

MISBHAVING CELLS – Deceased Donor with Crohn's Disease Showed Complete Depletion of Circulating B Cells



Liver and

Kidneys

Transplanted

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Purpose

Immunologic reactivity of recipient serum towards donor lymphocytes plays a crucial role in determining the histocompatibility of allograft transplants. Prospective physical crossmatches are routinely performed to evaluate transplant compatibility and to identify risks associated with antibody - mediated graft rejection.

Anomaly

While analyzing and reporting the results from the physical crossmatch, it was noticed that, unexpectedly, the B-cell population was depleted from every crossmatch reaction.

• 33-year-old Caucasian female

- COD: Intracranial hemorrhage
- Past medical history
 - ✓ idiopathic thrombocytopenic purpura
 - ✓ anti-synthetase syndrome
 - ✓ autoimmune interstitial lung disease
 - ✓ Crohn's disease

∞Negative Ctl 1 - All Events

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- Medications
- ✓ 20 different medications for autoimmune treatment (several unknown)

Negative Ctl 1 - T-Cells

What happened to the B-cells?

Donor Details

Hospital

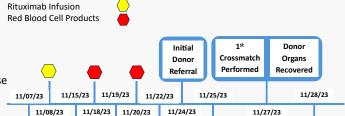
Admission

Negative Ctl 1 - Lymphs

CD19 PE-A

Negative Ctl 1 - B-cells

B-cells



Rituximab - Depletes mature B cells from circulation through interaction with CD20. Half-Life > 20 days

Crossmatch

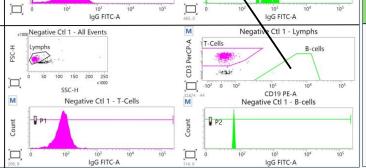
Blood

Drawn

* Designates the two negative control tubes were more than 20 MCF apart, which is outside our SOP.

Control (PBL)	T Cell	B Cell
Expected Negative Range	137-220	131-284
(MCF)		
Expected Positive Threshold	≥+320	≥+400
(MCS)		
Donor Negative (MCF)	228	<mark>*339</mark>
	(avg)	(avg)
Donor Positive (MCS)	386	<mark>301</mark>

Control (Spleen)	T Cell	B Cell
Expected Negative Range	117-185	144-297
(MCF)		
Expected Positive Threshold	≥+320	≥+400
(MCS)		
Donor Negative (MCF)	133	<mark>*132</mark>
	(avg)	(avg)
Donor Positive (MCS)	428	481



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Donation Outcome

- A combination of T-cell flow crossmatch results and B-cell virtual crossmatch results were used to determine organ acceptance
- The donor Liver and Kidneys were successfully transplanted

Conclusion

Although therapeutic interference from Rituximab on crossmatches is a well-known phenomenon, this case highlights the importance of investigating donor medication history in unusual circumstances with unexpected testing outcomes, and the fact that virtual crossmatch is a safe and reliable alternative to traditional physical crossmatch.