



POSTOPERATIVE FEBRILE UTI AFTER URS: AN INSTITUTIONAL STUDY REGARDING THE RISK FACTORS

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ABSTRACT **INTRODUCTION:** Ureteroscopic lithotripsy is now a standard treatment for urinary stones with minimal invasiveness and high success. Though a safe procedure febrile urinary tract infection (UTI) after URS is not rare. So we aimed to identify the risk factors of febrile UTI after URS. **MATERIALS AND METHOD:** Between October 2017 to MAR 2019, patients underwent URS for ureteral stones. The rate of postoperative febrile UTI and the causative pathogens were verified, and then risk factors for postoperative febrile UTI were identified and analysed using statistical analysis. **RESULTS & OBSERVATIONS:** Out of 680 patients, postoperative febrile UTI occurred in 96 patients (14.1%). Statistical analysis showed preoperative pyuria, pyelonephritis, impacted calculus, and duration of surgery >70 minutes to be significant. **CONCLUSION:** Overall, febrile UTI after URS occurred in 14.1% of patients, and the longer operative time, pyuria, pyelonephritis, impacted calculus are important independent predictive factors for this complication. These patients may benefit from prior counselling, vigilant post op monitoring, and possibly higher grade antibiotics

KEYWORDS : URS, UTI

INTRODUCTION:

Advancements in the field of urology has brought about many improvement in the methodology of ureteroscopy (URS), specially so in the technological aspect resulting in a better success rate with less procedural invasiveness. URS is now an established standard treatment for urinary tract stones [1]. Ureteroscopy has a high success rate with minimal complications [2,3]. Ureteroscopic procedures have been extensively studied, being a very common procedure and different risk factors associated with it has been documented [4,5].

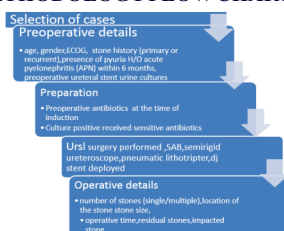
Post operative febrile UTI is an important complication associated with this procedure contributing to significant morbidity to the patient. Prior identification of risk factors for postoperative febrile UTI following URS helps one tackle the issue better and also aids in counselling of the patient. Present study aimed to assess the determinant factors for post operative febrile UTI in our institution

MATERIALS and METHOD:

A prospective study was conducted in the Institute of Urology, RGGGH & MMC Chennai from October 2017 to March 2019. All patients attending our institute with ureteric calculus were worked up with imaging and investigation. Preoperative clinical information including age, gender, ECOG, BMI, stone history (primary or recurrent), presence of pyuria, acute pyelonephritis (APN) within 6 months, preoperative ureteral stent and use of antibiotics. Pyuria was defined as >10 wbc/hpf. Urine culture was done and positive cultures got preoperative antibiotics prior to surgery. Operative information included number of stones (single/multiple), location of the stone, stone size, operative time, residual stones, impacted stone. Complications were evaluated according to the modified Clavien grading system.

Postoperative febrile UTI was defined as body temperature >38 °C without any symptoms except for those related to the urinary tract, classified as grade I (febrile UTI without additional treatment), grade II (febrile UTI with additional antibiotic treatment), grade III (sepsis without intensive care unit management), grade IV (sepsis with intensive care unit management). Patients excluded in the study were cases with ureteral strictures, urothelial carcinoma, renal failure and cases in which URS was abandoned and only dj stenting done

TABLE 1: METHODOLOGY FLOW CHART



RESULTS:

A total of 680 patients were included in the study. Patients were evaluated and the surgery was done. Patients characteristics and operative findings were recorded.

Out of the 680 patients 96 (14.1%) patients were labeled to have postoperative febrile UTI. Statistically significant findings were as follows: 72 (35.6%) of patients having pyuria had postoperative UTI as compared to 24 (5%) patients without pyuria. Preoperative pyelonephritis was also significantly associated with 33.3% having postoperative UTI.

Regarding operative features operative time, stone size and impacted stones were found to be statistically significant

Table 2: PATIENTS CHARACTERISTICS:

		Total 680	Post op febrile uti(96)		P Value
			no	yes	
Age(yrs)	<65	458	392	66	>.01
	>65	222	192	30	
Gender	Male	478	405	73	>.01
	female	202	179	23	
ECOG	0	480	408	72	>.01
	1	160	140	20	
	≥2	40	36	4	
Stone history	No	402	342	60	>.01
	Yes	278	242	36	
Pyuria	No	478	454	24	<0.01
	Yes	202	130	72	
Preop pyelonephritis	No	602	532	70	<0.01
	Yes	78	52	26	
Preop ureteral stents	No	600	516	84	>.01
	Yes	80	68	12	
Preop bacteriuria	No	410	370	40	>.01
	Yes	270	242	28	
	Yes	200	130	70	
Preop TLC >11000/cum	No	85	60	25	>.01
	Yes	405	365	40	

Table 3: OPERATIVE FINDINGS:

		total	Post op febrile uti		P value
			no	yes	
No of stones	single	560	476	84	>.01
	multiple	120	108	12	

Kidney stones	No	576	496	80	>.01
	Yes	104	88	16	
Stone size	<15mm	600	516	84	>.01
	>15mm	80	68	12	
Operative time mins	<70 mins	624	554	70	<0.01
	>70 mins	56	30	26	
Residual stones	No	596	512	84	>.01
	Yes	84	72	12	
Impacted stones	No	630	554	76	<0.01
	Yes	50	30	20	
Site of stone	upper	180	155	25	>.01
	mid	280	239	41	>.01
	lower	220	190	30	>.01

DISCUSSION

The study examined the impact of preoperative characteristics and operative procedure on postoperative infectious complications.

Postoperative fever is the most frequent complication of URS and it is important to identify patients at risk of developing infectious complications of URS, including sepsis. Febrile UTI had an incidence of 14.1% in the study. The placement of preoperative ureteral stent placement did not have significant effect in our study in contrast to study by Nevo et al 2017[6]. In Nevo et al preoperative stent placement specially >30days, in female had higher risk.

History of acute pyelonephritis in the past six months had significance. This is in concordance with previous studies Koji et al 2015[7].

Preoperative pyuria was also significantly associated in this study similar to Koji et al [7] but the degree of pyuria could not be ascertained in categories. Operative time more than 70 mins had a greater risk for febrile UTI in contrast to study by Koji et al [7] and Sohn et al [8].

Impacted calculus as ascertained intraoperatively had less full clearance. It was also statistically significantly in concordance to studies as reported by Legemate et al 2017[9].

CONCLUSION:

Prior identification of risk factors for postoperative febrile UTI following URS helps one tackle the issue better and also aids in counselling of the patient. Longer operative, impacted calculus, history of pyelonephritis, pyuria had a significant effect in our study. This study by revealing these factors can certainly help in the treatment decision making.

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