



## Clinical and Surgical Consequences of COVID-19 Pandemic for Patients with Urological Problems

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### Abstract:

**Objective:** To discuss the impact of COVID-19 on Urological practice and their management and to review some of the available recommendations reported in the literature.

**Materials and Methods:** In the current review the PubMed database was searched to identify all the related reports discussing the impact of COVID-19 on urological field and how the urological issues and cases can be managed is discussed.

**Results:** The COVID-19 pandemic is the latest and biggest global health threat. Medical and surgical practices have changed dramatically to cope with the current challenge. This changes include postponements of most of the elective out patient's visits and urological procedures to save facilities and resources for urgent cases and patients with COVID-19.

**Keywords:** COVID -19,  
SARSCoV, Corona Virus,

**Conclusion:** Over the coming months, healthcare workers including urologists will be facing increasingly difficult challenges and consequently they should adopt triage strategy to avoid wasting of medical resources and they should endorse sufficient protection procedures to guard against infection when dealing with COVID-19 patients.

### Introduction:

COVID-19 is spreading rapidly around the world, forcing previously unknown changes in our health care systems. This pandemic poses a great burden on medical resources such as hospital beds and protective equipment, in addition to medical personnel. Decisions regarding which type of care is to be continued and which can be postponed must be made and will require revision as the situation improves or worsens. It is yet unpredictable when to expect improvement in the COVID-19 situation, but this will also require a scenario for progressive resumption of medical care. Several medical and surgical societies across the globe have developed lists to guide the decision-making process with regards to reduction of care, mainly focusing on

COVID patients in general. We present a statement with recommendations for MuMCH and other hospitals for urological cases based on published studies as well as expert opinion of the urology guidelines panel of different societies.

### Impact of COVID-19:

COVID-19 appears similar to Severe Acute Respiratory Syndrome Corona virus (SARSCoV) and Middle East Respiratory Syndrome Corona virus (MERSCoV). To date most reports on COVID-19 describe mild to moderate symptoms such as fever, cough and nasal discharge.<sup>1</sup> The prevalence of severe symptoms is higher among old.<sup>1</sup> While most patients themselves may not be severely ill with COVID-19, this pandemic will impact

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on urological care. Careful decisions must be made on what care requires postponement and what care is essential to be continued.<sup>2</sup>

**Suggested reduction in urological procedures:** During various stages of severity of the COVID-19 pandemic, below are recommendations for urological surgical procedures. For stage 1 & 2 suggestions include care that can be postponed. Conversely, for stage 3 & 4 suggestions encompass essential care that should continue if circumstances permit.

**Stage 1:** Start to reduce Urological cases.

High recommendation to postpone:

- BPH with catheter in situ, Urolithiasis without infection and obstruction.
- Benign scrotal & penile surgery: orchiopexy, hydrocele, hernia, circumcision.
- Functional surgery: incontinence surgery, meatotomy.
- Genital reconstructive surgery: hypospadias, buried penis.
- Benign (hemi)nephrectomy.

**Stage 2:** Perform only care that is at least semi-urgent.

Recommendation to postpone:

- Stricture urethra with mild obstructive feature.
- Surgery for vesicoureteral reflux: ureteral reimplantation.
- Pyeloplasty in UPJ obstruction without loss of differential function.
- Urolithiasis without infection or obstruction.
- Endoscopic botulinum-toxin for neurogenic bladder

**Stage 3:** Still perform surgery for urgent cases in which delay will

Cause irreversible progression of disease or organ damage:

- Pyeloplasty in UPJ obstruction with progressive loss of differential function or severe symptoms.

Consider postponing reconstruction and draining the kidney by DJ stent or nephrostomy depending on local situation.

- Nephrolithiasis with recurring febrile infections
- Ureteric stone associated with fever and infection.
- Nephrostomy for pyonephrosis.
- Posterior urethral valves (PUV).
- Obstructive megaureter with progressive loss of differential function.

- DJ stent removal, check cystoscopy for NMIBC, Intravesical chemotherapy,
- Catheterization/ SPC in patient with acute retention of urine.

**Stage 4:** Perform surgery only in cases of organ-threatening or life-threatening disease:

- Urosepsis with obstruction: e.g. urosepsis with urolithiasis, obstructing ureterocele.
- Suprapubic cystostomy for PUDD, severe stricture urethra.
- Ureteric obstruction in solitary kidney, Bilateral ureteral obstruction.
- Trauma with hemodynamic instability (endovascular or Surgical procedures) or urinary leakage.
- Patient with haematuria with urinary bladder tumour.
- Acute ischemia: Testicular Torsion
- Paraphimosis (preferably under local anesthesia).<sup>3</sup>
- Cancer surgery: Urinary bladder neoplasm, renal cell carcinoma, Ureteric growth, Carcinoma prostate, Wilms tumor, malignant testicular and penile tumors. Surgical resection may be considered depending on the local situation, condition of the patient and expected duration and stage of tumour.<sup>4</sup>

Temporary drainage methods for obstruction may be considered as a bridge to definitive surgery. These delays are likely to have consequences for both clinical and basic science research but faculty mentorship and many current projects can continue. We encourage urology residents to enhance their knowledge for research design and analysis by participating free online courses.

### Urological Surgery during the COVID-19 pandemic

Every patient should be screened for COVID-19 prior to surgery. If the test-result is unknown, surgery should be performed as if the patient were positive. The effect of surgery on either the susceptibility to COVID-19 or on the severity of symptoms is yet unknown. Still it may be useful to consider regional or local anesthesia whenever possible to prevent the need for mechanical ventilation.<sup>3</sup> This also limits the use of ventilators and other potentially scarce equipment. The operating theatre poses different risks of exposure compared to non-surgical care. Negative pressure rooms are strongly preferred for intubation / extubation for COVID-19 positive and suspected cases. It is important to limit the number of theatre staff present during surgery on a

COVID-19 positive patient.<sup>4</sup> Diathermy smoke is a potential risk factor in spreading the Corona virus, as surgical smoke has been shown to contain several viruses in the past.<sup>5,6</sup> Aerosols from ultrasonic scalpels may pose a higher risk due to their lower temperature compared to aerosols from conventional diathermy.<sup>7</sup> It is advisable to use suction devices as much as possible. There is no conclusive evidence regarding the differences in risks of open versus laparoscopic surgery for the surgical team.<sup>8</sup> However, laparoscopic surgery may be associated with a higher amount of smoke particles than open surgery.<sup>9</sup> During laparoscopy surgical smoke is released into theatre under pressure at several stages of surgery. It is advisable to keep intraperitoneal pressure as low as possible and to aspirate the inflated CO<sub>2</sub> as much as possible before removing the trocars.<sup>7,10</sup> In order to minimize the use of operating room time and optimize the use of resources surgery should be performed by experienced surgeons.<sup>10</sup> For COVID-19 positive or suspected patients both patients and healthcare workers should wear N95 respirators if available.

### **Outpatient care with urological problems**

While the goal of urologists must be to maintain as high as possible standard of care, the number of patients attending the outpatient clinic must be reduced in order to minimize the chance of infecting patients or health care providers, as well as preserving personal protective equipment. Each individual case should be screened for the possibility of replacing an outpatient visit by consultation via telephone or video-call, when available. A telephone consultation may also be used to screen for the need for physical consultation. If a physical outpatient clinic visit is necessary, the patient should be accompanied by only a single caregiver. Prior to the outpatient clinic visit it is also necessary to assess if either patient or caregiver have symptoms that may be COVID-related. If there are COVID-19 symptoms, patient or caregiver has been tested positive for COVID-19 or are in quarantine, they should be seen in a COVID dedicated area of the hospital without interaction with other patients.

Suggested reduction in outpatient clinic visits during various stages of severity of the COVID-19 pandemic

**Stage 1:** Start to reduce outpatient cases such as benign scrotal and penile pathology or well as incontinence, Uncomplicated UTI, Mild lower urinary tract symptoms, BPH with mild symptoms.

**Stage 2:** See only cases that are at least semi-urgent, such as varicocele, stricture urethra with mild obstruction, urolithiasis without obstruction or infection. Consider postponing prolonged (post-operative) follow up in stable patients.

**Stage 3:** Continue care for urgent cases in which delay may cause irreversible progression of disease or organ damage. Testicular torsion, genitourinary trauma, follow-up of malignant cases after surgery, evaluation of gross haematuria, acute retention of urine.

**Stage 4:** Continue all care for cases in which a delay of care is potentially organ-threatening or life-threatening. Evaluation of malignant cases.

### **Safety measures and precautions for Urology staff**

As the infection rate of COVID-19 is reported between 40 and 70%, urology teams should be prepared for the chance to become infected and consider splitting up into 2 teams, aiming to assure the continuity in the hospital of at least 1 team.<sup>4,11</sup> Healthcare workers may be anxious about contracting COVID-19 and this causes an additional stress in already strained working conditions. Hospitals must ensure that staffs are sufficiently informed about COVID-19 disease, and trained in the use of protective equipment, isolation and infection control measures prior to any contact with patients.<sup>12</sup>

When available simulation exercises and e-learning, may aid to ensure optimal quality of care of COVID-19 patients and to maximally reduce the risk of viral transmission to other patients or healthcare workers.<sup>13</sup> Maintaining good mental health of all medical staff is extremely important to ensure a safe working environment<sup>14</sup>. Authority should be aware of the importance the mental health of their staff and maintain contact with all staff members on a regular basis. In addition to following local protocols, staff should be aware that in patients with clinical recovery from COVID-19 both stool and urine may still contain COVID-19 when oropharyngeal swabs have become negative<sup>15</sup>.

### **Resumption of surgical care after the COVID-19-pandemic peak**

While it cannot be predicted when we will be able to revert back from the high stages of the COVID-19 pandemic and resume more normal levels of care, we do need to plan ahead on how to do this. The most logical step will be to reverse back through the aforementioned stages. During this process we will need

to confer with our fellow surgical (sub) specialties to prioritize the available surgical time and resources among all surgical patients. While it is wise to postpone surgery in cases of obstructive uropathy during the advanced stages of the COVID-19 pandemic, there is a risk of loss of renal function. The challenge will be to minimize this loss in young patients who have their whole lives ahead of them, particularly if the pandemic continues for a prolonged period of time. Undoubtedly there will be cases of congenital abnormalities where the optimal surgical timepoint will be surpassed, such as hypospadias and cryptorchidism. These patient may be at risk for suboptimal outcome or increased psychological burden due to delayed surgery and should be prioritized in the long waiting list that we will undoubtedly be facing on the other end of this crisis.

#### Conclusion:

While we are working to have a plan to manage this pandemic, much consideration should be given for further planning. There is a serious need for set up with parallel healthcare systems, where we need hospitals that continue to cater for emergencies and cancer management and on the other hand institutions that could potentially share the burden to manage pandemic cases. The current recommendations are based on the limited data available in the literature and are subject to changes.

#### Conflict of interest:

The authors declare that there are no conflicts of interest regarding the publications of this manuscript.

**Limitations:** Scarcity of the source of information's.

#### References

1. Ficarra V, Novara G, Abrate A, Bartoletti R, Crestani A, De Nunzio C, et al. Urology practice during COVID-19 pandemic. *BJU Int* 2020; 89:264e8.
2. Ludvigsson JF. Systematic review of COVID-19 in children show milder cases and a better prognosis than adults. *Acta Paediatr* 2020. <https://doi.org/10.1111/APA.15270>.
3. Broderick KM, Martin BG, Herndon CDA, Joseph DB, Kitchens DM. The current state of surgical practice for neonatal torsion: a survey of pediatric urologists. *J Pediatr Urol* 2013;9:542e5.
4. Brindle M, Gawande A. Managing COVID-19 in surgical systems. *Ann Surg* 2020:1.
5. Capizzi PJ, Clay RP, Battey MJ. Microbiologic activity in laser resurfacing plume and debris. *Laser Surg Med* 1998;23:172e4.
6. Johnson GK, Robinson WS. Human immunodeficiency virus-1 (HIV-1) in the vapors of surgical power instruments. *J Med Virol* 1991;33:47e50.
7. Zheng MH, Boni L, Fingerhut A. Minimally invasive surgery and the novel coronavirus outbreak. *Ann Surg* 2020;12:33-40
8. The British Association of Paediatric Endoscopic Surgery. BAPES Statement: coronavirus (COVID-19) and endoscopic surgery. 2020. <https://static1.squarespace.com/static5c547dd3d7819e06b90a19ae/t/5e77f0e555c6b75f308db801/1584918761408/BAPES+COVID19+2203.pdf>.
9. Li CI, Pai JY, Chen CH. Characterization of smoke generated during the use of surgical knife in laparotomy surgeries. *J Air Waste Manag Assoc* 2020;70:324e32.
10. Mottrie Alex, Puliatti Stefano, Mazzone Elio, ERUS. ERUS (EAU robotic urology section) guidelines during COVID-19 emergency. 2020. [https://uroweb.org/wp-content/uploads/ERUS\\_guidelines\\_for-COVID-def.pdf](https://uroweb.org/wp-content/uploads/ERUS_guidelines_for-COVID-def.pdf).
11. American College of Surgeons Committee on Trauma. Maintaining Trauma center access and care during the COVID-19 pandemic: guidance document for Trauma medical directors. 2020. [https://www.facs.org/-/media/files/quality\\_programs/trauma/acs\\_cot\\_statement\\_on\\_maintaining\\_trauma\\_center\\_access.ashx](https://www.facs.org/-/media/files/quality_programs/trauma/acs_cot_statement_on_maintaining_trauma_center_access.ashx).
12. Alsahafi AJ, Cheng AC. Knowledge, attitudes and behaviours of healthcare workers in the kingdom of Saudi Arabia to MERS coronavirus and other emerging infectious diseases. *Int J Environ Res Publ Health* 2016;13.
13. Wong J, Goh QY, Tan Z, Lie SA, Tay YC, Ng SY, et al. Preparing for a COVID pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore. *Can J Anesth Can d'anesthésie* 2020. <https://doi.org/10.1007/s12630-020-01620-9>.
14. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatr* 2020;7:e15e6.
15. Ling Y, Xu S-B, Lin Y-X, Tian D, Zhu Z-Q, Dai F-H, et al. Persistence and clearance of viral RNA in 2019 novel coronavirus disease rehabilitation patients. *Chin Med J (Engl)* 2020:1.