

Supplementary Table 1

| Biopsy # | Time Post Transplant (Months) | Pattern of Glomerular Injury | Active Crescents/Necrosis (% glomeruli involved) | Segmental Glomerular Scars | Interstitial Fibrosis/Tubular Atrophy | Immunofluorescence Microscopy | Electron Microscopy, Location of deposits | Tubulointerstitial Deposits (IF or EM) (Yes/No) | Evidence of Rejection (Yes/No) | Other Pathologic Findings | |
|-------------------|-------------------------------|--|--|----------------------------|---------------------------------------|---|--|--|-------------------------------------|--|----------------------|
| Untreated C3GN- 1 | 38 | Membranoproliferative GN | No | Yes | Severe | C3 (3-4+) | Mesangial, Subendothelial, Subepithelial, Intra-Membranous, hump like deposits | No | No | Acute tubular injury, mild arteriosclerosis, no evidence of rejection | |
| 2 | 12 | Mesangial and focal endocapillary proliferative GN with exudative features | No | No | Mild | C3 (3-4+) | Mesangial, Subepithelial, hump like deposits | No | No | Acute tubular injury, feature of acute CNI toxicity, severe arteriolar hyalinosis | |
| 1 | 10 | Mesangial and focal endocapillary proliferative GN with exudative features | No | No | None | C3 (3-4+) | Mesangial, Subendothelial, Subepithelial, Intra-Membranous, hump like deposits | No | No | Features of chronic CNI toxicity, mild arteriosclerosis/art eriolar hyalinosis | |
| DDD- 1 | 1 | 7 | Mesangial and focal endocapillary proliferative GN | No | No | None | C3 (3-4+), IgA (trace), IgM (1+), Kappa/lambda light chains (trace) | Intramembranous | No | No | |
| DDD- 2 | 1 | 31 | Membranoproliferative GN | No | No | Mild | C3 (3-4+) | Mesangial, intra-membranous | Yes | Acute Cellular Rejection Grade 1A | |
| DDD- 3 | 2 | 64 | Membranoproliferative GN | No | Yes | Mild | C3 (2-3+); IgM (1-2+) | Mesangial, Subepithelial, Intra-Membranous, hump like deposits | Yes | Acute Cellular Rejection Grade 1A; moderate peritubular capillaritis with negative C4d | Chronic CNI toxicity |
| 1 | 23 | Membranoproliferative GN | No | No | Mild | C3 (4+); IgG (3-4+), C1q (3+), Kappa/Lambda light chains (3-4+) | Intramembranous | Yes | Acute Cellular Rejection Grade 1A-B | | |
| DDD- 4 | Nephrectomy | 58 | Membranoproliferative GN | No | Yes | Severe | C3 (2-3+) | Intramembranous | Yes | Chronic Rejection | |
| 2 | 35 | Membranoproliferative GN | No | Yes | Suboptimal Biopsy | C3 (2-3+) | Intramembranous | Yes | No | | |

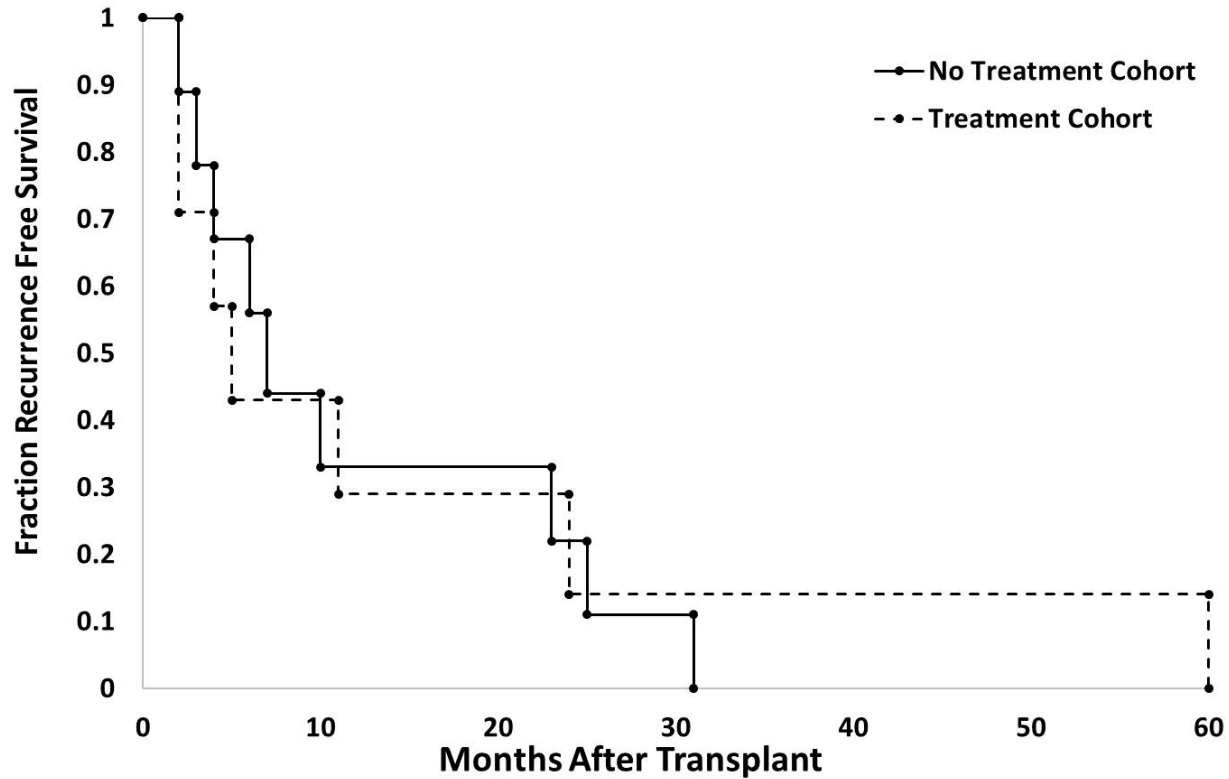
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|-------|-----------------------|----|--|-----------|-----|--------------|---|---|---------------|--|---|---|
| | 1 | 25 | Membranoproliferative GN | No | No | None | C3 (3+), IgM (2+), Kappa/Lambda light chains (1-2+) | Intramembranous | Yes | Acute cellular rejection, tubulointerstitial type and vascular | | |
| DDD-5 | 5 | 23 | Membranoproliferative GN | No | Yes | Not reported | Not Performed | Not Performed | Not Performed | Mild acute rejection | | |
| | 4 | 19 | Membranoproliferative GN | No | Yes | Not reported | C3 (3+) | Mesangial, subendothelial, Intramembranous | Yes | Possible rejection | mild | |
| | 3 | 9 | Mesangial and endocapillary proliferative GN | No | Yes | Not reported | C3 (3+) | Mesangial, subepithelial, Intramembranous, Hump-like deposits | No | Possible rejection | mild | Mild arteriosclerosis, Chronic CNI toxicity |
| | 2 | 5 | Mesangial and endocapillary hypercellularity with diffuse active crescents | Yes (50%) | Yes | Not reported | C3 (3+) | Mesangial, subepithelial, Intramembranous, Hump-like deposits | No | No | | |
| | 1 (Second Transplant) | 4 | Mesangial and endocapillary proliferative GN with exudative features | No | Yes | Not reported | C3 (3+), IgM (1+) | Mesangial, subendothelial, subepithelial, Intramembranous, Hump-like deposits | No | No | | BK Nephropathy |
| | 4 | 8 | Membranoproliferative GN with focal active crescents | Yes (10%) | Yes | Mild | C3 (4+), IgM (2+) | Mesangial, Intramembranous | Yes | Mild acute transplant rejection | Mild arteriosclerosis, Chronic CNI toxicity | |
| | 2 | 5 | Membranoproliferative GN with foal active crescents | Yes (40%) | Yes | Mild | C3 (3- 4+), IgM (4+), C1q (trace) | Intramembranous | Yes | Acute transplant rejection | Arteriosclerosis | |
| | 1 (First Transplant) | 2 | Mesangial and endocapillary proliferative GN with active focal crescents | Yes (35%) | No | None | Not Performed (no glomeruli) | Intramembranous | Yes | Mild acute rejection | Mild arteriosclerosis | |
| DDD-6 | 9 | 81 | Membranoproliferative GN | No | No | Mild | Not Performed | Not Performed | Not Performed | No | Chronic toxicity | CNI |
| | 8 | 72 | Membranoproliferative GN | No | No | Mild | C3 (4+), IgM (1+) | Not Performed | Yes | No | | |
| | 7 | 68 | Membranoproliferative GN | No | Yes | Mild | C3 (4+), IgM (2+) | Mesangial, Subendothelial, Intramembranous | No | Active antibody mediated rejection (c4d3, g3, ptc1) | | |
| | 6 | 46 | Membranoproliferative GN | No | Yes | Minimal | C3 (3+) | Mesangial, Intramembranous | Yes | No | | |

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|----------------|---|----|--|----|--------------------------------|-----------------|---|--|---------------|------------------------------|---|----------------------------------|
| | 5 | 30 | Membranoproliferative GN | No | No | None | Not Performed | Not Performed | Not Performed | No | Acute Injury | Tubular |
| | 4 | 25 | Membranoproliferative GN | No | No | None | C3 (4+) | Mesangial, Intramembranous | Yes | No | | |
| | 3 | 18 | Membranoproliferative GN | No | No | Mild - Moderate | Not Performed | Not Performed | Not Performed | Acute Rejection Grade 1A | Cellular | |
| | 2 | 15 | No histologic changes | No | No | Mild | C3 (2-3+) | Mesangial, Intramembranous | Yes | Acute Rejection Grade 1A | Cellular | Chronic CNI toxicity |
| | 1 | 6 | Mesangial hypercellularity | No | Yes | None | C3 (3+) | Not Performed | Yes | No | | |
| Treated C3GN-2 | 6 | | Mesangial proliferative early membranoproliferative GN | No | Yes (with collapsing features) | Moderate | C3 (3+), IgM (trace), C1q (trace) | Mesangial | No | No | Acute Injury, CNI Thickened GBM | Tubular Chronic toxicity, |
| | 5 | | Segmental Glomerulosclerosis | No | Yes | Mild | C3 (2+), IgG (1+) | No | No | No | | |
| | 4 | | No histologic changes | No | No | Mild | C3 (3+), IgM (3+), C1q (3+) | None | No | No | Acute Injury | Tubular |
| | 3 | 24 | No histologic changes | No | No | Mild | C3 (2+), IgG (1- 2+), IgA (1+), IgM (2+), C1q (2+), C3 (2+), kappa (1- 2+) and lambda (1+) light chains | Mesangial | No | Acute Rejection (Borderline) | Cellular | Acute Injury; Acute CNI toxicity |
| | 2 | 12 | No histologic changes | No | No | Mild | IgG (3+), IgA (1+), IgM (3+), C1q (1- 2+), kappa (2+) and lambda (2+) light chains. No C3 staining. | Not Performed | No | No | Acute Injury | Tubular |
| | 1 | 3 | No histologic changes | No | No | Mild | None | None | | Acute Rejection Grade 1A | Cellular | |
| C3GN-3 | 1 | 4 | Acute endocapillary proliferative GN (exudative pattern) | No | No | None | C3 (2-3+) | Mesangial, Subendothelial, Subepithelial, Membranous | Intra- Yes | No | | |
| C3GN-4 | 5 | 76 | Mesangial and endocapillary proliferative GN | No | Yes | Moderate Severe | - C3 (3+), IgM (1+), Kappa/Lambda light chains (1+) | Mesangial, Subendothelial, Subepithelial, Membranous | Intra- No | | Moderate arteriosclerosis and arteriolar hyalinosis | |

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|--------|---|-----|--|------------|-----|----------|---|--|-------------|-----|--|--|
| | 4 | 27 | Mesangial and endocapillary proliferative GN with early membranoproliferative features | Yes (rare) | No | Mild | C3 (2-3+), IgG (1+), IgA (trace), IgM (1+), C1q (trace-1+), Kappa/Lambda light chains (trace) | Mesangial, Subendothelial, Subepithelial, Membranous | Intra- | No | Acute Cellular Rejection (Borderline) | |
| | 3 | 14 | Endocapillary Proliferative GN | No | No | None | C3 (2+), IgG (2+), IgM (1-2+), C1q (1-2+), Kappa/Lambda light chains (1-2+) | Mesangial | | No | Mild peritubular capillaritis (ptc1), negative C4d | Acute Tubular Injury |
| | 2 | 5 | No histologic changes | No | No | None | Not Performed (No Glomeruli) | Mesangial | | No | No | |
| | 1 | 1 | Thrombotic Microangiopathy | No | No | None | C3 (trace) | None | | No | No | Acute Tubular Injury, Focal Cortical Necrosis |
| C3GN-5 | 2 | 3 | Membranoproliferative GN with exudative features | No | Yes | Mild | C3 (3+) | Mesangial, Subendothelial | | No | No | Chronic active TMA |
| | 1 | 2 | Acute endocapillary proliferative GN (exudative pattern) with early membranoproliferative features | No | Yes | Mild | C3 (3+) | Mesangial, Subendothelial, Subepithelial, Membranous | Intra- | No | No | |
| DDD-7 | 4 | 160 | Mesangial and endocapillary hypercellularity with focal crescents | Yes (24%) | Yes | Mild | C3 (3-4+) | Mesangial, Subepithelial, Hump-like deposits | Hump- | No | No | Moderate arteriosclerosis and articular hyalinosis |
| | 3 | 136 | Membranoproliferative GN | No | Yes | Mild | C3 (2-4+) | Mesangial, Subendothelial, Membranous | Intra- | No | Active antibody mediated rejection (C4d positive, ptc-1) | Severe articular hyalinosis, Chronic CNI toxicity |
| | 2 | 116 | Membranoproliferative GN | No | Yes | Mild | C3 (2-3+), IgM (1-2+) | Mesangial, Subendothelial, Membranous | Intra- | No | No | Severe articular hyalinosis |
| | 1 | 60 | No histologic changes | No | No | None | C3 (2-3+) | Mesangial, Subepithelial, Membranous, Hump-like deposits | Intra-Hump- | No | No | Thin GBM |
| DDD-8 | 1 | 2 | Endocapillary Proliferative GN | Yes (7%) | No | None | C3 (4+), IgG (1-2+), Lamba light chain (trace) | Mesangial, Membranous | Intra- | Yes | Active antibody mediated rejection (C4d positive, ptc-1) | |
| C3GN-6 | 4 | 23 | Membranoproliferative GN with focal crescents | Yes (14%) | Yes | Moderate | C3 (4+), IgG (2-3+), IgM (trace), Kappa | Mesangial, Subepithelial, | | No | No | Moderate arteriosclerosis, |

| | | | | | | | | | | | | |
|-----------------|-----|--|------------|-----|------|---|--|----|------------------------------|--|---------------------|---|
| 3 | 20 | Membranoproliferative GN with focal crescents | Yes (11%) | Yes | Mild | light chain (2-3+) (post ECU treatment) C3 (4+), IgG (3+), IgM (trace), Kappa light chain (2-3+) (post ECU treatment) | Subendothelial, Intramembranous Mesangial, Subepithelial, Subendothelial, Hump-like deposits | No | No | Chronic toxicity | CNI | Mild to moderate arteriosclerosis, chronic CNI toxicity |
| 2 | 13 | Crescentic membranoproliferative GN with exudative features | Yes (50%) | No | None | C3 (4+), IgG (trace), IgM (trace) | Mesangial, Subepithelial, Subendothelial, Hump-like deposits | No | No | Focal | arteriolar thrombus | |
| 1 | 11 | acute proliferative GN (exudative pattern),MPGN, rare crescent | Yes (rare) | No | Mild | C3 (4+), IgG (1-2+), Lamba light chain (1+) | Mesangial, Subepithelial, Subendothelial, Hump-like deposits | No | No | Tubulointerstitial inflammation, Mild to moderate arteriosclerosis and arteriolar hyalinosis | | |
| De Novo C3GN- 7 | 153 | Mesangial proliferative GN | No | Yes | Mild | C3 (3-4+) | Mesangial, Subendothelial, Subepithelial, Intra-Membranous, Hump-like deposits | No | Acute Rejection (Borderline) | Cellular | | Moderate arteriosclerosis and arteriolar hyalinosis. Glomerular chronic active microangiopathic injury, Chronic CNI toxicity, Thickened GBM |

Abreviations: CNI = Calcineurin inhibitor; GN = Glomerulonephritis; ECU = Eculizumab; GBM = Glomerular basement membrane



Supplemental Figure 1: Recurrence-free survival in C3 glomerulopathy patients in no treatment and treatment cohorts ($p = .872$, log rank test).