Figure S1A depicts a patient who had a sudden onset of anuria and a sharp rise in serum creatinine on post-transplantation day (PTD) # 5 preceded 1 day by the appearance of new class I DSA (A2, B7) and a rise in class II DSA (DR15/51) to a +FCXM strength. The diagnosis of AMR was confirmed on PTD # 5 on biopsy and the splenectomy was performed the same day. The patient remained anuric for 10 days and was on dialysis before renal function recovered with a return of urine output followed by a fall in serum creatinine. Coincident with the return of urine output the class I and II DSA dropped below the threshold for a positive Luminex assay. The patient’s creatinine returned to 1.2 mg/dL but she developed early transplant glomerulopathy and on PTD #340 she lost her graft during an episode of ischemic colitis.

Patient 1B received eculizumab in addition to PP/IVIg and anti-CD20. This was a pre-emptive transplant and the patient had normal urine output pre-transplantation. Beginning on PTD # 3 her creatinine began to increase and her class I DSA (A2, B35, B44) rose sharply. A biopsy on PTD# 4 confirmed early AMR. The creatinine stabilized between PTD #4-6 with daily PP but then began to rise rapidly and on PTD #7 eculizumab was begun. DSA continued to increase and peaked on PTD #10. The kidney never regained function and ruptured on PTD # 23 requiring emergent transplant nephrectomy. The explant showed severe AMR with cortical necrosis and interstitial hemorrhage.

Splenectomy and eculizumab were used to treat patient 1C in addition to PP/IVIg and anti-CD20. The patient’s creatinine began to rise on PTD #6. DSA to A24, DR11, DR52, and DP began to acutely rebound on PTD #4 and then fell on PTD #7 after eculizumab was started and a splenectomy was performed. A return of urine output began within hours of the splenectomy and at 1 month the serum creatinine was 1.0 mg/dL. At 1 year the patient’s cg score was 0.

The horizontal axis is relative to day of transplant (day 0), with the first date shown being the first day of desensitization therapy. The vertical yellow line represents the day that the AMR-defining biopsy was performed. AMR=antibody-mediated rejection, PP/IVIg=plasmapheresis and intravenous immunoglobulin, anti-CD20=anti-CD20 antibody (rituximab).

For S1D: Splenectomy-Alone Group: Antibody-mediated rejection-defining biopsy demonstrating (A) peritubular capillaries with marginating neutrophils (arrows; H&E, 600x), glomerular infarction (B; H&E, 400x), and positive C4d immunofluorescence staining (C). Electron microscopy at 6 months with arrows indicating widening of the subendothelial space and cytoplasmic interposition (D). Biopsy at 1 year demonstrating double countors (arrows) of the glomerulus and a cg score of 3 (PAS-MS stain, 600x). Eculizumab-Alone Group: Antibody-mediated rejection-defining biopsy demonstrating interstitial hemorrhage (F; H&E, 400x), minimal glomerular damage (G; H&E, 600x), and C4d positivity (H;
immunohistochemistry, 400x). Biopsy at 1 year demonstrating widening of the subendothelial space and cytoplasmic interposition (I; arrow; electron microscopy) and an ischemic glomerulus with a cg score of 2 (J; PAS-MS, 600x). **Combination Treatment Group:** Antibody-mediated rejection-defining biopsy that reveals peritubular capillary margination (K; H&E, 600x), a glomerulus with thrombotic microangiopathy (L; H&E, 600x) and positive C4d immunofluorescence staining (M). Biopsy at 1 year demonstrating relatively normal glomerulus (N; electron microscopy) and a borderline cg score of 0-1 (O; PAS-MS, 600x).

Figure S1A. Splenectomy Alone
Figure S1B. Eculizumab Alone
Figure S1C. Combination Treatment
Figure S1D. Pathologic findings on the antibody-mediated rejection-defining biopsy and subsequent biopsies in a patient representative of each treatment group.
Figure S1A. Splenectomy Alone
Figure S1B. Eculizumab Alone
Figure S1C. Combination Treatment
Figure S1D. Pathologic findings on the antibody-mediated rejection-defining biopsy and subsequent biopsies in a representative patient from each group.