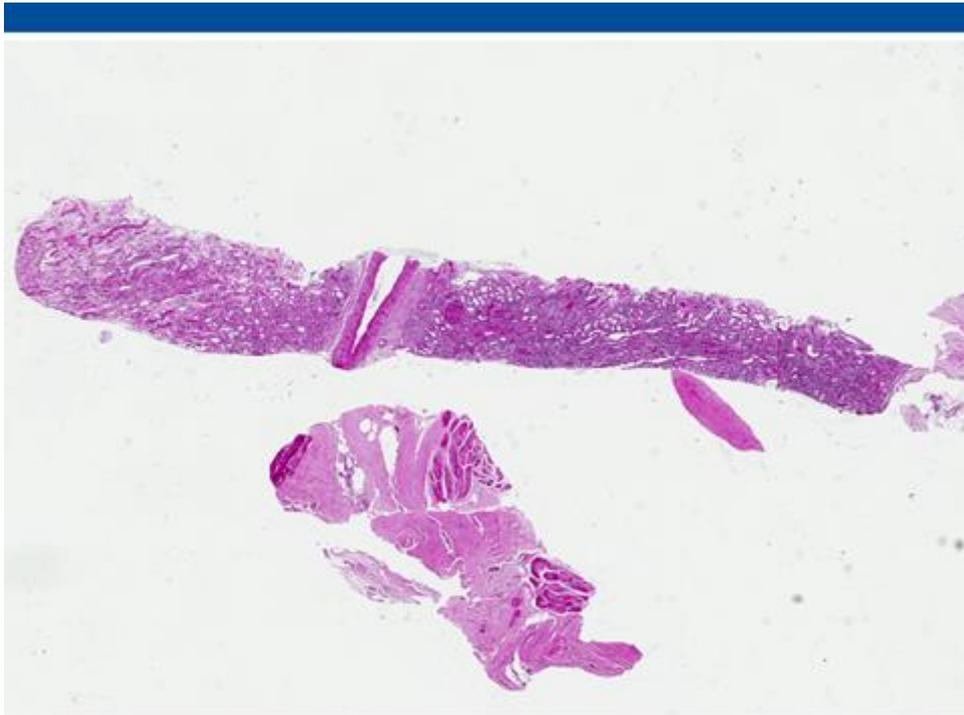
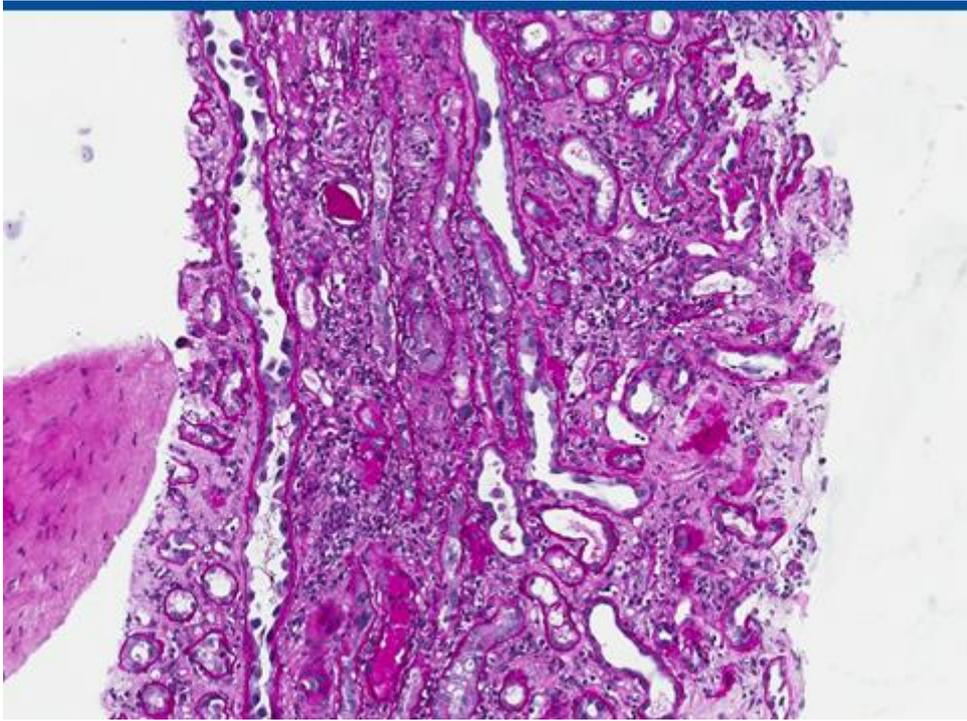
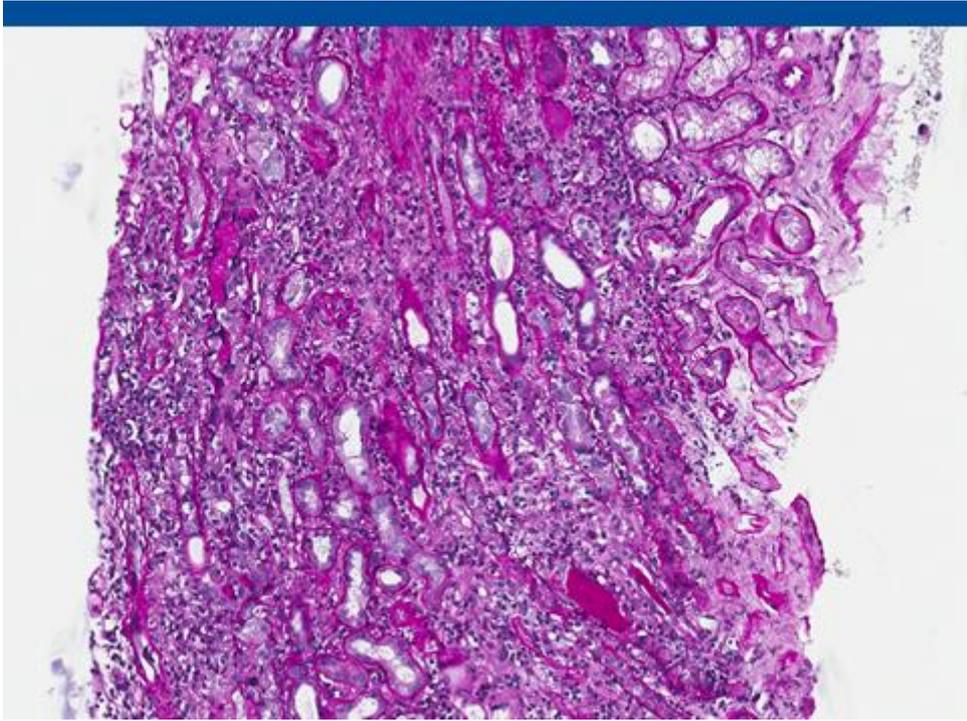


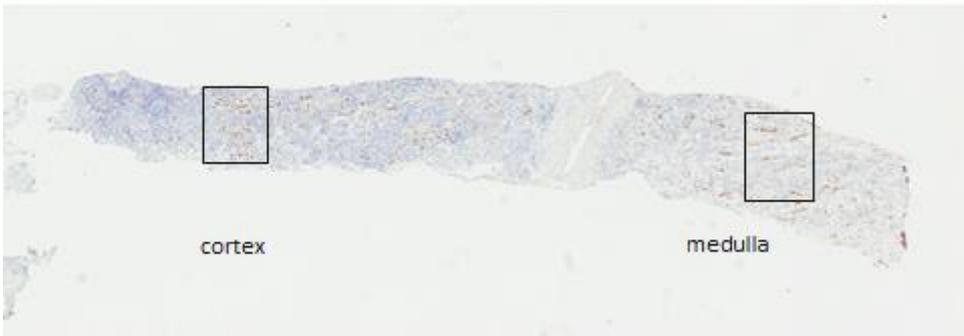
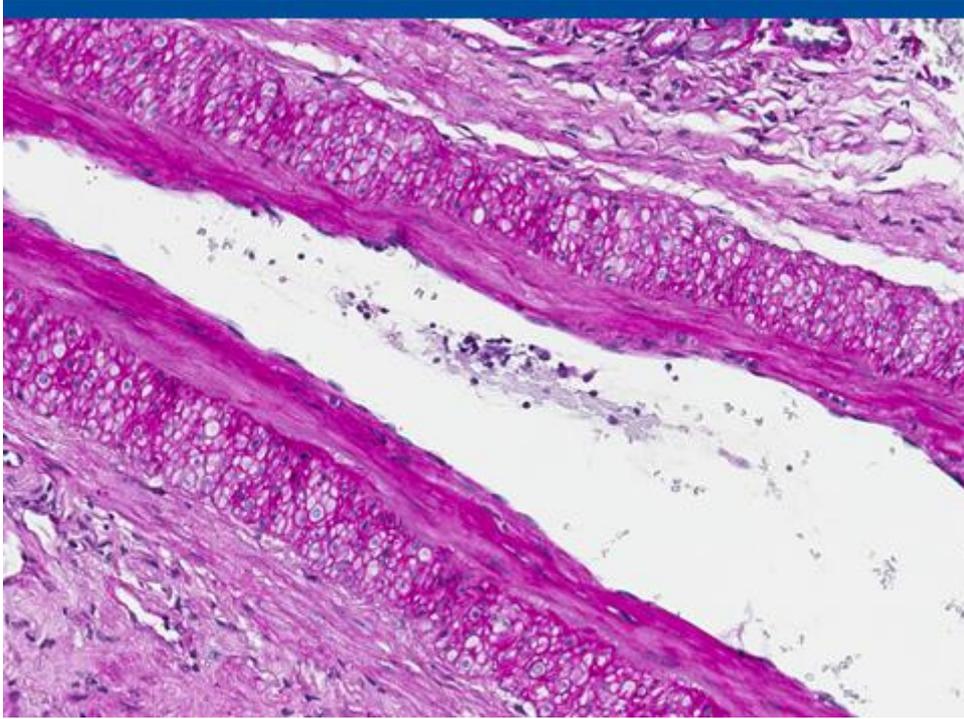
Case History: Dr. R. Goldschmeding

Case #1

A 62-year-old woman underwent kidney transplantation from an unrelated living donor. Her primary disease was lithium nephropathy with renal diabetes insipidus. Lithium therapy had been started 40 years before transplantation but was switched to carbamazepine because of lithium intoxication 17 years before transplantation. However, after transplantation she mentally decompensated, for which she was successfully switched back to lithium therapy. A first biopsy taken was 3 months after transplantation because of a rise of serum creatinine from 100 (1.13) to 144 $\mu\text{mol/L}$ (1.63 mg/dL). This biopsy revealed no abnormalities (biopsy not shown). A second biopsy was taken 6 months after transplantation. At that time, serum creatinine had further increased to 190 $\mu\text{mol/L}$ (2.15 mg/dL). This biopsy showed no evidence of rejection, but BK nephropathy was noted with tubular cell necrosis, consistent with class B according to the Banff working proposal (biopsy not shown). The patient was treated with cidofovir and leflunomide. In addition, immunosuppression was reduced to prednisolone 5 mg/day, and tacrolimus was stopped. A third biopsy was taken another 3 months later because the patient's serum creatinine had continued to increase to 260 $\mu\text{mol/L}$ (2.94 mg/dL). At the same time the BK viral load had increased from 2.9×10^6 to 5.5×10^6 copies/mL.

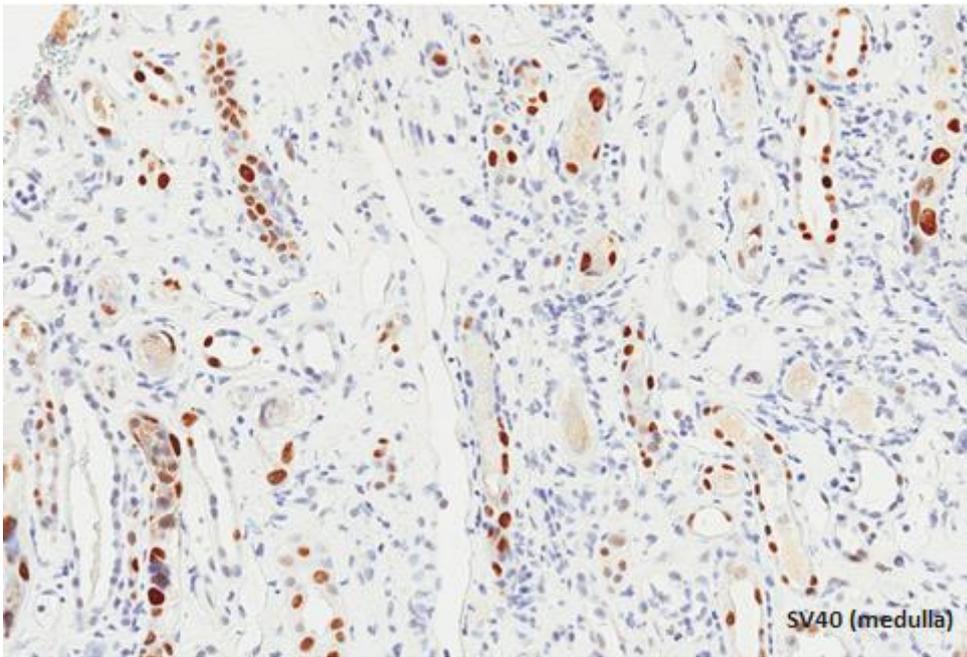
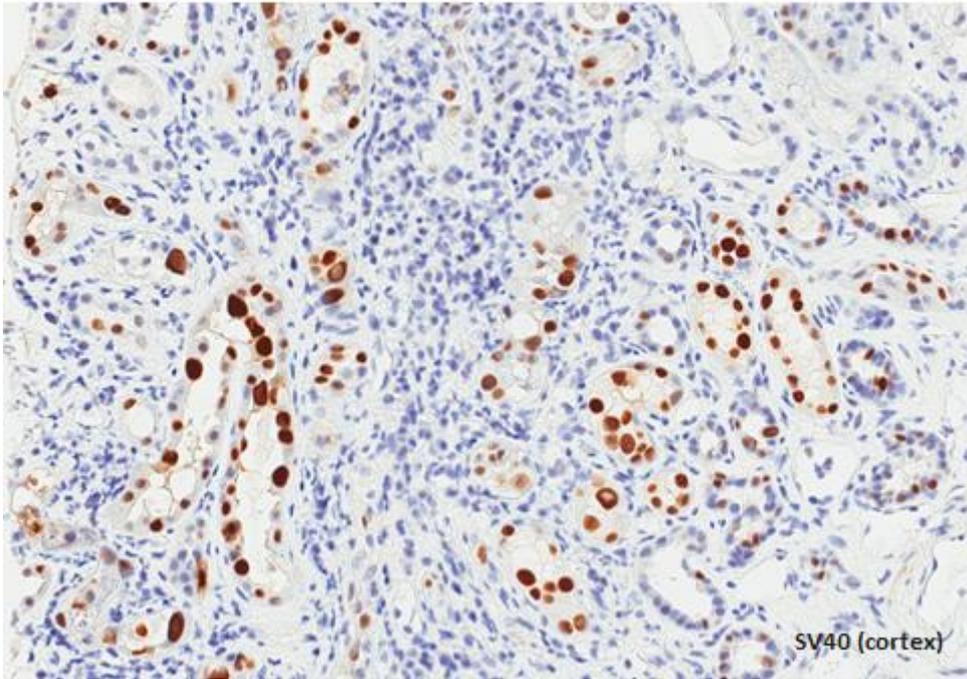


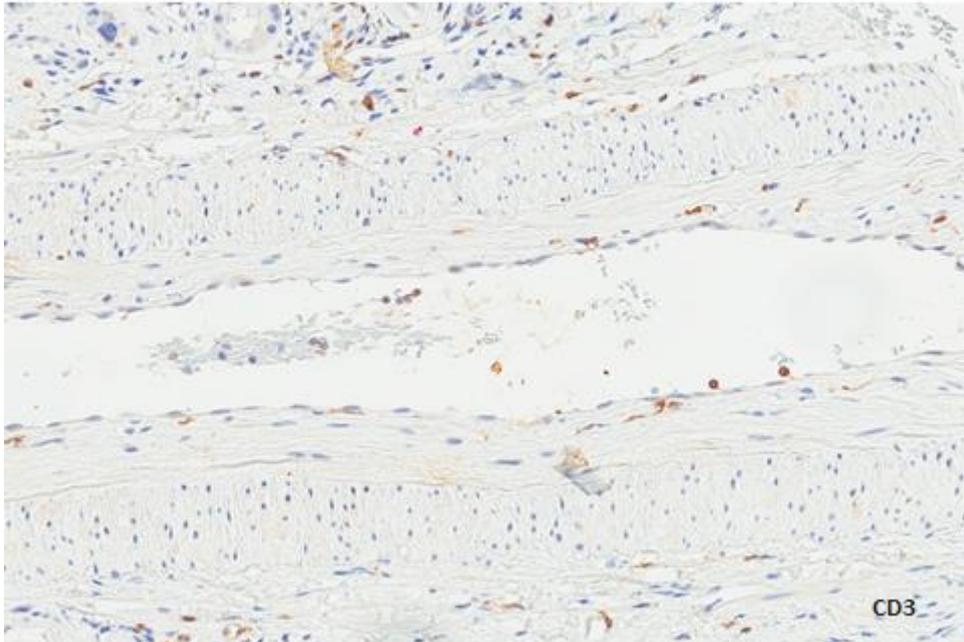




SV40







- 1. How would you classify this third biopsy according to the Banff diagnostic categories for renal allograft biopsies (more than one option possible)?**
 - A. Normal
 - B. Antibody-mediated rejection
 - C. Borderline changes (suspicious for acute T cell-mediated rejection)
 - D. Acute T cell-mediated rejection
 - E. Interstitial fibrosis and tubular atrophy, no evidence of any specific etiology
 - F. Other
- 2. In case of acute T cell-mediated rejection, how would you grade this according to the Banff working proposal?**
 - A. IA: significant interstitial infiltration (i2 or i3) and foci of moderate tubulitis (t2)
 - B. IB: significant interstitial infiltration (i2 or i3) and foci of severe tubulitis (t3)
 - C. IIA: mild to moderate intimal arteritis (v1)
 - D. IIB: severe intimal arteritis comprising >25% of luminal area (v2)
 - E. III: transmural arteritis and/or arterial fibrinoid change (v3)
- 3. If SV40 staining is positive, how would you classify BK nephropathy in this third biopsy according to the Banff working proposal?**
 - A. Class A (no or minimal injury to tubular epithelial cells)
 - B. Class B (tubular epithelial cell necrosis or lysis with denudation of basement membrane)
 - C. Class C (any degree of tubular injury with interstitial fibrosis affecting >50% of cortex)
- 4. Do you see evidence of recurrent lithium nephropathy in this third biopsy?**
 - A. No
 - B. Yes

5. A year later, a solid mass of 3.5×4.6 cm was detected in the upper pole of the transplanted kidney by ultrasound and contrast enhanced CT (image).



Which of the following diagnoses would you consider particularly likely, considering the case history (more than one option possible)?

- A. Hemorrhagic or thromboembolic infarction
- B. Abscess
- C. IgG4-related disease
- D. Recurrence of lithium nephropathy
- E. Angioleiomyolipoma
- F. Benign renal epithelial tumor
- G. Renal cell carcinoma (derived from proximal nephron)
- H. Renal cell carcinoma (derived from distal nephron)
- I. Urothelial (transitional cell) carcinoma
- J. Post-transplant lymphoproliferative disorder