

## Recommendations and algorithm to deal with urological surgeries in the Middle East during COVID-19 Pandemic: Review article and regional expert opinion

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Received: (22/4/2020), Accepted: (28/4/2020)

### ABSTRACT

Corona virus disease 2019 (COVID-19) is a fast spreading pandemic which has started in China, then spread worldwide with high infectious rate and significant minor mortality. The natural history of COVID19 is not yet fully understood as it mainly affects and spreads through the respiratory system but it may affect other systems. Furthermore, it is an overwhelming disease to the health system which mandates building new hospitals such as Nightingale in London and also emptying several tertiary hospitals in order to cope with the huge demands on the health system globally. Therefore, urology as a specialty become affected where hundreds of elective surgeries to be delayed. Thus, we think that we should have a regional guidance regarding how to deal with urological surgeries in the Middle East based on current international available data so we can provide safety to healthcare workers (HCW) but without scarifying patient's health and priority. We have postulated an algorithm and set recommendations which can serve as guidance during COVID 19 pandemic in the Middle East.

**Keywords:** Covid 19, Urological Surgery, Kidney, Bladder And Prostate Cancer, Middle East Urology.

### INTRODUCTION

The World Health Organization (WHO) declared the epidemic of Corona virus disease 2019 (COVID-19) as a pandemic on March 12<sup>th</sup> 2020. Currently, it has spread almost to every continent of the world where it has started in Wuhan, China [1]. It is mainly a respiratory disease characterized by sever Acute Respiratory Syndrome (ARDS) which leads to significant morbidity and noticeable mortality [2]. Nevertheless, morbidity and mortality related to COVID-19 is not the only concern facing the health system as hospitals capacity, elective surgeries cancelation and Healthcare workers (HCW) safety are paramount [3]. For instance, the American college of surgeons recommends cancelation of all elective surgeries [4].

To a greater extent, Urological procedures are elective as only a handful of procedures that need immediate to urgent intervention. However, elective urological surgery is a vague and broad term which may lead to devastating outcome if used inappropriately. Therefore, a triage system and set of recommendations should be established in each institution in cooperation with higher management level in order to achieve safe delayed urological procedures as well as to keep up with international emergency response to COVID-19 [5].

Urologist can help fight this pandemic not only by actively participating in treating COVID-19 patients but also by triaging and delaying some surgeries which will lead to a decrease in the demand for ventilators, personal protective equipment, and other critical

hospital and human resources. However, this should be counterbalanced by the possible dangerous outcome of delaying surgeries especially for malignant urological procedures.

Several Urological societies such as European association of urology (EAU) published their guidance on the managing urological conditions during the Covid-19 pandemic[6]. However, we don't have local or regional guidance to deal with urological surgery as for example Palestinian national COVID-19 management protocol deals with just COVID-19 cases regarding evaluation and management [7]. While this guidance is likely to change and evolve as we move deeper into the pandemic, there are similarities that could be applied to urological surgery across the globe. However, with the varying models and different operational levels of readiness between health systems, some of these recommendations can be tailored to be best applied to most healthcare systems in the Middle East. The Middle East has a different cohort of patients regarding age, co-morbidities and prevalence of urological problems. Furthermore, hospitals are less equipped, personal protective equipment are limited but currently COVID-19 appears not

to have the same pattern of spread compared to western countries and South East Asian countries as well. Therefore, we have searched and summarized the literature in order to have a regional guidance to deal with common urological procedures during the pandemic in order to be prepared for increasing in COVID-19 patients' numbers and consequently the demands on health system.

The main purpose of this article is to establish preliminary recommendations and algorithm to deal with urological procedures during COVID 19 as the disease has not hit the peak yet. We have reviewed all current available data that links COVID-19 to urological surgeries and summarized the evidence, in addition to virtual round table discussion between authors which was done online using social media and skype due to the current quarantine situation. Members of the expert panel are listed in Table 1.

This is an early call so it can be adopted as a regional reference and may provide a starting point for discussions to continue and develop further at local level. Appropriate urological procedures during COVID-19 pandemic are shown in Figure 1.

**Table (1):** Group of the expert panel.

Name	Position	Affiliation
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A Jaradat	AP and CUS	Department of surgery, An-Najah National University, Nablus, Palestine
R Alazab	AsP and CUS President JAUS	Department of urology, Jordan University of science and Technology, Irbid, Jordan Jordanian Association of urological surgeons (JAUS)
S AL Demour	AP and CUS	Department of special surgery, Division of Urology, school of medicine, The University of Jordan, Amman, Jordan
S Albuheissi	Clinical lead and CUS	Bristol Urological Institute, North Bristol NHS Trust, Bristol, United Kingdom.
A Mustafa	SCF	Department of respiratory, University hospital Birmingham NHS trust, Birmingham, United Kingdom.
A. Alzarooni	CUS Head of urology dep President of EUS	Department of urology, Sheikh Khalifa General Hospital, United Arab Emirates Emirates Urological society
A Alansari	CUS CMO	Surgical Department, Hamad General Hospital, Hamad Medical Corporation, Doha, Qatar
K Al-Rumaihi	CUS	Surgical Department, Hamad General Hospital, Hamad

Name	Position	Affiliation
	Director of Urology	Medical Corporation, Doha, Qatar
O Aboumarzouk	Honorary clinical senior lecturer CUS	University of Glasgow, Glasgow, Scotland, United Kingdom. Surgical Department, Hamad General Hospital, Hamad Medical Corporation, Doha, Qatar

**AsP:** Associate professor, **AP:** Assistant Professor, **CUS:** consultant urological surgeon, **SCF:** Senior clinical fellow, **CMO:** chief medical officer.

### Urology malignancy surgery

Urological malignancy is a worldwide prevalent disease associated with mortality and morbidity. The incidence increases every year which is directly related to the expansion of elderly people category mainly in the developed countries. In 2013, 2.1 million kidney, bladder, and prostate cancer cases occurred worldwide with 1.6-fold increase in mortality rate in comparison to 1990 [8].

There is strong evidence that COVID-19 mortality is higher in elderly people especially if concomitant co-morbidities are present [9]. Thus, Urological malignancy cohort of patients are at higher risk of morbidity and mortality especially if it is associated with delays in their planned surgery.

### Renal Cell Carcinoma (RCC)

#### T1 RCC

The standard treatment of RCC less than 7cm is partial nephrectomy regardless to the type of surgery[10]. Furthermore, the length of stay is between (1-2 days) for robotic and laparoscopic procedures while it is (2-4 days) for open surgery [11]. This will lead to increase demands on beds, ventilators and also exhaustion of HCP during the Pandemic while the risk of progression and metastasis is not significant over a short period of time. For instance, the linear growth rate for RCC less than 4 cm ranges between 0.1-0.4 cm/year with mortality rate less than 1% [12].

**Recommendation:** Delay surgery for 3 months, then perform restaging and proceed according to stage.

#### T2 RCC

**Recommendation:** Surgery for these tumours should be considered for delay based upon patient specific considerations, such as

age, morbidity, symptoms, and tumour growth rate.

#### T3+ RCC

This category of localized RCC is the highest risk for progression especially if there is evidence of vein thrombus. The progression may occur rapidly and lead to more complicated surgery and adversely affect survival and morbidity [13, 14].

**Recommendation:** Nephrectomy for all patients (Open or minimally invasive)

### Prostate cancer

Localized prostate cancer management is continuously changing over time and treatment options include active monitoring, radical prostatectomy, and radiotherapy. However, recent evidence shows at a median of 10 years, prostate-cancer-specific mortality was low irrespective of the treatment assigned, with no significant difference among treatments [15]. Furthermore, delay of treatment up to 12 months, even for high risk disease, may not alter operative outcomes and cancer specific mortality [16]. Therefore, we think that surgery for prostate cancer can be safely delayed in the Middle East for 3 months. Alternatively, radiotherapy can be considered for high risk localized prostate cancer and locally advanced prostate cancer especially in relatively young patients.

#### Recommendation

1. Radical prostatectomy (RP) surgery can be delayed safely up to 3 months for localized prostate cancer.
2. Consider Radiotherapy (RXT) for locally advanced non metastatic prostate cancer

## Bladder cancer

### Non- muscle invasive bladder cancer (NMIBC):

NMIBC is associated with slow progression rate mainly if it is Ta or Low grade. On the other hand progression rate for T1 high grade tumour is up to 65% and disease specific survival is 69% at 15 years follow up [17]. Furthermore, first presentation T1 or high grade NMIBC is associated with significant understating rate up to 50% [18]. Therefore, known case Low grade or pTa NMIBC can be safely delayed up to 3months but pT1 or high grade tumours should not be delayed.

#### Recommendation

1. Ta or Low grade: Delay up to 3 months is safe.
2. T1 or high grade NMIBC: Prompt TURBT is recommended.

### Muscle invasive bladder cancer (MIBC)

Untreated patients with MIBC are at higher risk of morbidity and mortality related to disease progression. Overall, 5 years OS rate for untreated patients is 5% and cumulative incidence of CSM is 86%. [19]. Furthermore, delaying cystectomy for MIBC by 90 days decreases overall and progression free survival [20]. Thus, cystectomy is still recommended as standard treatment and should not postponed.

**Recommendation:** Cystectomy for MIBC with hold on neoadjuvant chemotherapy.

### Upper tract urothelial carcinoma

#### Recommendation

1. Can be delayed up to 3 months [21].
2. cT1 + or high-grade disease on cytology, it is recommended to proceed with Nephroureterectomy

### Testicular cancer

Testicular cancer is a rare malignancy among Arab population with scanty data available. It affects young age group (20-35 years old) and mainly it is Seminoma [22]. Furthermore, inguinal orchiectomy is a day case procedure which associated with low complications rate. There is no much data

regarding the effect of delayed orchiectomy on clinical stage, morbidity and mortality, however, it is evident that diagnostic delay in testicular cancer is significantly correlated with stage and survival in Non-seminomatous germ cell tumors (NSGCT) [23]. Therefore, inguinal orchiectomy should be done promptly once diagnosis is established.

Retroperitoneal lymph node dissection (RPLND) should be discussed through regional multidisciplinary team (MDT). with oncologist and radiologist to consider other treatment options such as chemotherapy, radiation and observation if clinically feasible.

#### Recommendation

1. Inguinal orchiectomy should be performed for US-proven suspected neoplasm within 1 week
2. RPLND should be discussed through MDT to balance available treatment options

### Penile cancer

Penile cancer is considered a rare malignancy worldwide and in Arab countries, it has very low incidence rate with scanty data available [24]. Therefore, it is not discussed in this article.

### Urology non-malignancy surgery

It is difficult to cover all non- malignant urology topics in this article but this article describes urological emergency surgery which should not be delayed as it may cause significant harm.

#### Stones

Obstructed and infected urinary tract is associated with significant morbidity and mortality if left untreated. Drainage of the system by either JJ stent or nephrostomy has to be done urgently without delay [25].

Furthermore, bedside ureteral stent placement is well tolerated, safe and efficacious using local anaesthesia especially in females [26]. Thus, it can be safely done as outpatient or day case procedure to decompress upper urinary tract mainly in cases with Acute Kidney injury (AKI) or intractable pain.

**Recommendation**

1. Offer ureteric stent or nephrostomy urgently for obstructed and infected upper urinary tract.
2. Consider local anaesthetic day case stent insertion if tolerated.

**Urine retention secondary to bladder outlet obstruction**

**Recommendation**

1. Drain the bladder by urethral catheter or suprapubic catheter (SPC).
2. Delay the definitive procedure such as BPH surgery and stricture surgery.

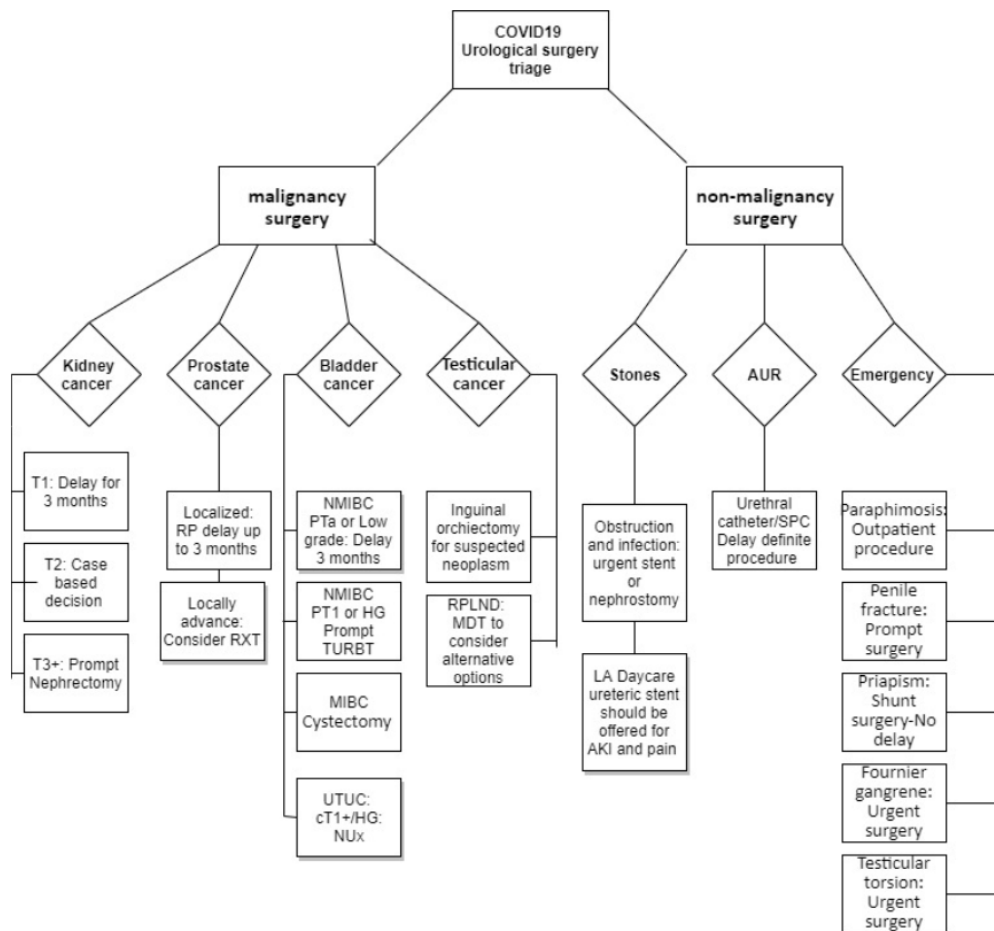
**Urological Emergencies**

Urological Emergencies can affect any part of the urinary tract. However, urology as a specialty has few urological emergencies which needs urgent intervention. The list be-

low shows most common urological emergency which should not be delayed and managed promptly [27].

1. **Paraphimosis:** Outpatient procedure.
2. **Penile fracture:** Day case procedure should be arranged as surgical outcome is better regarding long term erection and curvature [28].
3. **Priapism:** Shunting procedures should not be delayed if clinically indicated to maximize outcomes for patients and decrease complication rate [29].
4. **Fournier gangrene:** Urgent assessment and intervention.
5. **Testicular torsion:** Urgent intervention

Urological trauma should be treated according to the standard protocol but tailored to meet local guidelines.



**Figure (1):** Algorithm for appropriate urological procedures during COVID-19 pandemic done by Abushamma et al using <https://www.diagrameditor.com/>. HG: high grade, UTUC: upper tract urothelial carcinoma, LA: Local anesthesia, SPC: suprapubic catheter, NUx: Nephroureterectomy.

## CONCLUSIONS

COVID 19 pandemic is affecting every aspect in health system and imply huge demands on hospitals, healthcare workers and equipment. Thus, effort should put in place to coordinate work load and help fighting this disease.

These recommendations and algorithm present preliminary expert opinion from this group based on best available data. We hope that this article will help to create an evidence-based work strategy during this pandemic and provide an initial point for discussions to continue at local level. There should be a high level of cooperation between medical teams and management to get work organized across different departments. Therefore, decrease the negative impact of COVID-19 on patients, hospitals and HCW.

## ACKNOWLEDGEMENTS

The authors would like to thank the Clinical Research Center of An-Najah National University Hospital for their wise pieces of advice.

## COMPETING INTERESTS

The authors declare that they have no competing interests.

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