



Impact of COVID-19 pandemic in urology: a review of elective ureteroscopic lithotripsy surgery

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Objective: COVID-19 pandemic has caused significant impact in the healthcare system, and many elective surgeries had been suspended or postponed. The objective of this study is to investigate the impact of COVID-19 pandemic in elective ureteroscopic lithotripsy (URSL) for ureteric stone, and the factors associated with emergency readmission and adverse outcome.

Patients & Methods: We retrospectively reviewed elective URSL in United Christian Hospital for ureteric stone in 2019 (pre-COVID era) and 2020 (post-COVID era). Patient demographics, disease factors, waiting time for surgery, and emergency readmissions were analyzed.

Result: A total of 111 elective URSL were performed (73 in 2019, 38 in 2020). Mean age was 62.1. Mean length of stay was 1.8 days. Mean surgery time was 56.9 minutes. Mean stone size was 10.5mm. Mean waiting time was 65.4 days. No significant difference between 2019 and 2020 was found in waiting time (65.1 days vs 66.0 days, $p=0.277$), emergency readmission rate before surgery (4.1% vs 7.9%, $p=0.335$) and postoperative emergency readmission rate (10.9% vs 7.9%, $p=0.441$).

Emergency readmission rate before surgery was significantly higher in patients who initially presented with sepsis (19.1% vs 2.2%, $p=0.011$), requiring preoperative drainage (15.8% vs 0%, $p=0.001$) and positive urine culture (23.8% vs 1.1%, $p=0.001$). No statistically significant correlation was found in stone size, location, waiting times, symptoms of presentation for adverse surgical outcome (including postoperative emergency readmission, and need for auxiliary procedure).

Conclusion: COVID-19 pandemic had caused significant reduction in number of elective URSL performed. Patients presenting with sepsis, in need of preoperative drainage, or with positive urine culture should be first prioritized for early elective surgery to avoid emergency readmission while waiting surgery.

<http://www.hkua.org/>

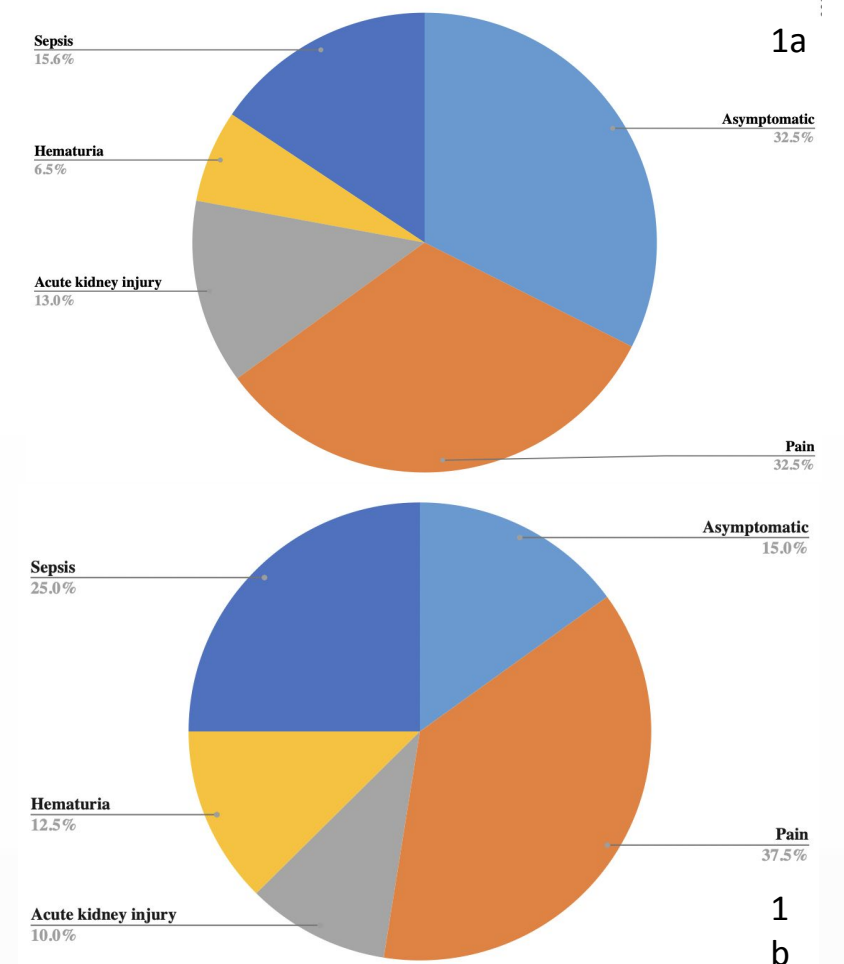


Figure 1. Symptom of presentation in 2019 (1a) and 2020 (1b)

	2019	2020	Significance (p)
Mean age	63.6	60.3	0.347
Mean OT duration (minutes)	64.6	68.7	0.321
Mean stone size (mm)	11.4	8.5	0.878
Mean waiting time (days)	65.1	66.0	0.277
Emergency readmission rate before surgery	4.1%	7.9%	0.335
Post-operative emergency readmission rate	10.9%	7.9%	0.441

Table 1. Comparison of characteristics between URSL cases in 2019 and 2020.

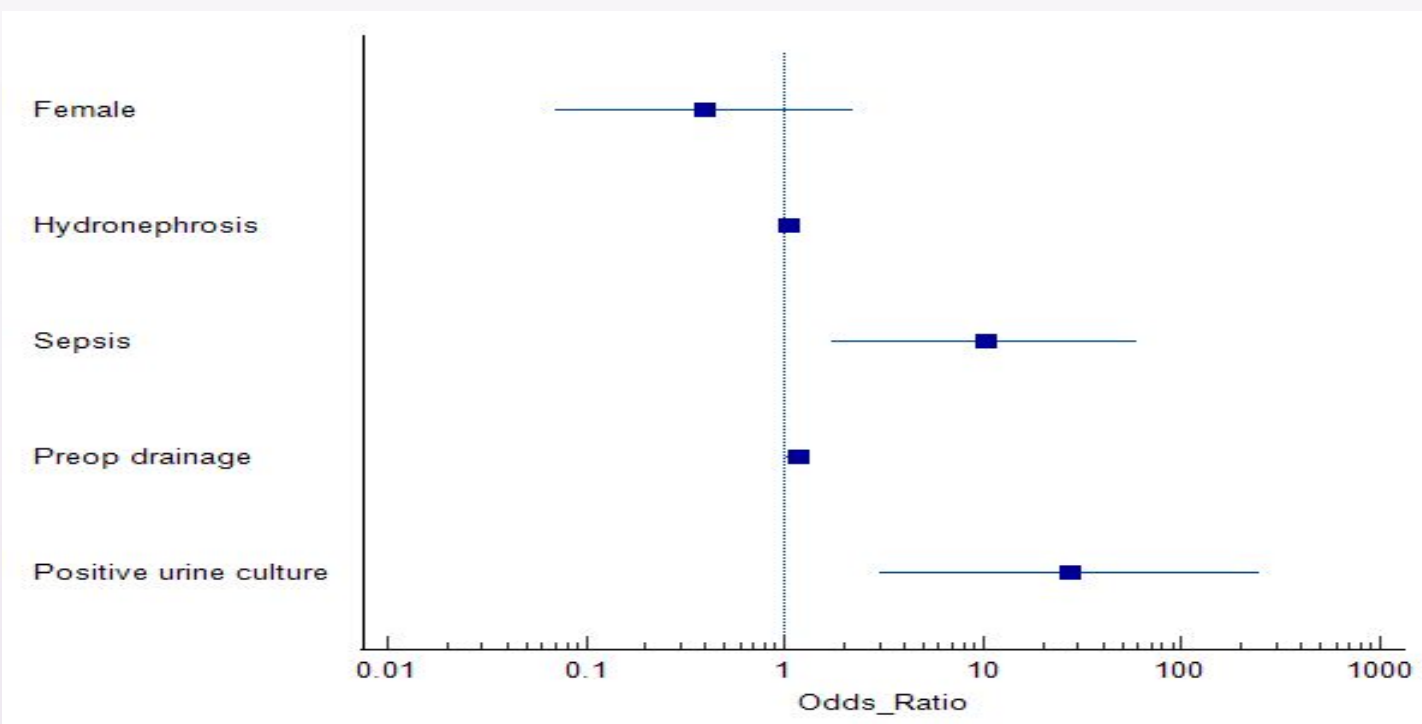


Table 2. Odds ratio for emergency readmission before surgery

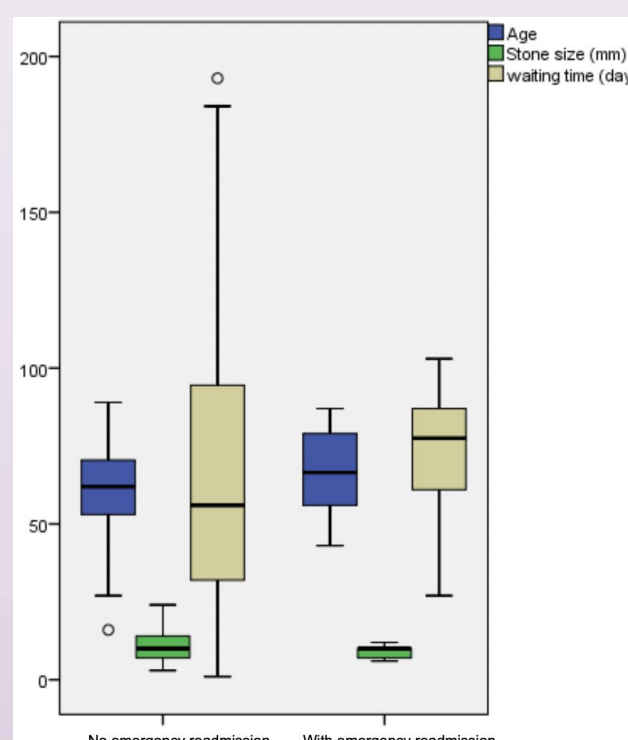


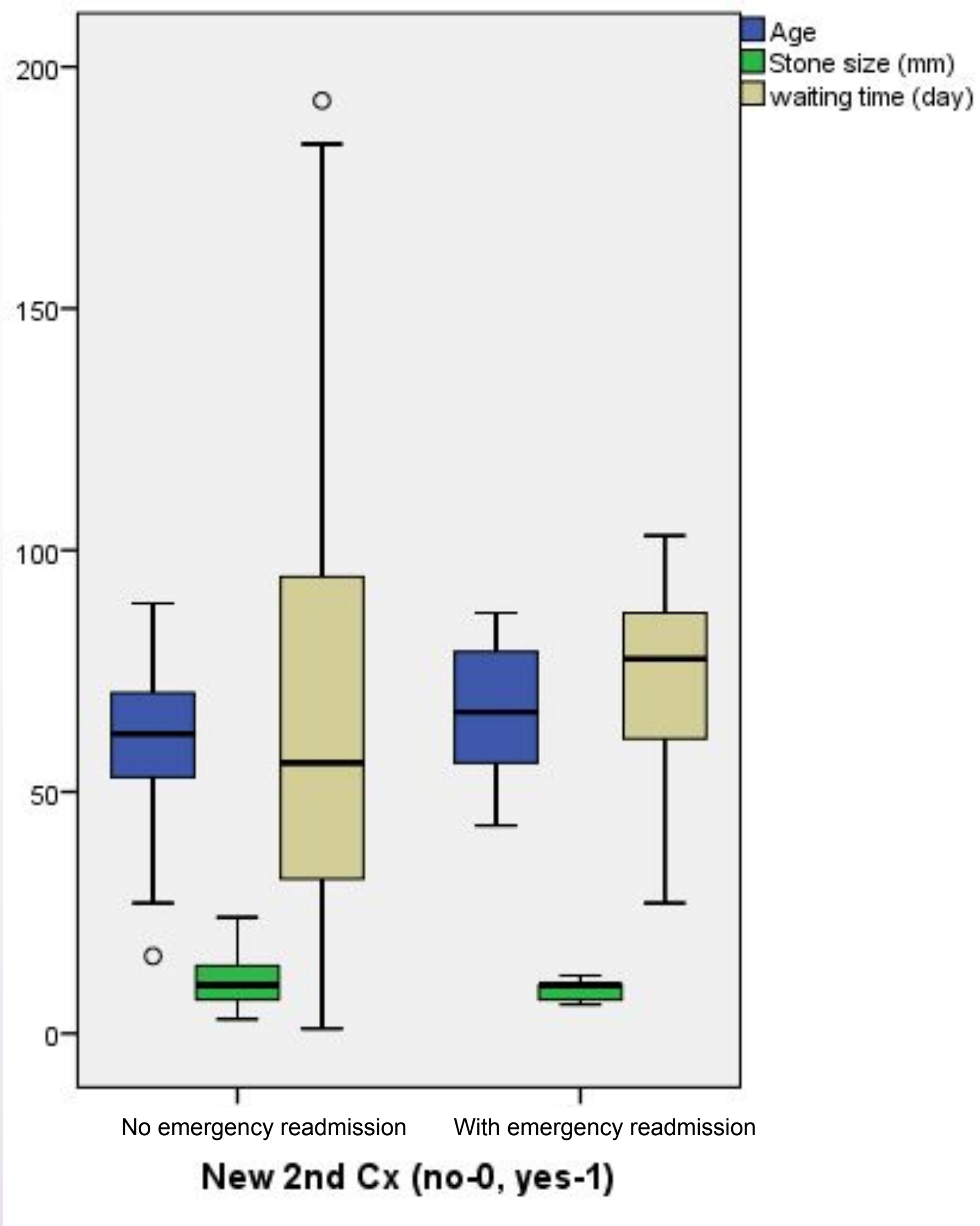
Table 3. Relationship of age/stone size/waiting time with emergency readmission before surgery

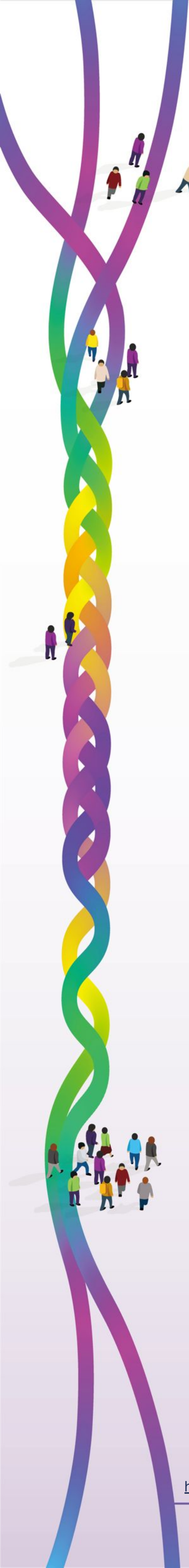
Variable	Requiring auxiliary procedure (p)	Post-op 28-day readmission (p)
Presented with sepsis	13.6% vs 20.9% ($p=0.446$)	13.6% vs 8.79% ($p=0.496$)
Presented with pain only	17.5% vs 20.5% ($p=0.699$)	8.1% vs 12.3% ($p=0.557$)
Presented with hematuria only	10.0% vs 20.4% ($p=0.433$)	30% vs 7.8% ($p=0.023$)
Positive urine culture	13.6% vs 20.9% ($p=0.446$)	9.1% vs 9.9% ($p=0.911$)
Requiring pre-op drainage	23.1% vs 17.6% ($p=0.486$)	10.3% vs 9.5% ($p=0.893$)

Table 4. Factors related to adverse surgical outcomes

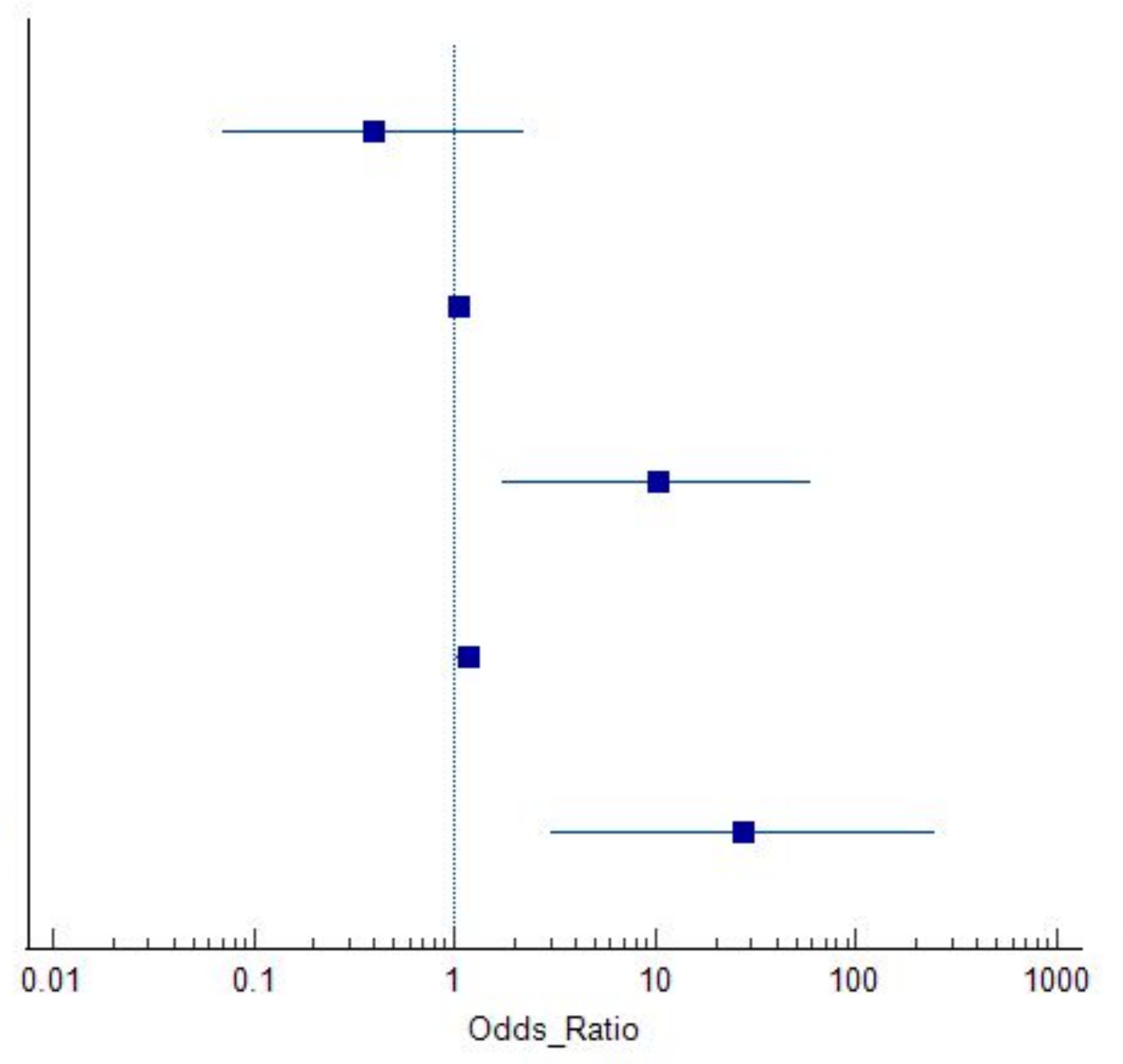


Hong Kong Urological Association
The 27th Annual Scientific Meeting
Kerry Hotel, 38 Hung Luen Road,
Hung Hom Bay, Kowloon, Hong Kong
6th November 2022





Female
 Hydronephrosis
 Sepsis
 Preop drainage
 Positive urine culture



	Requiring emergency readmission	Not requiring emergency readmission	Significance (p)
Mean age	66.3	62.0	0.466
Mean OT duration (minutes)	61.8	56.5	0.672
Mean stone size (mm)	9.2	10.5	0.473
Mean waiting time (days)	72.2	65.0	0.703

Table 2. Comparison of characteristics between patients with postoperative readmission

