

MP10-18

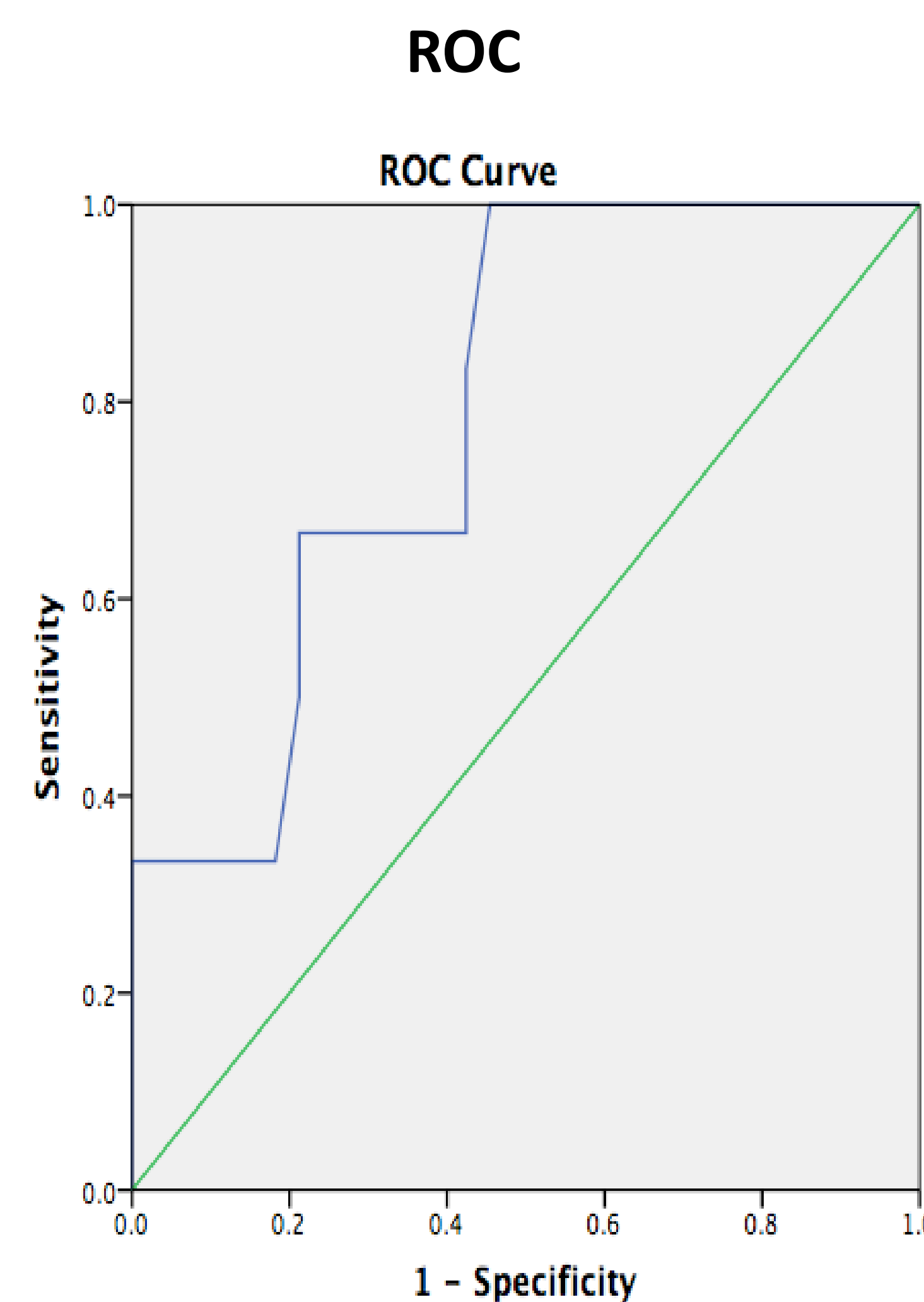
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BACKGROUND

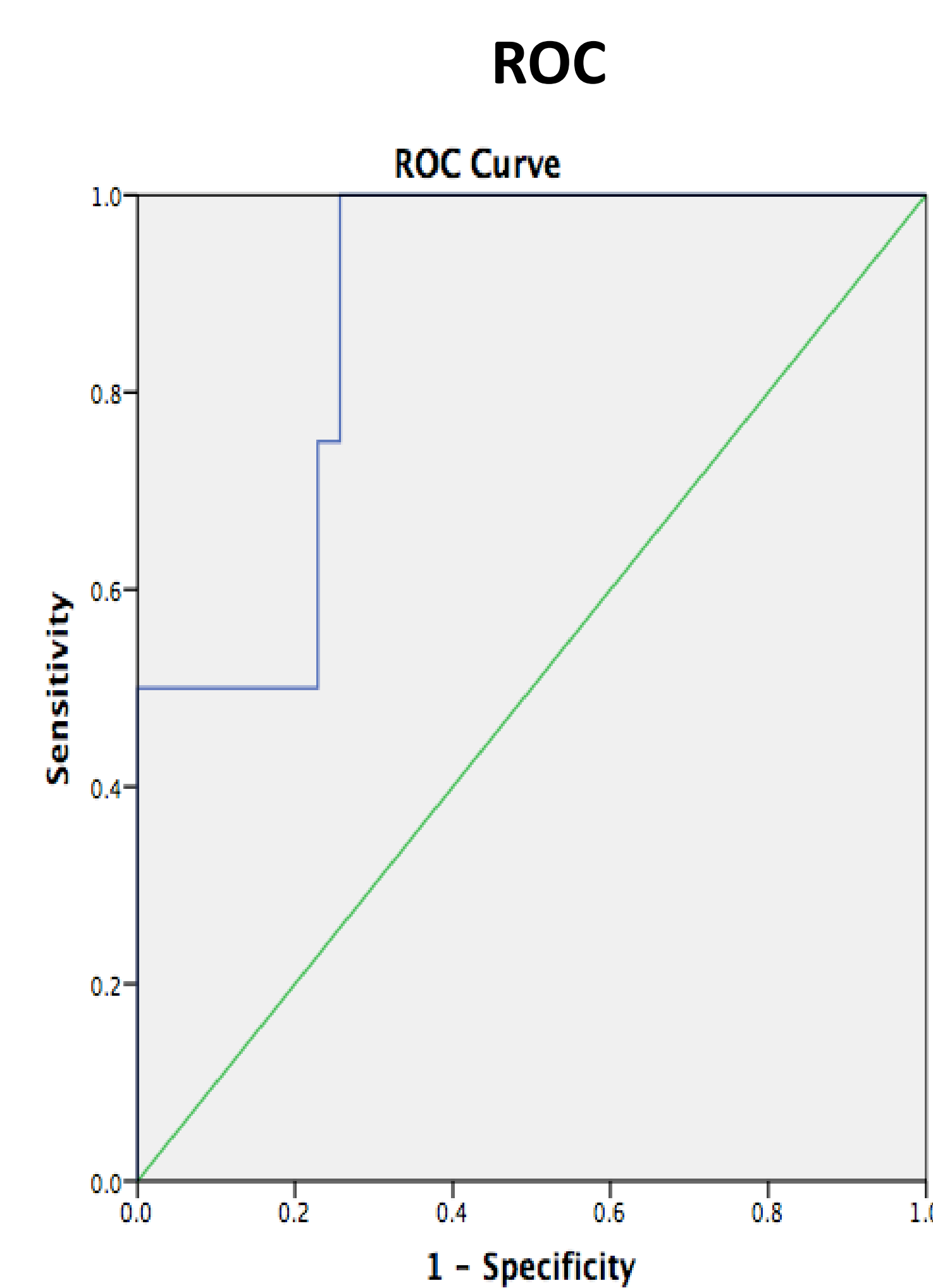
It is estimated that 41% of the patients with pyelonephritis associated with ureteral obstruction due to stones or urinary tract anomalies will progress to septic shock.¹ The purpose of this study was to identify patients who are likely to develop septic complication following surgical decompression of ureteral obstruction associated with urinary tract infection (UTI).

PATIENTS AND METHODS

We prospectively enrolled patients who presented at the emergency department of our institution with clinical signs of pyelonephritis, systemic inflammatory reaction syndrome (SIRS) and obstructive ureteral stone confirmed by computed tomography scan. Forty patients that underwent urinary tract decompression were included. Demographical, medical and laboratorial characteristics were recorded; antibiotic regimen and time from presentation to decompression were compared between patients with septic complications.



A - Preoperative leukocyte count and the risk of postoperative septic shock.



B - Preoperative leukocyte count and the risk of intra-operative septic shock.

RESULTS

Septic shock and death occurred in 6 (15%) and 2 (5%) patients, respectively. Gender, age and co-morbidities were not associated with septic complications. Urinary culture was negative in 40% of the cohort and the most prevalent pathogen was Escherichia coli. Administration of antibiotics other than 3rd generation cephalosporin was associated with septic shock (p=0.02). There was no difference between groups regarding the time of antibiotics use (p = 0.63) and time from presentation to urinary tract decompression (p=0.07). Patients with leukocyte count above 15.6 x 10³/μL had 2.2-fold greater risk of having septic shock (p=0.027).

Parameter	Overall	Post-operative Shock		p
		Yes	No	
Gender: M/F	6 (15%) / 34 (85%)	2 (33%) / 4 (67%)	4 (12%) / 30 (88%)	0.21
Age (years)	42 ± 12	40 ± 20	42 ± 11	0.68
Charlson				0.19
Diabetes	7 (17.5%)	2 (33.3%)	5 (14.7%)	0.27
Stone size (mm)	11.6 ± 8	12.5 ± 6	11.3 ± 8	0.75
Severe hydronephrosis	37 (92.5%)	6 (100%)	31 (92%)	1.0
Pain duration (days)	7.5 ± 6.8	11.0 ± 5.1	6.9 ± 7.0	0.18
Fever duration (days)	6.3 ± 6.5	7.5 ± 6.2	6.1 ± 6.7	0.65
Preop. CRP	205 ± 101	173 ± 87	211 ± 104	0.40
Preop. leukocytes (x10 ³)	17.9 ± 8.3	26.7 ± 12.7	16.3 ± 6.3	0.003
Positive preop. urinary culture	24 (60%)	4 (66.7%)	20 (58.8%)	0.50
Urinary Culture (Germ)				0.15
Undetermined	11 (27.5%)	1 (16.7%)	10 (29.4%)	
E coli (multi-sensitive)	5 (12.5%)	0	5 (14.7%)	
E coli (quinolone resistant)	4 (10%)	1 (16.7%)	3 (8.8%)	
E faecalis + P Mirabilis	1 (2.5%)	1 (16.7%)	0	
S aureus	1 (2.5%)	0	1 (2.9%)	
Candida albicans	2 (5%)	1 (16.7%)	1 (2.9%)	

Table 1 - Clinical and laboratory parameters of patients presenting with an obstructing ureteral stone and urinary tract infection.

Parameter	Overall	Post-operative Shock		p
		Yes	No	
ATB type				0.02
3 rd cephalosporin	31 (77.5%)	3 (50%)	28 (82.4%)	
Piperacillin + tazoctam	2 (5%)	2 (33.4%)	0	
Carbapenems	1 (2.5%)	0	1 (2.9%)	
Fluoroquinolones	6 (15%)	1 (16.7%)	5 (14.7%)	
ATB time				0.63
< 12h	2 (5%)	0	2 (5.8%)	
12-24h	7 (17.5%)	0	7 (20.6%)	
24-48h	12 (30%)	2 (33.3%)	10 (29.4%)	
48-72h	3 (7.5%)	0	3 (8.8%)	
> 72h	16 (40%)	4 (66.7%)	12 (35.3%)	
Time to Double J (days)	1.8 ± 3.2	4.0 ± 6.9	1.4 ± 1.8	0.07
Double J diameter				0.21
6Fr	34 (85%)	4 (66.7%)	30 (88.2%)	
7Fr	6 (15%)	2 (33.3%)	4 (11.8%)	
Nephrostomy (+)	2 (5%)	1 (16.7%)	1 (2.9%)	0.28
Intraop. Pyuria (+)	20 (50%)	4 (66.7%)	16 (47.1%)	0.66
Postop. Hosp. time (days)	2.7 ± 4.4	6.5 ± 7.2	2.1 ± 3.4	0.02

Table 2 - Predictive factors of septic shock following surgical decompression of obstructing ureteral stones.

CONCLUSIONS

Obstructive pyelonephritis due to ureteral stone migration is a severe pathology with substantial risk of septic complications and mortality. Third generation cephalosporin administration is associated with better prognosis in the analyzed population and septic adverse events prolonged the hospital stay. Patients with leukocytosis are at higher risk of intra/post-operative septic shock. A significant relation between delay in decompression and septic shock was not found, however we suggest to timely perform urinary tract decompression in all cases.

REFERENCES

1. Scales CD, Jr., Smith AC, Hanley JM, Saigal CS and Urologic Diseases in America P: Prevalence of kidney stones in the United States. Eur Urol. 2012;62:160-5.