



Staghorn stones: Are they as deadly as they are made out to be?

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Introduction

According to previously published literature, untreated staghorn stones can cause serious renal-related morbidities and mortality. Due to a significant urological disease burden and shortage of operative sessions, patients with staghorn stones may need to wait for a variable length of time before percutaneous nephrolithotomy (PCNL) can be performed.

Objective

This study aims to compare the renal-related morbidity and mortality of patients with staghorn stones that are treated with PCNL and those who are awaiting treatment.

Patients and methods

Patients with staghorn stones and had PCNL booked during the period 2010-2016 were analysed. Baseline characteristics, renal-related morbidities (renal deterioration, infection, unplanned intervention) and renal-related mortality were analysed. Correlation was assessed.

Patient characteristics

Mean age of presentation	56.6-year-old (range: 25-80)
Gender	
Male	35
Female	42
Comorbidities	
Diabetes mellitus	22 (28.6%)
Hypertension	27 (35.1%)
Gout	8 (10.4%)
Presentation	
Urinary tract infection	35 (45.5%)
Loin pain	32 (41.6%)
Haematuria	26 (33.8%)
Stage of CKD at diagnosis	
>60	54 (70.1%)
45-59	5 (6.5%)
30-44	10 (13%)
15-29	7 (9.1%)
<15	1 (1.3%)
Mean waiting time of PCNL	404 days
Within 1 year	35 (66%)

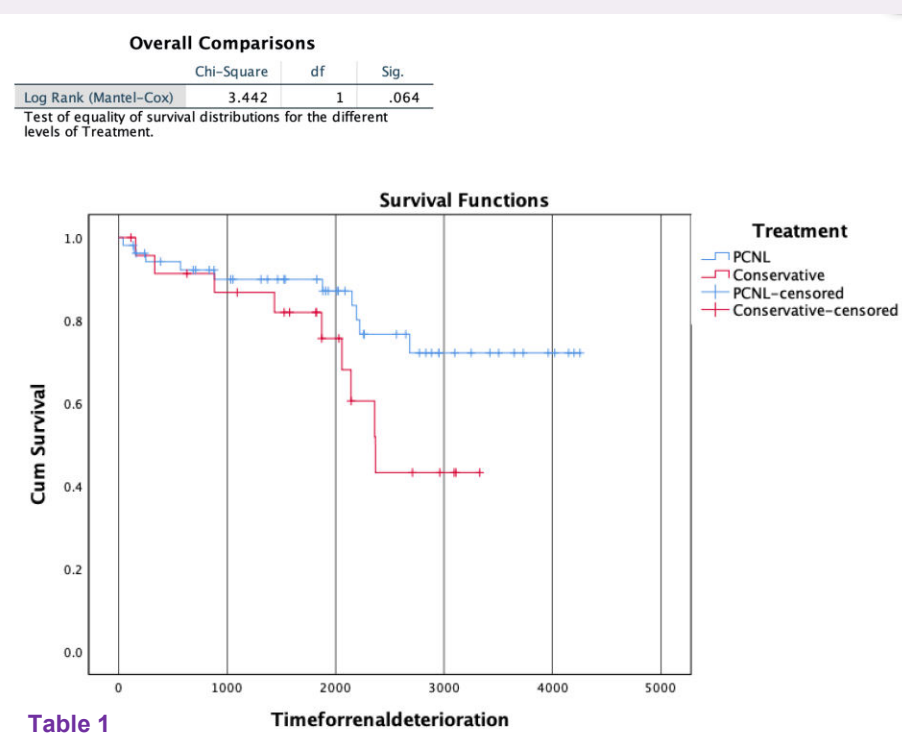


Table 2

	Renal deterioration		
	Yes	No	
PCNL < 1 year	Yes	6	29
	No	4	14

Result

Outcome in PCNL group	
Stone clearance	7 (9.1%)
Complication (bleeding, aneurysm, septic shock, dropped stone, wound infection)	13 (16.9%)
Overall renal deterioration	19 (24.7%)
PCNL group	10 (18.9%)
Waiting group	9 (37.5%)
Mean time for renal deterioration	37.6 months (range from 40 days to 11.6 years)
Mean follow up time	
PCNL	73.7 months
Waiting group	71.5 months
Renal related mortality	
PCNL	2 (3.8%)
Waiting group	4 (16.7%)
Complications in waiting group	10 (41.7%)
Unplanned intervention in waiting group	4 (16.7%)
CKD stage on follow-up	
>60	43 (55.8%)
45-59	17 (22.1%)
30-44	5 (6.5%)
15-29	8 (10.4%)
<15	4 (5.2%)

Results

77 patients were included in the study (PCNL group, n=53; waiting group, n=24). Mean age was 56.6. 28.6% of the patients had diabetes mellitus, 35.1% had hypertension. 64.9% had bilateral stone disease and 62.3% had associated hydronephrosis. The mean waiting time for patients who received PCNL was 404 days. 66% of the PCNL group had the procedure done within 1 year. Mean follow up period from the time of operation booking was 73.7 months for the PCNL group and 71.5 months for the waiting group. Rates of renal function deterioration were 18.9% and 37.5% for the PCNL and waiting group respectively ($p=0.079$), of which 3 patients in the PCNL group developed renal deterioration prior to the procedure. The only statistically significant risk factor for renal deterioration is diabetes ($p = 0.028$). PCNL within 1 year is not associated with a lower risk of renal deterioration ($p = 0.654$). Renal deterioration is observed after a waiting period up to 1000 days ($p = 0.64$) (table 1). 6 patients with PCNL performed in 1 year developed renal deterioration while 4 patients who waited for more than 1 year had renal deterioration (table 2). Renal-related mortality was 3.8% for the PCNL group and 8.3% for the waiting group ($p = 0.404$). 41.7% patients in the waiting group developed complications and 16.7% require unplanned intervention.

Conclusion

Deferred treatment of staghorn stones may not result in significant renal deterioration and renal-related mortality, but early intervention is desirable to avoid complications and unplanned intervention.

