

Candida crescents in a renal allograft



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A 42-year-old man presented with fevers and rigors 3 weeks after donation after brainstem death kidney transplantation for the treatment of focal segmental glomerulosclerosis. He was initially treated with broad-spectrum antibiotics, but blood cultures grew *Candida glabrata* and caspofungin was commenced. His creatinine had risen from 115 $\mu\text{mol/l}$ to 192 $\mu\text{mol/l}$. Cross sectional imaging revealed a perigraft collection that was surgically evacuated. No vascular abnormalities were apparent radiologically or intraoperatively. An intraoperative transplant biopsy was taken. This demonstrated diffuse necrotizing granulomatous inflammation throughout the cortex with extensive yeast organisms extending throughout the tubules (Figure 1a). In one glomerulus, organisms and inflammation extended into Bowman's space creating a cellular crescent (Figure 1b). Glomeruli otherwise appeared normal.

The antifungal treatment was converted to micafungin, and clinical progress was good. The patient had no focal muscular pain or skin lesions. Ophthalmological assessment demonstrated no *Candida* retinitis or endophthalmitis. Echocardiography demonstrated no cardiac involvement. The ureteric stent was removed. Although fungal culture of the kidney perfusion fluid was negative, the partner kidney recipient also developed candidemia, in keeping with the donor being the source.

Donor-derived candidiasis is estimated to occur in 0.1% of kidney transplants. Invasive candidiasis giving rise to crescents on a biopsy, as seen here, is highly unusual. In a French series, 4 patients without vascular involvement achieved good outcomes with drainage of collections and antifungal therapy. Of 14 patients with *Candida* arteritis, 3 died and 9 underwent graft nephrectomies. *C. glabrata* is increasingly resistant to azoles, and echinocandins are recommended as empirical treatment for presumed candidemia. Meta-analysis of clinical trials shows candidemia to have a mortality rate of approximately 30%, with treatment with echinocandins and removal of central venous catheters associated with reduced mortality.

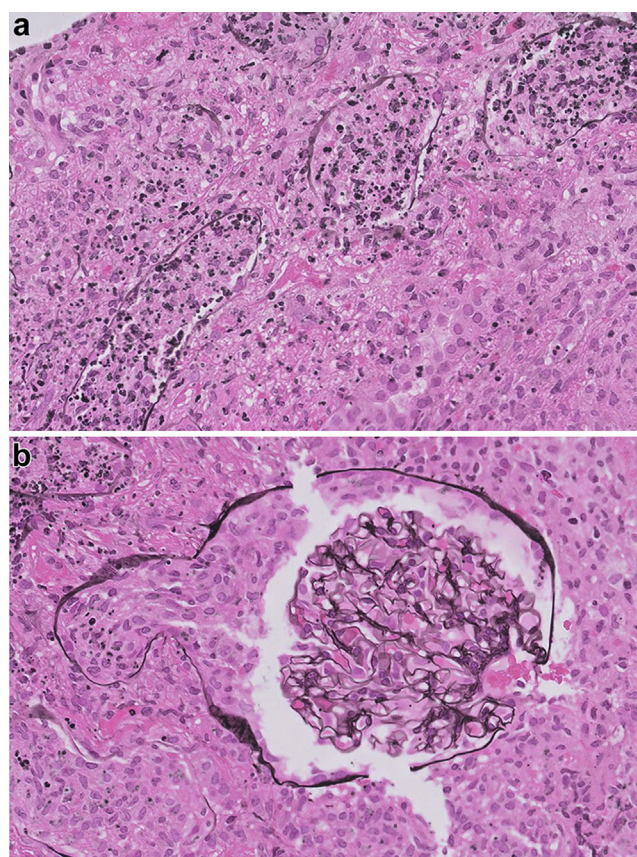


Figure 1 | Renal transplant histology. (a) Renal transplant biopsy showing numerous yeasts (black on silver stain) within tubules, granulomatous inflammation, and tubular disruption. (b) Yeasts and inflammation extend from the tubule into Bowman's space, producing a cellular crescent. Jones methenamine silver stain; original magnification $\times 20$. To optimize viewing of this image, please see the online version of this article at www.kidney-international.org.