The Silent Invader - CMV Nephritis: A Rare Presentation in Early Post-Transplant

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INTRODUCTION

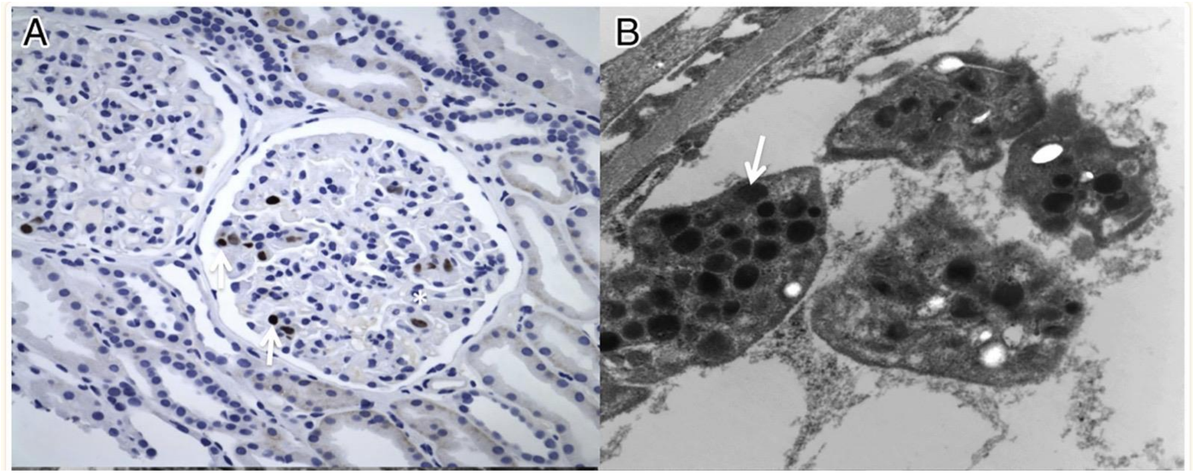
Cytomegalovirus (CMV) is a formidable pathogen and an important cause of morbidity and mortality among transplant recipients. Among its deleterious manifestations, CMV nephritis emerges as a significant complication, with profound implications on allograft function and outcomes. This is particularly true in those who are CMV seronegative and receive an allograft kidney from a CMV seropositive donor are particularly high risk (HR). We present a case of a 33-year-old kidney transplant recipient with an unusual early presentation of CMV nephritis.

CASE PRESENTATION

A 33-year-old male with end stage kidney disease (ESKD) secondary to presumed hypertension, status post deceased donor kidney transplant (37 yo donor, CMV HR, EBV R+) in 09/2023, presented with an allograft acute kidney injury (AKI) 3 months post-transplant. His immediate post-transplant course was uncomplicated and he was maintained on valgancyclovir prophylaxis dosed per eGFR for CMV HR.

In January 2024 he presented with an allograft AKI, labs were relevant for a serum creatinine (Cr) of 7.1 (baseline Cr 2 mg/dl) and a CMV PCR level of 414 IU/mL. Kidney biopsy performed revealed glomerulitis and interstitial nephritis with positive CMV immunostaining, and borderline acute T cell mediated rejection. As per infectious disease recommendations, he was treated with Maribavir 400mg BID x 8 weeks for refractory CMV nephritis and immunosuppression was lowered. Response to treatment was monitored by weekly CMV PCR levels. CMV viremia resolved on treatment, but he represented with nephrotic range proteinuria (persistent protein excretion >3.5 gm/day).

A repeat biopsy performed in April 2024 revealed acute antibody mediated rejection (ABMR) with no evidence of CMV nephritis. He was found to have new donor specific antibodies and is currently undergoing treatment with plasmapheresis and remains on Maribavir with no indication for dialysis.



(A) Glomeruli show capillary endothelial cells with nuclear positivity for CMV by immunohistochemistry. Arrows: peroxidase-conjugated anti-CMV antibody
(B) Cytoplasmic CMV viral particles by electron microscopy

DISCUSSION

CMV nephritis is a serious complication in renal transplant recipients. This is a rare presentation of CMV nephritis as he presented with low copies of CMV. Nephrotic range proteinuria in the setting of CMV nephritis is also a rare presentation. His ABMR was likely an unintended consequence of decreasing immunosuppression during treatment of CMV nephritis. Appropriate prophylaxis and early detection of CMV infection is particularly important in CMV HR transplant patients.

REFERENCES

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