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ORIGINAL ARTICLE

Simultaneous *vs* staged treatment of urolithiasis in patients undergoing radical prostatectomy

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Abstract

AIM: To assess the outcomes of men treated for urolithiasis at the time of radical prostatectomy.

METHODS: From 1991 to 2010, 22 patients were retrospectively identified who were treated simultaneously (n = 10) at radical prostatectomy, or (n = 12) within 120 d prior to prostatectomy, for urolithiasis. Clinical characteristics were reviewed including: type of prostatectomy and stone surgery, location and amount of stone burden, perioperative change in hemoglobin and creatinine, stent frequency, total hospital d, stone-free rates, additional stone procedures and complications. Long-term functional outcomes including stress urinary incontinence and bladder neck contracture were reported. Differences between cohorts (simultaneous *vs* staged treatment) were assessed.

RESULTS: Among men undergoing radical prostatectomy, primary stone procedures included 12 ureteroscopy, 6 shock wave lithotripsy, 2 open nephrolithotomy and 2 percutaneous nephrolithotomy. In staged shock wave lithotripsy there were 4 complications and 3 additional procedures *vs* 1 (P = 0.5) and 0 (P = 0.2) in the simultaneous cohort. Meanwhile in staged ureteroscopy there were 5 complications and 1 additional procedure *vs* 1 (P = 0.2) and 1 (P = 0.9) in the simultaneous cohort. Additional procedures for residual stones was greater among patients with asymptomatic upper tract calculi 3 (60%) relative to patients with symptomatic stones 2 (13%; P = 0.02). Likewise, patients with proximal or multiple calculi had a greater total hospital days 5.5 *vs* 4.1 (P = 0.04), additional procedures 6 *vs* 0 (P = 0.04) and lower stone-free rates 39% *vs* 89% (P = 0.02) relative to men with distal stones. Finally, there was no difference in the incidence of bladder neck contracture (P = 0.4) or stress urinary incontinence (P = 0.7) between cohorts.

CONCLUSION: Ureteroscopic treatment of symptomatic distal urolithiasis at radical prostatectomy appears to be safe and efficacious with a low rate of adverse postoperative outcomes.

Key words: Urolithiasis; Kidney stone; Prostate cancer; Radical prostatectomy

Core tip: Prostate cancer and urolithiasis can present simultaneously. An acute stone event in the immediate perioperative radical prostatectomy period poses unique management issues. Herein, we describe our experience with the simultaneous treatment of urolithiasis at the time of prostatectomy. We concluded that simultaneous ureteroscopy among symptomatic men with distal ureteral calculi appears to be safe and efficacious. Whereas, in asymptomatic men, or those with proximal/multiple calculi, one should consider treatment in a staged fashion secondary to an increased risk of additional procedures and lower stone-free rates.

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INTRODUCTION

The incidence of urolithiasis and associated healthcare costs continues to rise[1-5]. Specifically, the prevalence of stone disease in the male population ages 50 to 74 years old has increased from 13% from 1988-1994 to 19% in 2007-2010[2], representing a roughly equivalent to 40% relative increase in stone disease[6]. A similar increase in the incidence of prostate cancer has also been observed due to prostate-specific antigen (PSA) screening[7-11]. Currently, it is estimated that greater than 240000 patients are diagnosed with prostate cancer annually in the United States[8,9]. As such, a significant number of male patients diagnosed with prostate cancer may harbor urolithiasis.

As part of prostate cancer evaluation a subset of high-risk men undergo cross-sectional imaging to evaluate for metastatic disease[12-15]. If urinary stone disease is discovered, these patients pose a complex management dilemma given that 44% of asymptomatic patients with urolithiasis will develop symptoms within 1.3 years[16-19]. An acute stone event within the immediate post radical prostatectomy period poses a unique concern; specifically, instrumentation of the fresh vesicourethral anastomosis has the potential for anastomotic injury with resultant long-term urinary incontinence[20,21] and/or bladder neck contracture[22,23]. Historically, at our institution, such cases have been temporized with a nephrostomy tube and delayed definitive stone management until after the vesicourethral anastomosis matures (approximately 120 d).

To date, the safety and feasibility of synchronous treatment of urinary stone disease at radical prostatectomy is unknown. The goal of this study is to assess outcomes of patients with upper tract stone disease treated at the time of prostatectomy compared to those treated in the preoperative period.

MATERIALS AND METHODS

We retrospectively reviewed all male patients who underwent radical prostatectomy from 1991 to 2010. A total of 22 patients were identified who underwent radical retropubic prostatectomy (RRP) or robotic-assisted radical prostatectomy (RARP) treated simultaneously, or within 120 d preoperatively, for urolithiasis. We evaluated clinical characteristics including type of prostatectomy and stone surgery, location and amount of stone burden, perioperative change in hemoglobin and creatinine, stent frequency, total hospital days, stone-free rates, additional stone procedures and postoperative complications including: steinstrasse, intraoperative bleeding requiring transfusion, acute kidney injury[24], and urosepsis. The total length of hospital stay included both stone and radical prostatectomy procedure. Urinary incontinence was defined as bothersome leakage with straining or need for pad. Bladder neck contracture was identified during post-prostatectomy cystoscopy for obstructive voiding symptoms.

The urinary stone procedure was determined by the operating surgeon based on stone location, timing and type of radical prostatectomy. Simultaneous primary stone intervention was defined as occurring under the same anesthetic as the radical prostatectomy. Staged stone treatments were those within the 120 d before prostatectomy. Maximum stone diameter, location and total burden were determined by preoperative abdominal radiography or computerized tomography. Urolithiasis follow-up included metabolic evaluation, urinalysis with culture and kidney, ureter, and bladder (KUB) X-ray with renal ultrasound between 6-12 wk following stone treatment. Additional cross-sectional imaging, or KUB X-ray with tomograms, was obtained based upon patient symptomology and at the discretion of the treating provider. Stone-free status, after the primary stone procedure was defined as no residual fragments. Postoperative prostate cancer surveillance included physical examinations and serum PSA measurement quarterly for 2 years, semiannually for an additional 2 years and annually thereafter.

Statistical analysis was performed with Student's *t*-test or Wilcoxon Rank Sum for continuous data and Chi-Square or Fisher's Exact test for categorical outcome analysis using JMP software (SAS Institute Inc., Cary, North Carolina), with a P value < 0.05 considered statistically significant.

RESULTS

A total of 29 stone procedures were performed in 19 (86%) men undergoing RRP and 3 (14%) RARP at a median age of 65 years [Interquartile range (IQR) 62-69] (Table 1). Mean follow-up in the simultaneous cohort was 48.5 mo *vs* 45.7 mo in staged patients. In the staged cohort stones were treated prior to radical prostatectomy at a median 31 d (IQR 21-55). A prior history of urolithiasis was present in 16 (73%) men overall. At the time of stone surgery 17 (77%) men presented with one or more symptoms of flank pain, hematuria, urinary tract infection, pyelonephritis or acute renal failure. Ureteral stent was placed in 20 of 21 patients (95%) and nephrostomy tube only in 1 patient. In the simultaneous cohort, ureteral stent was removed at the time of urethral catheter removal 14 d post-prostatectomy with stent string secured to urinary catheter in 4 (40%), *via* clinic cystoscopy 21 d after procedure in 3 (30%), at the time of subsequent stone procedure in 1 (10%) or other method in 2 (20%). In staged patients, ureteral stents were all removed prior to radical prostatectomy or at the time of RRP. Follow-up imaging to determine stone-free status was obtained

Table 1 Patient demographics *n* (%)

	Simultaneous (*n* = 10)	Staged (*n* = 12)	*P*-value
Age (yr), median (IQR)	68 (60-71)	63 (62-67)	0.4[1]
Stone size (mm), mean ± SD	8.0 ± 3.8	9.9 ± 5.3)	0.3[1]
Location			
Renal	2 (20)	2 (17)	0.8[2]
Proximal	2 (20)	2 (17)	0.8[2]
Multiple	1 (10)	4 (33)	0.2[2]
Distal	5 (50)	4 (33)	0.4[2]
Procedure (n = 29)	11	18	
Open	2 (18)	0 (0)	-
Rigid URS	5 (46)	5 (28)	-
Flexible URS	2 (18)	4 (22)	-
SWL	2 (18)	4 (22)	-
PCNL	0 (0)	5(28)	-
RARP	1 (10)	2 (17)	-
RRP	9 (90)	10 (83)	-
Patient symptomatic	7 (70)	10 (83)	0.5[3]
History of stones	9 (90)	7 (58)	0.1[3]

[1]Student's *t*-test; [2]Fisher's Exact; [3]χ^2. IQR: Interquartile range; SD: Standard deviation; SWL: Shock wave lithotripsy; URS: Ureteroscopy; PCNL: Percutaneous nephrolithotomy; RARP: Robot assisted radical prostatectomy; RRP: Radical retropubic prostatectomy.

in all patients. Mean stone diameter was 9.1 mm (range 4-20 mm) with no difference in stone size or location between groups. After the initial stone procedure, 6 (60%) simultaneous and 7 (58%) staged were stone-free (P = 0.9) with no difference in stone size between stone-free patients and those with residual calculi (mean 8.3 mm *vs* 10.2 mm; P = 0.3).

Postoperative complications were noted in 5 (42%) staged and 3 (30%) simultaneous patients (P = 0.6), for a total of 7 and 3 complications (P = 0.3) (Table 2). In the simultaneous cohort, bleeding requiring transfusion occurred during radical prostatectomy in 2 (20%) and postoperative urosepsis in 1 (10%). In the staged cohort, there were 7 complications in 5 (42%) patients including 2 (17%) steinstrasse, 4 (33%) bleeding events during and 1 (8%) acute kidney injury after radical prostatectomy. Overall, bladder neck contracture occurred in 3 (14%) patients of whom all required bladder neck dilation. Stress urinary incontinence persisted in 7 (39%), with 1 (4.5%) requiring artificial urinary sphincter and 6 (27%) utilizing ≤ 1 pad with activity.

We then performed a subgroup analysis of simultaneous *vs* staged ureteroscopy (URS) and shock wave lithotripsy (SWL) and found no significant difference in outcomes between groups including: perioperative complications, bladder neck contracture, urinary incontinence, stone-free rates or number of additional procedures(Tables 3 and 4). Among patients undergoing simultaneous URS there were no stone related complications or bladder neck contractures; furthermore only 1 (17%) patient required an additional procedure. In those undergoing SWL, 4 (67%) patients experienced significant complications and 3 (50%) required additional procedures.

Table 2 Simultaneous *vs* staged urinary stone treatment at time of prostatectomy *n* (%)

	Simultaneous (*n* = 10)	Staged (*n* = 12)	*P*-value
Patient complications	3 (30)	5 (42)	0.6[1]
Steinstrasse	0 (0)	2 (17)	0.2[1]
Bleeding[2]	2 (20)	4 (33)	0.5[1]
AKI	0 (0)	1 (8)	0.4[1]
Urosepsis	1 (10)	0 (0)	0.3[1]
BNC	2 (20)	1 (8)	0.4[1]
Urinary incontinence	2 (33)	5 (42)	0.7[1]
Change in Cr (mg/dL), mean ± SD	0.04 ± 0.2	-0.2 ± 0.5	0.1[3]
change in Hb (g/dL), mean ± SD	3.9 ± 1.4	4.7 ± 1.6	0.2[3]
Hospital (d), mean ± SD	4.5 ± 3.8	5.5 ± 2.8	0.5[3]
Stone free	6 (60)	7 (58)	0.9[4]
Multiple procedures	1 (10)	4 (33)	0.2[4]
Avg. # stone procedures, mean ± SD	1.1 ± 0.3	1.4 ± 0.7	0.2[3]

[1]Fisher's Exact; [2]Occurred at the time of prostatectomy; [3]Student's *t*-test; [4]χ^2. BNC: Bladder neck contracture; AKI: Acute kidney injury; Cr: Creatinine; Hb: Hemoglobin; SD: Standard deviation.

When stratified by symptomology, 5 (23%) were asymptomatic and 17 (77%) had stone related symptoms; of which, multiple procedures were required in 3 (60%) *vs* 2 (12%; P = 0.02) respectively with no difference in adverse events or length of hospitalization. When stone location was analyzed, 9 (41%) patients had distal ureteral calculi and 13 (59%) had proximal or multiple stones. Relative to patients with multiple or proximal stones, patients with distal calculi had a significantly shorter hospital stay (mean 4.1 *vs* 5.5 d; P = 0.040) and need for subsequent procedures (mean 1.0 procedures/patient; P = 0.03). Moreover, in proximal or multiple stones, 5 (36%) patients required 6 additional procedures (mean 1.46 procedures/patient; P = 0.050) with a stone-free rate following the initial procedure of 5 (39%) *vs* 8 (89%) for distal ureteral calculi (P = 0.02). Finally, there was no difference in complications among those with distal stones compared to proximal or multiple stones [3 (33%) *vs* 5 (38%); P = 0.8].

DISCUSSION

We evaluate the feasibility, safety and efficacy of simultaneous prostate cancer and urinary stone disease treatment. The potential advantages of this approach include the minimization of perioperative complications associated with urolithiasis and the need for additional procedures. We found no significant difference in treatment outcomes among simultaneous or staged patients; including those men undergoing URS. Meanwhile, men with multiple or proximal stones were at increased risk for additional procedures, longer hospitalization and lower stone-free rates relative to those with distal stones. Similarly, asymptomatic patients were more likely to require additional procedures. Finally, men undergoing SWL had a high rate of stone related complications and retreatment making this a poor option for a simultaneous

Table 3 Simultaneous *vs* staged ureteroscopic stone treatment at time of prostatectomy *n* (%)

	Simultaneous (*n* = 6)	Staged (*n* = 7)	*P*-value
Age (yr), median (IQR)	70 (65-71)	63 (61-68)	0.06[1]
Patient complications	1 (17)	3 (43)	0.3[2]
Steinstrasse	0 (0)	0 (0)	-
Bleeding[3]	1 (17)	3 (43)	0.3[2]
AKI	0 (0)	1 (14)	0.3[2]
BNC	0 (0)	1 (14)	0.3[2]
Urinary Incontinence	2 (40)	3 (43)	0.9[2]
Change in Cr (mg/dL), mean ± SD	0.04 ± 0.1	-0.4 ± 0.5	0.1[4]
Change in Hb (g/dL), mean ± SD	4.1 ± 1.8	5.1 ± 0.9	0.2[4]
Hospital (d), mean ± SD	2.8 ± 2.1	5.5 ± 3.5	0.1[4]
Multiple procedures	1 (17)	1 (14)	0.9[4]
Avg. # stone procedures, mean ± SD	1.2 ± 0.4	1.1 ± 0.4	0.9[4]
Stone free	4 (67)	6 (86)	0.4[4]
Stone size (mm), mean ± SD	5.8 ± 1.7	6.9 ± 2.3	0.3[4]

[1]Student's *t*-test; [2]Fisher's Exact; [3]Occurred at the time of prostatectomy; [4]χ^2. BNC: Bladder neck contracture; AKI: Acute kidney injury; Cr: Creatinine; Hb: Hemoglobin; SD: Standard deviation.

Table 4 Simultaneous *vs* staged SWL at time of prostatectomy *n* (%)

	Simultaneous (*n* = 2)	Staged (*n* = 4)	*P*-value
Age (yr), median (IQR)	55 (53-57)	63 (62-65)	0.1[1]
Patient complications	1 (50)	3 (75)	0.5[2]
Steinstrasse	0 (0)	2 (50)	0.2[2]
Bleeding[3]	0 (0)	2 (50)	0.2[2]
AKI	0 (0)	0 (0)	-
Urosepsis	1 (50)	0 (0)	0.1[2]
BNC	0 (0)	0 (0)	-
Urinary incontinence	-	1 (25)	-
Change in Cr (mg/dL), mean ± SD	0.15 ± 0.4	-0.3 ± 0.3	0.4[1]
Change in Hb (g/dL), mean ± SD	3.9 ± 0.8	5.1 ± 1.7	0.5[1]
Hospital (d), mean ± SD	4.0 ± 1.4	4.8 ± 1.5	0.6[1]
Multiple procedures	0	3 (75)	0.08[2]
Avg. # stone procedures, mean ± SD	1.0 (0.0)	2.0 (0.8)	0.2[1]
Stone free	2 (100)	1 (25)	0.08[2]
Stone size (mm), mean ± SD	12.5 ± 6.4	10.4 ± 1.3	1.0[1]

[1]Wilcoxon Rank Sum; [2]Fisher's Exact; [3]Occurred at the time of prostatectomy. BNC: Bladder neck contracture; AKI: Acute kidney injury; Cr: Creatinine; Hb: Hemoglobin.

treatment approach. As such, given its low rate of complications, and need for secondary procedures, we conclude that there is a potential role for the simultaneous use of URS to treat symptomatic distal ureteral stones at the time of RP.

With a high incidence of prostate cancer[7-9] and urolithiasis in the aging male population[2], a significant proportion of these men may present with urinary stone disease discovered during cancer staging and treatment. In general, asymptomatic urolithiasis has an 8% prevalence with approximately 20% developing a symptomatic stone event within 1.3 years[16]; and, up to 26% may require surgical intervention[18]. However, the appropriate management of the asymptomatic patient that is incidentally found to have stone disease prior to radical prostatectomy remains unknown. Furthermore, for the symptomatic patient that presents a trial of passage may be a reasonable option. However, in those patients who fail medical expulsion therapy[25,26], elect for surgical management[27], or have high-risk prostate cancer the timing of urinary stone treatment becomes paramount.

Meanwhile, the risk of injury to the vesicourethral anastomosis with instrumentation is likely greatest in the immediate postoperative period. Unfortunately, little work has been done to assess the true risk to radical prostatectomy patients undergoing instrumentation for urinary stone treatment in the perioperative period. Gibbons *et al*[28] evaluated the feasibility of retrograde endoscopy in the post-prostatectomy patient. They observed no complications or adverse effect on urinary continence in 21 patients with a mean interval between radical prostatectomy and retrograde endoscopy of 24 mo[28]. Although reassuring, their series may not reflect the true long-term risk due to a short follow-up and significant time between prostatectomy and endoscopy. Herein, we found no significant difference between groups with 14% developing bladder neck contracture and 39% having mild to moderate urinary incontinence at last follow-up. Currently, depending on method of evaluation, 60%-93% of patients will regain urinary continence by 12 mo[20] and 2%-18% develop bladder neck contracture[22], which is not considerably different from our cohort.

In our series complications occurred in 42% *vs* 30% and additional stone procedures in 33% *vs* 10% of staged and simultaneous patients, respectively. We included complications secondary to the stone procedure (urosepsis and steinstrasse) and radical prostatectomy (bleeding). Thus, our increased rate of overall complications is not typically observed with traditional stone procedures. Furthermore, after subgroup analysis of patients undergoing URS and SWL, there remained no significant difference in outcomes. However, in SWL, 50% of staged patients developed steinstrasse and 75% required subsequent procedures which may place a patient at undue risk following prostatectomy. Salem *et al*[29] prospectively evaluated over 3000 patients undergoing SWL and noted a retreatment rate of 37% and steinstrasse in 24% of patients. Our increased retreatment rate reflects an attempt to render all patients stone-free following SWL and limit acute stone events following radical prostatectomy. As such, given the high rate of secondary procedures we feel that SWL should only be performed in a staged setting.

Multiple studies have established the importance of stone size, location and number in predicting stone-free rates[30-35]. Rippel *et al*[30] evaluated patients with CT imaging 30 to 90 d post-operatively. On univariate analysis 49% patients with multiple and 50% with intrarenal calculi had residual stone fragments greater than 2 mm. In our study, only stone location was significantly associated with a risk of retreatment as 38% of patients with proxi-

mal or multiple stones required additional procedures. Meanwhile our stone-free rate, although not significantly different between simultaneous and staged patients, was lower in patients with multiple or upper tract stones (P = 0.02) with no difference based on stone burden (P = 0.3).

Interestingly, patient symptomology was significantly associated with an increased risk of subsequent procedures as 60% of asymptomatic patients required additional stone treatment. We hypothesize that urinary obstruction over time allows for passive dilation of the collecting system thus increasing compliance and allowing ease of stone passage and instrumentation. Frequently, in our experience, the treatment of asymptomatic patients in a single-stage setting can be difficult often requiring multiple procedures and leading to increased complications. Keeley *et al*[36] prospectively evaluated patients undergoing SWL treatment of small (< 15 mm) asymptomatic renal calculi and found a stone-free rate of only 28% at 2.2 years. Despite evidence suggesting that a patient's symptomatology may be a predictor of treatment outcomes; this question has yet to be previously addressed among patients undergoing URS.

Certain limitations of our study exist. We acknowledge that the small patient population, and its retrospective nature, may limit any definitive clinical recommendations for a change of practice. Furthermore, we do not know the incidence of symptomatic progression of urinary stone disease following RP in those men who undergo expectant management preoperatively. Despite these limitations, this study attempts to address the safety, feasibility and utility of performing simultaneous stone treatment at the time of radical prostatectomy. We demonstrate no difference in outcomes which may suggest a role for simultaneous stone removal, specifically URS, in appropriately selected patients. Further prospective trials are needed to identify eligible patients, risk factors for significant short and long-term complications and cost-analysis of a single-stage procedure.

The current study demonstrates that simultaneous treatment of symptomatic distal urolithiasis with URS at the time of radical prostatectomy is safe and efficacious. Meanwhile, given the high rate of residual stone fragments and re-instrumentation following SWL, we recommend it be performed in a staged fashion. Finally, in asymptomatic patients, or those with multiple or upper tract stones, one should consider a staged approach due to the increased risk of additional procedures and reduced stone-free rates.

COMMENTS

Background

The prevalence of urinary stone disease in the male population ages 50 to 74 years old has increased from 13% from 1988-1994 to 19% in 2007-2010, representing a roughly equivalent to 40% relative increase in stone disease. A similar increase in the incidence of prostate cancer has also been observed due to PSA screening. As such, a significant number of male patients diagnosed with prostate cancer may harbor urolithiasis. If urinary stone disease is discovered, these patients pose a complex management dilemma given that 44% of asymptomatic patients with urolithiasis will develop symptoms within 1.3 years. An acute stone event within the immediate post radical prostatectomy period poses a unique concern; specifically, instrumentation of the fresh vesicourethral anastomosis has the potential for anastomotic injury with resultant long-term urinary incontinence and/or bladder neck contracture.

Research frontiers

Ongoing research in the field of urinary stone disease is attempting to identify modifiable patient risk factors to prevent future stone events. Moreover, among men undergoing radical prostatectomy for prostate cancer, significant research efforts are ongoing, including investigation of minimally invasive techniques and minimizing post prostatectomy complications such as urinary incontinence and bladder neck contracture; which can be disabling.

Innovations and breakthroughs

To the best of our knowledge, this is the first study to investigate the safety and efficacy of synchronous upper tract urinary stone treatment at the time of radical prostatectomy. One previous study has evaluated the association between upper tract endoscopy following radical prostatectomy and stress urinary incontinence. They found no difference in outcomes among men underwent ureteroscopy at a mean 24 mo following prostatectomy.

Applications

With a high incidence of prostate cancer and urolithiasis in the aging male population, a significant proportion of these men may present with urinary stone disease discovered during cancer staging and treatment. In general, asymptomatic urolithiasis has an 8% prevalence with approximately 20% developing a symptomatic stone event within 1.3 years; and, up to 26% requiring surgical intervention. Meanwhile, the risk of injury to the vesicourethral anastomosis with instrumentation in the setting of an acute stone event is likely greatest in the immediate postoperative period. As such, the appropriate management and timing of treatment in these men is of paramount significance. The potential advantages of a synchronous approach include the minimization of perioperative complications associated with urolithiasis and the need for additional procedures. The current study demonstrates that simultaneous treatment of symptomatic distal urolithiasis with ureteroscopy at the time of radical prostatectomy is safe and efficacious. Meanwhile, we noted a high rate of residual stone fragments and re-instrumentation following shock wave lithotripsy and as such recommend it be performed in a staged fashion. Finally, in asymptomatic patients, or those with multiple or upper tract stones, one should consider a staged approach due to the increased risk of additional procedures and reduced stone-free rates.

Terminology

Radical prostatectomy is the surgical removal of the prostate gland for the treatment of prostate cancer. Ureteroscopy is a minimally invasive endoscopic procedure to diagnose and treat upper urinary tract disorders. Shock Wave Lithotripsy is a technique for fragmenting a kidney stone with a shock wave that is produced outside the body. Steinstrasse is a complication of shock wave lithotripsy for urinary tract calculi in which stone fragments obstruct the renal unit. Percutaneous Nephrolithotomy is a technique for treating upper tract urinary stone disease by which percutaneous access into the renal unit is obtain. Stone Free refers to no residual stone fragments following stone treatment.

Peer review

The present study by Amy E Krambeck is investigated the differences in perioperative and long-term outcomes of patients, which treated for urolithiasis at the time of radical prostatectomy (simultaneous) in the preoperative period (staged). The results showed that the simultaneous ureteroscopic treatment of symptomatic urolithiasis appeared to be safe and efficacious with radical prostatectomy. In general, the work was interesting, except several issues to be addressed to increase the quality of the present work.

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