0 x10 ⁹ /L
Neutrophils	0.2 x10 ⁹ /L	2.0-7.5 x10 ⁹ /L
Lymphocytes	0.4 x10 ⁹ /L	1.0-4.0 x10 ⁹ /L
Monocytes	<0.1 x10 ⁹ /L	0.2-1.0 x10 ⁹ /L
Eosinophils	<0.1 x10 ⁹ /L	<0.5 x10 ⁹ /L
Basophils	<0.1 x10 ⁹ /L	<0.3 x10 ⁹ /L
Platelets	3 x10 ⁹ /L	150-400 x10 ⁹ /L

Pre-transfusion Testing

- Transfusion History:
 - Positive for 5 antibodies:
 - Anti-E, Anti-c, Anti-K, Anti-Jk^b and Anti-Fy^a
 - Direct Antiglobulin Test (DAT) positive for IgG only
 - Previously transfused with autologous blood



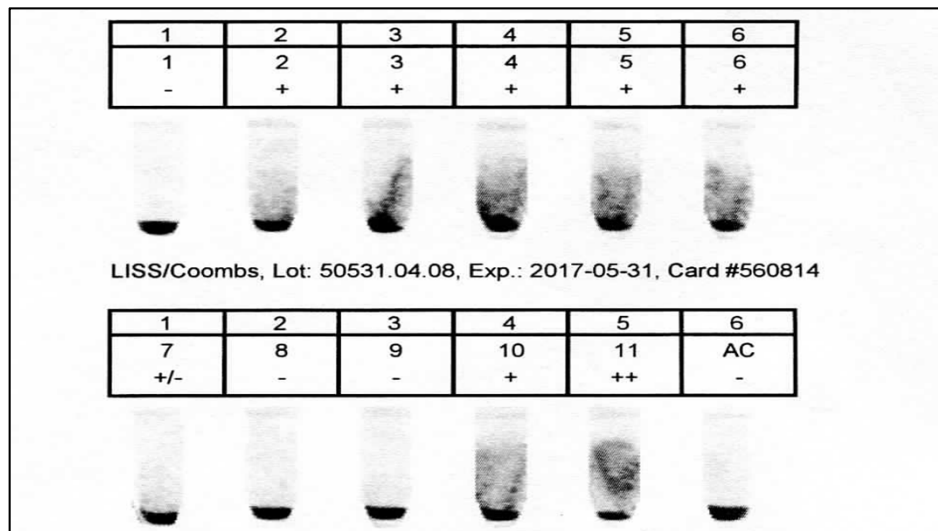
O Rh D +



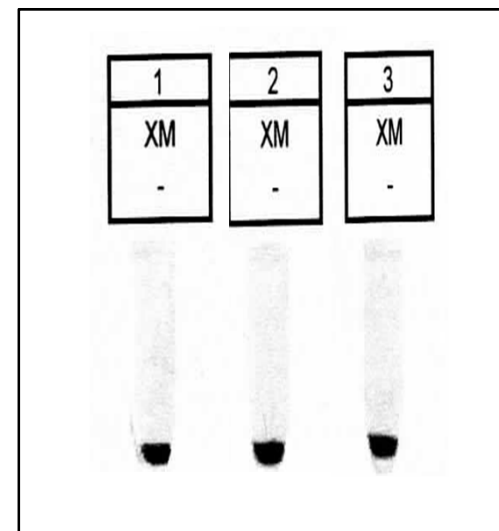
Positive

Pre-transfusion Testing

- Antibody panel and cross-match:
 - Antibody panel was positive for Anti-E and Anti-Jk^b only, other 3 were undetectable



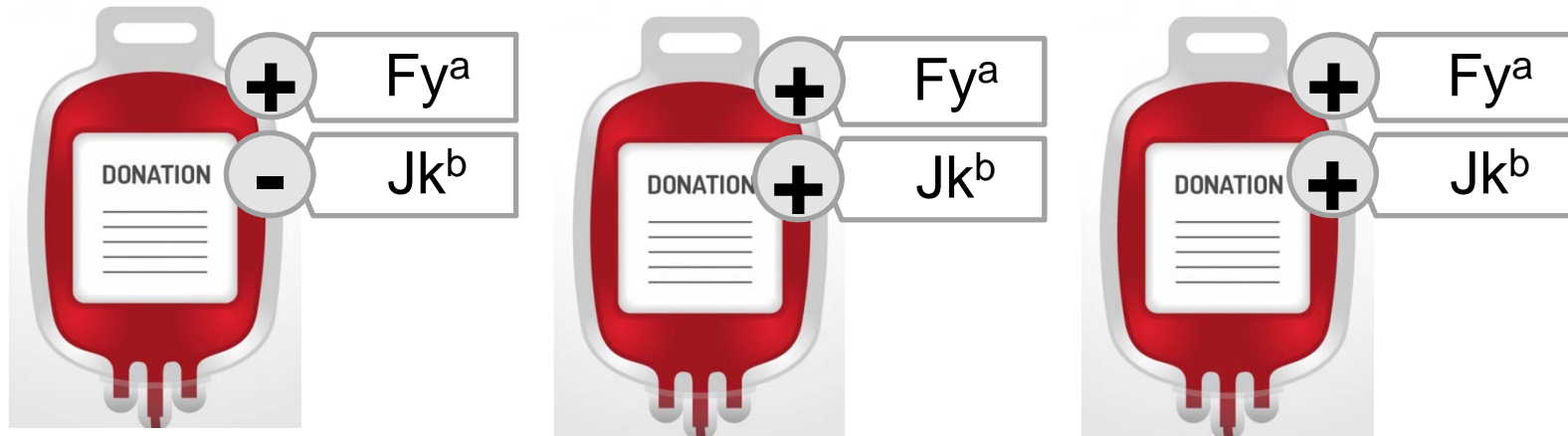
Anti-E and anti-Jkb detected



Negative

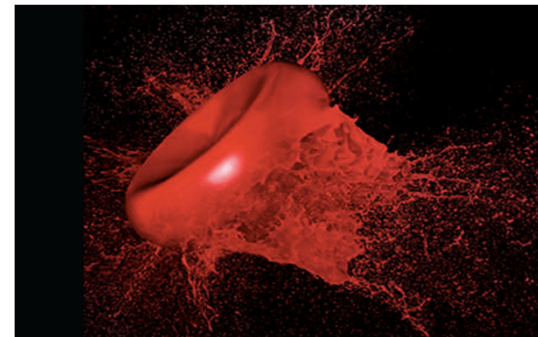
Transfusion Presentation

- Outcome:
 - Platelets were issued within an hour
 - 3 serologically compatible RBC units available in stock
 - No phenotypically compatible units



Haemolytic Transfusion Reactions

- The lysis or accelerated clearance of red cells in a recipient receiving a blood transfusion
- Caused by immunological incompatibility between the blood donor and recipient
- HTRs are usually classified with respect to the time of their occurrence:
 - Acute HTRs: during or within 24 hours of the transfusion
 - Delayed HTRs: more than 24 hours after the transfusion, typically 5-7 days later



Delayed Haemolytic Transfusion Reactions

- Occurs in patients with previous sensitisation to antigens from previous transfusions or pregnancy
- Most common antibodies associated with DHTAs are those from:
 - Kidd
 - Rh
 - Duffy
 - Kell
- Often unnoticed however common signs and symptoms include:
 - Fever
 - Fall in Hb
 - Jaundice

Pathophysiology

- Transfusion of RBCs possessing offending antigen will induce a secondary immunological response
- IgG antibodies will bind to antigen-positive RBCs
- Causes extravascular haemolysis
 - Marked RBCs removed from circulation by macrophages
 - Taken into the reticuloendothelial system
 - Phagocytosed in the liver or spleen

Diagnosis and Treatment

- Often unidentified
- Confirmed by positive DAT
- Positive elution test
- Other results:
 - Decreased Hb
 - Increased serum LDH
 - Increased bilirubin
 - Mildly decreased haptoglobin
- Treatment is rarely necessary
 - Monitor Hb
 - Maintain hydration
 - Re-transfuse

Case Considerations

- Risk of DHTR better than risk of patient bleeding out
- Communication between clinical staff and laboratory
- Patient stability and other considerations
- Transfusion alternatives
- Antibodies present

Conclusion

- Patient was stabilised overnight
- Units received from Red Cross were transfused
- Patient's condition improved over the following days:

	03/05/16	04/05/16	05/05/16	06/05/16	12/05/16
Haemoglobin (g/L)	78	64	76	92	101
Neutrophils (x10 ⁹)	0.2	<0.1	<0.1	<0.1	6.9
Platelets (x10 ⁹)	3	20	15	45	47

References

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