

When a week is not long enough...

Matthew Vandervelde
Launceston Pathology



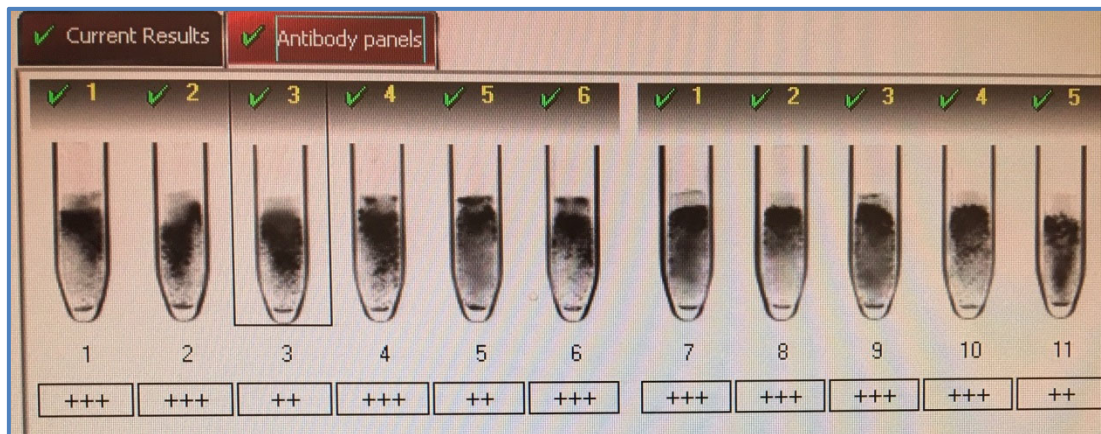
Case study

- 55 year old female
- Pre-op bloods
- Patient having a hysterectomy



Results

- Group: O(Rh)Positive
- Antibody Screen: **All 3 cells positive**
- Panel: **All cells positive**
- Auto control: Negative
- DAT: Negative



Patient History

- 1995

A/N screen: O(Rh)Pos. No antibodies detected

- 2000

A/N screen: Unidentified antibody detected

Samples sent to Reference Lab for antibody ID

Reported: **Antibody of indeterminate specificity**

Follow up G/H suggested by no history of repeat.

- Local hospital had no TX history for patient
- Patient not on Daratumumab



Antibody Investigation

- An auto adsorption failed to remove any antibody
- Phenotyped patient for all held anti-sera
- Crossmatched units reacted
- **Next:** Send samples to Reference Lab for antibody ID

But....



Antibody Investigation

- Needed more patient sample for referral
- *Patient only back on Friday (Flew interstate)*
- Red Cross sent 2 units with matched phenotype
- Reacted on full crossmatch
- **? High incidence antigen**



What do we do now....????

- Patient is away till Friday
- Surgery the following Monday
- Surgeon going on extended leave
- Patient is super keen to have the surgery
- **No compatible blood**
- Samples leave for Ref. Lab Friday afternoon



Antibody Investigation Results

- Investigation results back on day of surgery
- Patient has an **Anti-Kp^b**
- Comments:

No antibodies detected when plasma tested against Kp^B negative and 0.2 M DTT treated cells.

Anti-K cannot be excluded.



Kp^b

- Kp^b (1958)¹: High incidence antigen of the Kell Blood Group System (K, k, Kp^a, Kp^b, Js^a, Js^b.....)
- Anti - Kp^b : Extremely rare antibody
- >99.9% Caucasian, 100% African populations
- <1:10000 units Kp^b negative ²
- 2016: One Kp^b negative donor in Ireland ³
- In Australia(09-08-2018): One Kp^b negative donor eligible to donate ⁴



Clinical significance

- Significant delays in obtaining compatible units
- Has been implicated in HDFN and Transfusion reactions ^{5 6}
- What about emergencies?
- Do doctors really understand?



Recommendations

- Liaise with Red Cross for any future blood requirements with advanced notice.
- Autologous donations should be considered
- Test siblings and children for kp^b
- Frozen units



Some Frozen Blood facts⁴

- Shelf life of 10 years (-80°)
- 24 hours when thawed and washed
- 50% efficiency
- Numerous rare phenotypes



References

- 1 Allen FH, Lewis SJ, Fudenberg H. Studies of Anti-Kp^b, a New Antibody in the Kell Blood System. First published: January 1958 <https://doi.org/10.1111/j.1423-0410.1958.tb03553.x>
- 2 Red Cell Compatibility Calculator.
https://transfusion.com.au/blood_basics/blood_groups/red_cell_compatibility_calculator
- 3 Scally E, Doyle B, Loingsigh SN. Red Cell Case Studies. Irish Blood Transfusion Service. Biomedica. 2016
- 4 Victorian Red Cross Reference Laboratory
- 5 Dacus JV , Spinnato JA. Severe erythroblastosis fetalis secondary to anti-Kp^b sensitization. Am J Obstet Gynecol. 1984; 150:888-9.
- 6 Sánchez-Girón F, Quintanar-García E, Alcaraz JL, Storry J, Mallory D Delayed hemolytic transfusion reaction by anti-Kpb (Kel4). Report of the first case of anti-Kpb in Mexico. Rev Latinoamer Patol Clin. 1999; 46:143-6.



Acknowledgments

- VRCRL
- ARCBS
- Launceston Pathology

Thank you

