

Efficacy of nephrostomy for ureteral obstruction after renal transplantation: 18 year retrospective case-control study in a single, tertiary centre

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OBJECTIVES

- Ureteral obstruction occurs in 3-8% of renal transplant patients post-operatively, usually within the first months or year. Prompt diagnosis and remedial treatment are vital to prevent graft loss.
- Minimally invasive percutaneous nephrostomy tube insertion is considered to be the first-line intervention for suspected ureteral obstruction over surgical reconstruction of the ureter, which is associated with morbidity, some graft loss and operative mortality.
- Our aims were to assess the efficacy of percutaneous nephrostomy tube insertion and to compare the long term impact on allograft and patient survival of this intervention in ameliorating ureteral stenosis with closely matched controls who did not develop obstructive complications.

METHODS

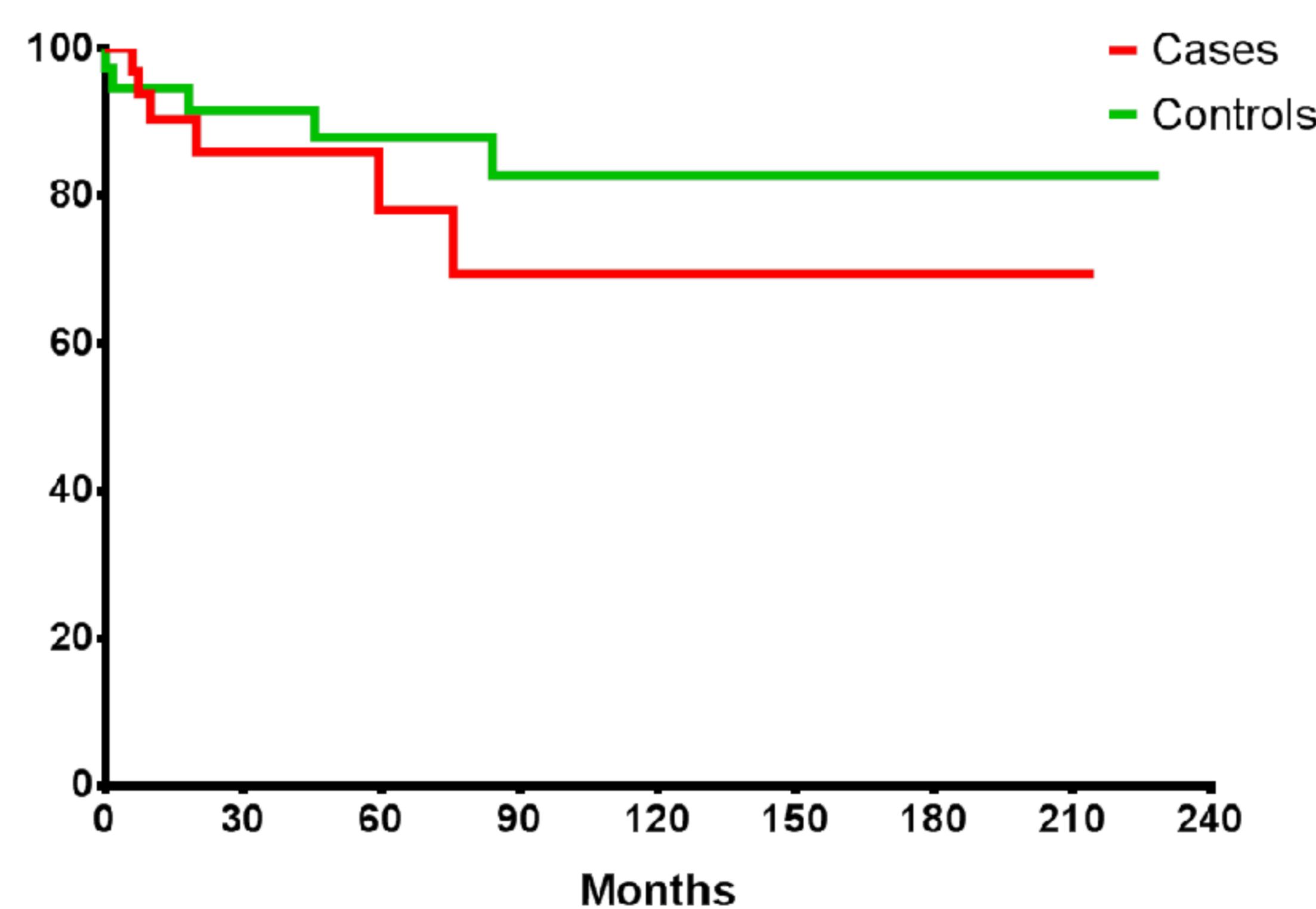
- Retrospective review of 1476 consecutive kidney transplants performed between January 1994 and December 2012. Renal transplant patients who received a nephrostomy within 1 year were identified.
- Controls were matched for age, sex, ethnicity, year of kidney transplant, presence of diabetes mellitus and hypertension.
- Baseline characteristics and serum creatinine between nephrostomy patients and controls compared using independent sample two-tailed t tests.
- Long-term graft and patient survival were assessed using Kaplan-Meier analysis.

RESULTS

- 38 patients received a nephrostomy within 1 year of renal transplantation (table 1).
- Mean interval between transplantation and nephrostomy was 88.1 ± 64.6 days. The technical success rate was 100%. None of the patients incurred bowel injury, septicaemia or graft loss as a consequence of the percutaneous intervention.
- Mean follow-up time was 5.5 ± 5.3 years (range 42 - 6961 days). There was a statistically significant difference in creatinine between cases and controls at 6 months but in the long-term, levels were comparable.
- 10-year graft survival (69.5% stenosis group vs. 82.9% (control), $p = 0.363$) and 10-year patient survival (83.5% stenosis group vs. 83.8%, $p = 0.495$) were not significantly different.

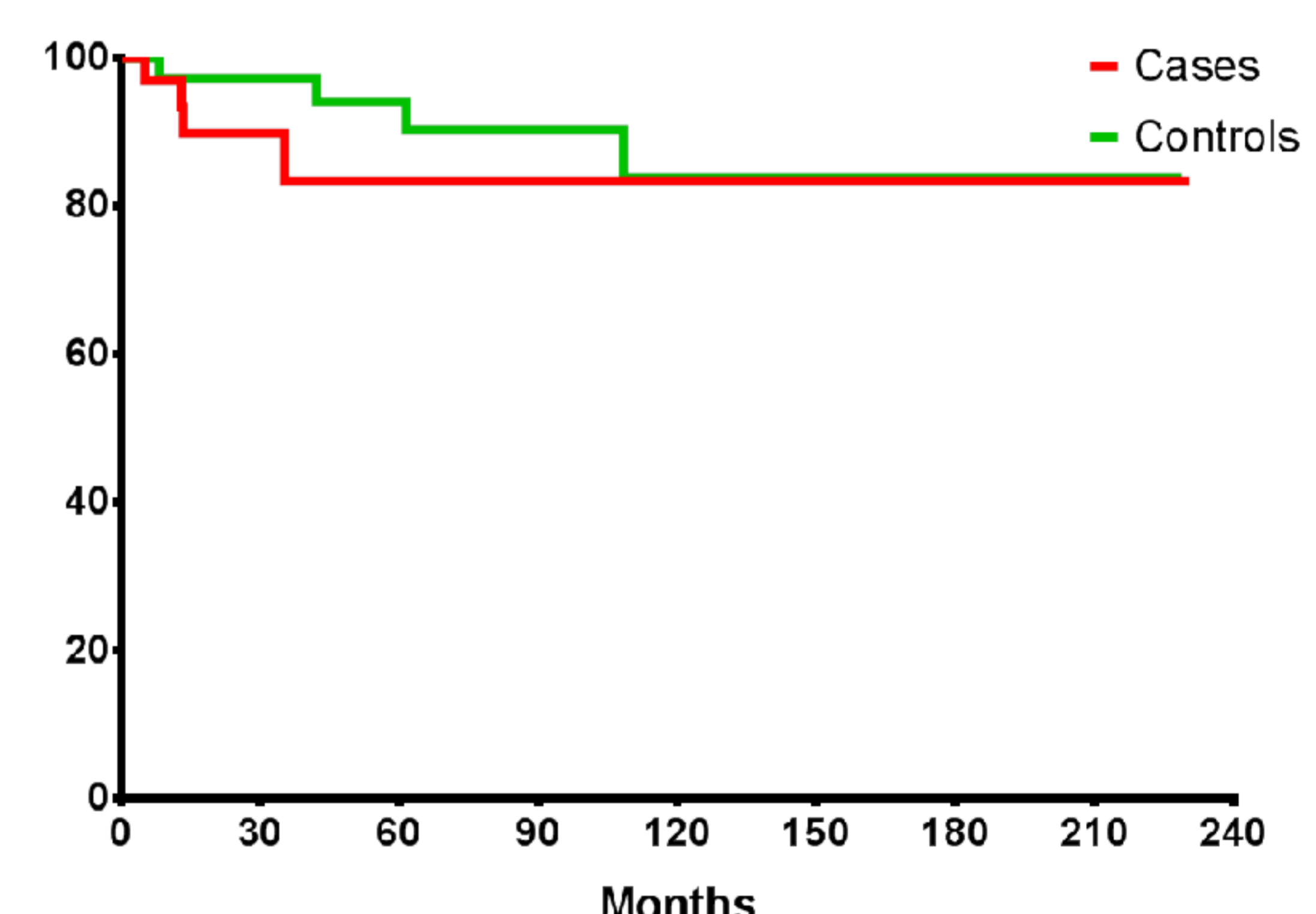
Characteristic	Stenosis (n = 38)	Controls (n = 38)	p value
Sex (M/F)	27/11	27/11	1.00
Mean age	48.3 (15.3)	47.9 (14.7)	0.921
Ethnicity			
Caucasian	29	29	1.00
Afro-Caribbean	8	8	1.00
Asian	1	1	1.00
Transplant type			
Cadaveric	31	23	0.075
Living donor	7	15	0.075
Immunosuppression			
Azathioprine	4	9	0.222
Ciclosporin	1	1	1.00
Mycophenolate mofetil	14	12	0.809
Prednisolone	24	28	0.460
Sirolimus	2	1	1.00
Tacrolimus	32	35	0.480
Diabetes	13	13	1.00
Hypertension	37	37	1.00
BKV infection	3	1	0.615
CMV infection	24	28	0.460
EBV infection	27	34	0.132
Plasma creatinine			
3 months	181 (75.9)	170 (101.0)	0.604
6 months	223 (207.4)	147 (53.2)	0.0496*
1 year	222 (227.2)	154 (58.1)	0.111
3 years	170 (92.5)	148 (54.0)	0.371
5 years	168 (62.2)	184 (156.1)	0.769
10 years	165 (81.8)	158 (69.5)	0.858
Latest creatinine	225 (202.7)	191 (207.0)	0.466
Rejection episodes			
At least 1 episode	20	12	0.103
2 or more episodes	10	8	0.788
Cellular	30	20	N/A
Vascular	3	3	N/A
Cellular and vascular	3	0	N/A

Table 1. Demographic and clinical data. Standard deviation in brackets



10-year Kaplan-Meier transplant survival

69.5% cases of stenosis vs. 82.9% in controls, $p = 0.363$



10-year Kaplan-Meier patient survival

83.5% cases of stenosis vs. 83.8% in controls, $p = 0.495$

CONCLUSION

Percutaneous nephrostomy tube insertion is probably a safe and effective method to relieve urinary obstruction and is not associated with significant adverse long-term outcomes.

