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Erratum

1915 Correction

On the Cover

What's the diagnosis? Urine microscopy in the upper left panel demonstrates a cast filled with decoy cells (BK virus infected renal tubular epithelial cells), while the upper right panel shows the lymphocytic reaction to BK virus with renal epithelial cells containing large nuclei indicative of viral infection. The lower left panel is an SV-40 stain of renal tissue showing BK virus infected nuclei. The BK viral particles are seen on electron microscopy in the lower right panel. BK virus-associated nephropathy describes kidney injury that develops in a renal allograft as a result of the polyoma virus BK virus. Infection with BK virus occurs primarily in patients treated with potent immunosuppressive agents. The renal manifestations closely resemble those of acute rejection including either acute kidney injury or a slowly progressive decline in kidney function. In general, the process occurs at a mean period of 10 to 13 months following transplantation. Urinalysis and microscopy most commonly reveal pyuria, hematuria, and/or cellular casts consisting of renal tubular epithelial (RTE) cells and inflammatory cells, findings consistent with interstitial nephritis. Decoy cells may be identified in the spun urine sediment or on urine cytology. The most characteristic abnormality is RTE cells with an enlarged nucleus with a single large basophilic intranuclear inclusion. These cellular changes are suggestive of polyoma virus infection. However, decoy cells are not entirely sensitive or specific for BK virus infection. RTE cell casts with features of polyoma virus infection were observed on urine microscopy in seven of eight patients with biopsy-confirmed BK virus-associated nephropathy. Renal biopsy is very helpful in diagnosing BK virus-associated nephropathy. Large, intranuclear inclusions within RTE cells are highly suggestive while a positive immunohistochemical stain against SV-40 T-antigen is highly specific for polyoma virus, of which BK is the most common. In situ hybridization to identify viral DNA or proteins within renal tissue is another specific test to diagnose BK virus-associated nephropathy. Electron microscopy of infected renal tubular cells may demonstrate the viral particles, as seen in this case. (Images and text provided by Jose Antonio Tesser Poloni, Irmandade da Santa Casa de Misericórdia de Porto Alegre, Porto Alegre, Brazil, and Gilbert Moeckel and Mark A. Perazella, Yale University, New Haven, Connecticut)