Basic Serology Day

Derby Hospitals NHS
NHS Foundation Trust

Interesting Case Studies

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Case 1

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- 50yr old female
- Admitted with abdominal discomfort, melaena and exhaustion. ?Ca
- Hb 7.0g/dl.
- Plan-Transfuse 2 units of red cells.
- Patient grouped as B Positive.
  Antibody screen –negative
  2 units of red cells compatible.

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Case 1-continued

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- 2 units transfused with no adverse affect
- 7 days later, new group and save sample received
- Sample spun down prior to testing-plasma bright yellow
- B Positive, Antibody Screen: Positive.
  Antibody Panel: Anti-c.

What should the BMS have thought/done?

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What should be done?

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- Perform Direct Antiglobulin Test (DAT)
  Has the patient been transfused recently? Check history.

- ? Delayed Haemolytic Transfusion Reaction.
  Refer to TP for investigation.
- Request further samples for confirmatory testing by NHSBT.
  Repeat pre transfusion ab screen and panel using enzyme technique.
  Perform Rh phenotype

- Look at Hb and Bilirubin results.
  Inform ward and Consultant Haematologist

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Results 1

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Day	1	2	3	4	5	6	7	**8**	9	10	11
Hb g/dl	7.8	9.2				9.2	8.8	**8.2**			
Bilirubin umol/l	13	23				17	78	**132**			

2 units of red cells transfused

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Results 2

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Day	1	2	3	4	5	6	7	**8**	9	10	11
Hb g/dl	7.8	9.2				9.2	8.8	**8.2**			
Bilirubin umol/l	13	23				17	78	**132**			
IAT	Neg					Neg	4+	**4+**			
Enzyme	1+					4+	4+	**4+**			

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Results 3

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Day	1	2	3	4	5	6	7	**8**	9	10	11
Hb g/dl	7.8	9.2				9.2	8.8	**8.2**			
Bilirubin umol/l	13	23				17	78	**132**			
IAT	Neg					Neg	4+	**4+**			
Enzyme	1+					4+	4+	**4+**			
anti-c i.u./ml						0.2	17	**190**			

2 units of red cells transfused

Request for 2 units of red cells

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Results 4

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Day	1	2	3	4	5	6	7	**8**	9	10	11	15
Hb g/dl	7.8	9.2				9.2	8.8	**8.2**		11.1		
Bilirubin umol/l	13	23				17	78	**132**		18		
IAT	Neg					Neg	4+	**4+**				
Enzyme	1+					4+	4+	**4+**				
anti-c i.u./ml						0.2	17	**190**		>3352		

2 units of red cells transfused

Anti c+E+M

Anti c+E+M+ S+?Lu^{a}

2 units of red cells transfused

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Clinically

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Day	1	2	3	4	5	6	7	**8**	9	10	11	15
Hb g/dl	7.8	9.2				9.2	8.8	**8.2**		11.1		
Bilirubin umol/l	13	23				17	78	**132**		18		
IAT	Neg					Neg	4+	**4+**				
Enzyme	1+					4+	4+	**4+**				
anti-c i.u./ml						0.2	17	**190**		>3352		

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Outcome

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- Day 10- no further problems reported ,requires 2 further units prior to hemicolectomy in 6 days time.
  New sample sent.
- NHSBT had never seen an Anti-c at such high a level it was off the top of their range. Unfortunately her ab screen showed that she had now developed other antibodies and by Day 15 showed further antibodies.

- Now very difficult to x-match blood for her.
- Ab card issued and patient informed to alert Dr's on subsequent hospital admissions.

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Case 2

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- 70yr old female
- Admitted with a haematoma and a raised INR on Warfarin
- Hb 7.2g/dl.
- Plan-Transfuse 2 units of red cells.
- Patient grouped as A Positive.
  Antibody screen –negative
  2 units of red cells compatible.

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Case 2-continued

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- 2 units transfused with no adverse affect.
  Post Tx Hb=9.9g/dl

- 49 days later patient still an in-patient. Condition worsened with leg ulcers and an infection. Hb=7.9g/dl
- New sample sent for 2 units of RBC

- A Positive, Antibody Screen: Negative.
  2 units issued by EI

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Case 2-continued

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- Day 50 clinicians continued to monitor the Hb and in the evening sent another G & S sample.
  No blood had been transfused at this stage.
- A Positive, Antibody Screen: Positive.
  ID Panel : Weak anti-Fy(a)
  (Test completed at night)

- In the morning the 2 units previously issued by EI were removed from the issue fridge and serologically crossmatched with fresh sample.
- One unit was found to be incompatible
- Further samples requested for NHSBT

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What should be done?

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- Two units Fy(a) Negative units x-matched and issued
  Checked history. Transfused in 1990

- Re-tested sample from Day 49

- One analyser (2 tested) gave a very weak result and brought the card forward.
  All controls for screening cells had passed their validation.

- NHSBT failed to get a clear result
  using the fresh samples.

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Outcome

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- Patient's condition deteriorated did not receive the blood provided.
- Patient died before any further samples could be obtained.
- The case was reported to SHOT as a near miss.

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Questions

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- It is impossible to know every patients' transfusion history and therefore if blood is going to be issued by Electronic Issue how close to EI should a sample be taken /used?

- Did the patient's condition stimulate the immune system to make her respond more strongly within 24hrs?
- Should the location of the EI units been confirmed as soon as the antibody was detected?
- Should the original sample have been sent to NHSBT instead of the fresh samples?
- How long should the blood have been left in the issue fridge if the patient had not been transfused when expected?

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