A blood group discrepancy involving anti-M in pregnancy

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Case Study

- 27 yrs old pregnant women
- First trimester visit – Blood group APos, antibody screen negative
- Second trimester visit, Blood group discrepancy, antibody screen positive
## Blood Group discrepancy

- **BioVue**

<table>
<thead>
<tr>
<th></th>
<th>Anti A</th>
<th>Anti B</th>
<th>Anti D</th>
<th>A1 Cells</th>
<th>B cells</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Repeat – same result

- **Tube method**

<table>
<thead>
<tr>
<th></th>
<th>Anti A</th>
<th>Anti B</th>
<th>Anti D</th>
<th>A1 cells</th>
<th>A2 cells</th>
<th>B cells</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>
Antibody Screen and resolving discrepancy

- Grouping discrepancy → A₁ cell reaction
- Antibody screen – Positive
  - ? Anti-A₁
  - ? Room temp antibody - A₁ cells antigen positive
- Anti-M identified
  - IAT reactive
  - Not tested at Room Temp
- Exclude/confirm anti-A₁
  - Subtype patient for A with A₁ lectin
  - Lectin positive → patient is A₁
    - Anti-A₁ excluded
- Phenotyped A₁ cells for M antigen
  - A₁ cells – M+
- Concluded anti-M antibody reacting with A₁ cells
Anti – M and pregnancy

- Guidelines - Australian and New Zealand Society of Blood Transfusion (ANZSBT) 2007
- Anti M is in group 2 (Group 2 of Clinically significant antibodies in pregnancy and potential to cause Haemolytic Disease of the Newborn (HDN))
- Group 2: Anti –Cw, -Fyb, -Jka, -Jk3, -S, -s, -M, Ge a

These antibodies may cause a positive DAT but therapy, if necessary limited to phototherapy
Anti-M and Transfusion

- ANZSBT 2007 recommend transfusion of M- donor cells
  - Prior recommendation: anti-M detected with pre-warmed plasma → transfuse with M-
- Challenge in regional labs – No anti-M antisera on site
- Most donor cells not phenotyped for M (22% donor cells M-)
- Query establishing a local protocol involving keeping anti-M antisera on site
  - Frequency of use
    - Typing required urgently
  - Cost
  - Shelf life
1) Guidelines for Blood grouping & antibody screening in Antenatal & perinatal setting, ANZSBT (2007)
2) Guidelines for Pretransfusion Laboratory Practise, ANZSBT (2007)
3) Harmening, D.M 1999, Modern Blood banking and transfusion
4) Safoorah et al 2011, Naturally occurring anti- M complicating ABO grouping
Acknowledgments

- Ms Rosemary Marando, Senior Hospital Scientist, Transfusion Medicine lab, St Vincent's Hospital, Sydney, Sydpath
- Sydpath Moree Pathology staff.