Late-onset BK viral nephropathy with acute rejection in a paediatric kidney transplant recipient.

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Introduction:

BK polyomavirus-associated nephropathy (BKPyVAN) occurs frequently in renal transplant recipients and can result in graft loss.

The reactivation of BK virus is largely asymptomatic and most often occurs during the first 2 years after transplantation as immunosuppressive (IS) therapy is higher.

Routine surveillance especially in the first 12–24 months after transplant is therefore necessary for early recognition and intervention. Reduced immunosuppression and anti-viral treatment in the early stages may be effective in stopping BK virus replication, however reducing IS may increase risk of acute rejection.

Aim and Objectives:

- Aim: Report a case BKPyVAN developing >5 years after transplantation following acute obstructive uropathy in native kidney.
- Methods: The patients medical records and relevant laboratory results were reviewed.

Case Presentation: 1. Patient History

- A 14 year-old Caucasian male diagnosed with end stage renal disease secondary to posterior urethral valves in infancy.

2. Medical Management

- He was maintained on peritoneal dialysis and haemodialysis.
- He received a successful deceased donor allograft at the age of 8 years

3. Post TX - Obstructive uropathy and pyonephrosis

- An acute obstructive uropathy and pyonephrosis of the right native kidney occurred Feb 2018 (aged 14)
- BKV PCR was negative and the histology of the kidney was negative for BKvirus.
- A native nephrectomy was performed.

4. Renal function post transplant & native nephrectomy

- July 2018 - acute rise in creatinine. An allograft biopsy showed interstitial nephritis with positive BKV staining (Table 1). His standard maintenance triple IS regimen was reduced [Tacrolimus 40% reduction, MMF stopped].
- BK levels decreased (<3 log) but creatinine ↑ 194 umol/L.
- A second renal biopsy was performed showing acute cellular rejection and was negative for BK staining.
- Maintenance IS dosages were resumed with IV methylprednisolone 500mg x3 days.
- There was a good and sustained response to the treatment without recurrence of BKV

Serial BK virus DNA, creatinine and tacrolimus blood monitoring iwith estimated glomerular filtration rate (eGFR)

Date	BK virus DNA(log)	Creatinine (umol/L)	Tacrolimus level (ng/mL)	eGFR ml/min/1.73 sq.m
02.02.18	Not detected	109	8.5	51.5
29.06.18	Not measured	136	5.1	41.3
02.07.18*	5.20	148	5.8	38
16.07.18	4.70	167	4.3	33.7
27.07.18*	<3	194	2.8	29
13.08.18	<3	147	8.1	38.2
08.10.18	<3	147	3.5	38.2

* Renal biopsy performed

Conclusion

- BKPyVAN should always be considered in any post-transplant paediatric patients if there is a sudden unexplained rise in creatinine.
- Careful monitoring and low threshold to biopsy of the allograft is imperative.
- The association with the native obstructive uropathy is unclear.

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References

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