

## Is Uro-oncological Surgery Safe During the COVID-19 Pandemic? Comparative Morbidity and Mortality in Patients Undergoing Surgery 2019-2020

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The SARS-CoV-2 infection has resulted in an unprecedented pandemic and with it, lots of international efforts have been made to guide health care workers and to optimize resources to address this crisis<sup>(1)</sup>. One of the most important efforts is graphed in the European Association of Urology's guideline (April, 2020) followed by many countries, but recently called into question by A. Kashi in its last editorial article<sup>(2)</sup>. Due to this guideline, many elective surgeries had to be suspended or postponed, providing only time-dependent surgeries, such as emergency surgical pathologies or oncological surgeries<sup>(3)</sup>.

Patients undergoing oncological surgery, represent a vulnerable group to SARS-CoV-2 infection. Additionally, they have a higher risk of suffering pulmonary complications due to the pro-inflammatory surgical effect, immunosuppressive response, and mechanical ventilation<sup>(4,5)</sup>. But in practice, there is currently limited data on the mortality and complications of infected patients undergoing uro-oncological surgery, with few series reports on surgical outcomes during this time. International studies have reported 30-day mortality of 20-25%, respiratory morbidity of 50-51.2%, and mortality of patients with specific respiratory morbidity that reaches 38%<sup>(6-7)</sup>.

We made an observational study based in a prospective database of urological oncological surgery. Its data were obtained during the 2020 mandatory confinement period compared to the same period in 2019 with 45 days of post-surgery follow-up. A specific analysis of morbidity and mortality was made for all patients submitted to the department's uro-oncological surgery subgroup. Demographic, clinical, and perioperative variables such as age, sex, specific comorbidities, and pre-surgical global comorbidity were recorded through the Charlson comorbidity score, used to guide the global state of comorbidity in the groups studied. The type of surgery, the approach, the type of anesthesia, time of hospital stay, mortality, and morbidity were also added as variables according to the Clavien-Dindo classification (CD) and the Comprehensive Complication Index (CCI) for postoperative complications<sup>(8)</sup>. The objective was to compare surgical morbidity and mortality during the pandemic versus an average year in urological cancer surgery to determine the safety of the surgery.

During the studied period, 684 surgeries were performed in 2019 and a total of 265 surgeries were performed during the equivalent period in 2020. The detail of the distribution of surgeries is presented in Figure 1. Regarding the specific analysis of the uro-oncological surgery subgroup, in 2019, 165 oncological urology surgeries were performed versus 85 in 2020. For global comorbidity, the median of the Charlson comorbidity score were 5 and for respectively (both IQR=3). Specific comorbidity frequencies showed no important difference between both group (2019 and 2020) and having  $\geq$  two comorbidities were no related with greater CD or CII. The variables measured in the surgical procedures did not show significant differences either.

The Clavien-Dindo post-surgery morbidity  $\geq 3$  in 2020 was 2.3% (n=2), and 6% in 2019 (n=10). In 2020, 9 patients were readmitted (10.5%). One patient (1.1%) was re-interfered, with a perioperative mortality of 1.1%. In 2019, 21 patients (12.7%) were readmitted. Seventeen patients (10.3%) were re-interfered, with a perioperative mortality of 1.8%. The median number of days hospitalized was 2 (IQR=2) in 2020 and 3 (IQR=3) in 2019. Specific respiratory morbidity was also studied, present in 1.2% (n= 2) of those operated on in 2019, and keeping a null incidence during 2020 (p= 0.308). The perioperative mortality of the sample was 1.8% in the 2019 cohort and 1.1% in 2020 (p= 0.70). Finally, 17 patients (10.13%) from the 2019 serie were re-operated, versus a single patient in 2020 (1.1%) (p= 0.008).

Regarding the procedure, in our Center, when the COVID-19 pandemic status was declared, our institution proposed an specific admission protocol graphed in Figure 2. The results displayed there, show us that there were no significant differences in the type of population admitted to uro-oncological surgery, their demographic classification, or their measured comorbidities, nor was there a difference in the primary outcomes measured: perioperative morbidity and mortality. This could be interpreted, therefore, as the success of the protocol and the measures implemented in our centers.

Kashi's editorial reviewed the outcomes of the different protocols for surgery admission and how they affected to stop the secondary surges of the pandemic, concluding that "postponement is not a panacea for dealing with sequential surges of COVID-19 and the decision to postponement may culminate in doing the surgery in a worse situation". We contribute to the debate showing that postoperative morbimortality reported were lower than those shown in the literature and similar to that historically reported by our centers. We suggest that it is safe to operate patients with urological cancer following the appropriate protocols during a pandemic, and as Kashi mentioned, it should be dependent on the availability of hospital beds, personal protective equipment, and other necessary resources in every specific country or province. The pandemic almost completely changed our way of working,

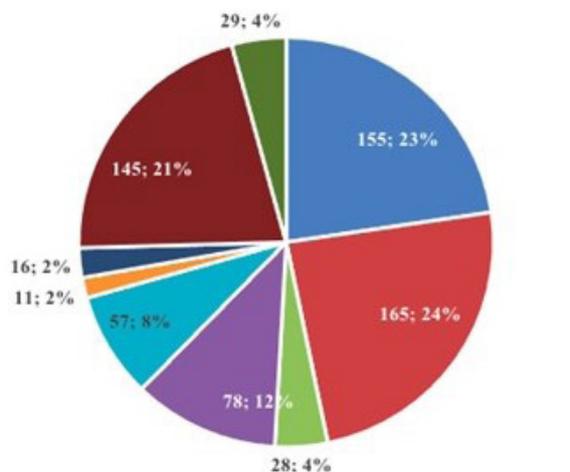
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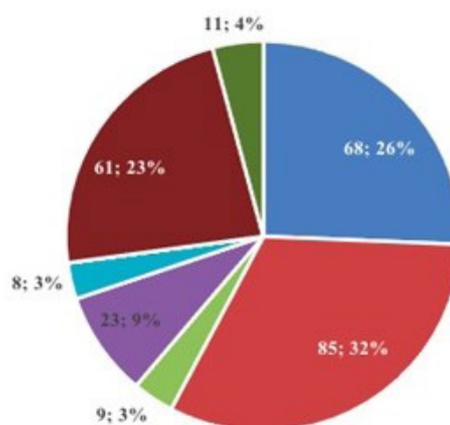
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## 2019 UROLOGIC SURGERIES



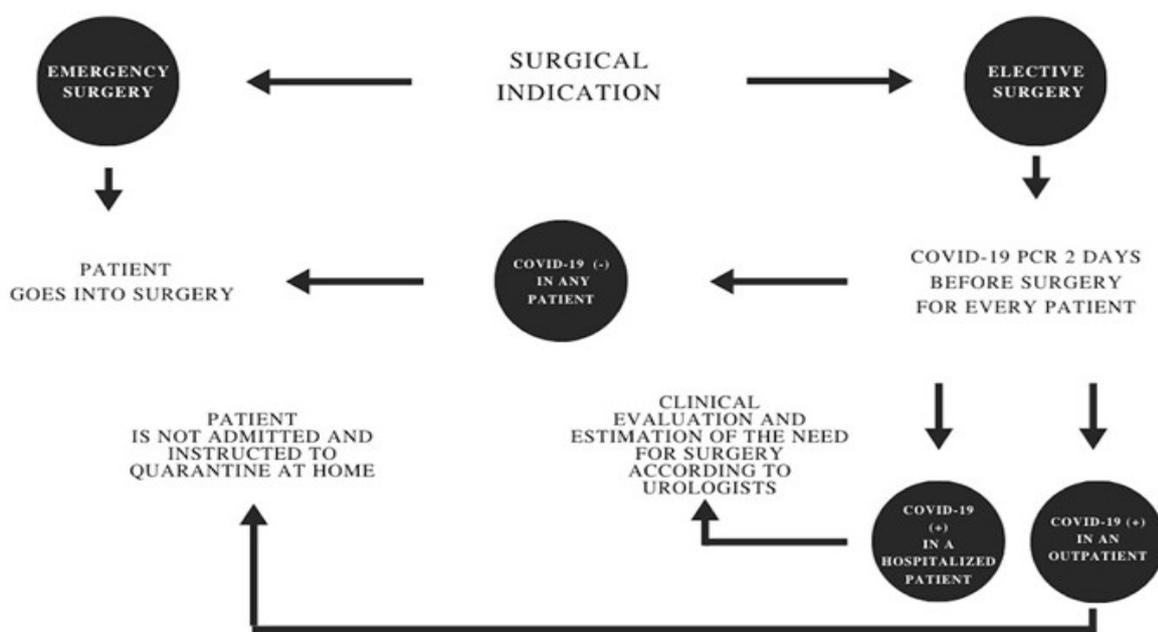
- General Urology
- Uro-Oncology
- Pediatric Urology
- Benign Prostatic Hyperplasia
- Renal Transplants
- Adrenal Surgery
- Pelvic Floor
- Urolithiasis
- Andrology

## 2020 UROLOGIC SURGERIES



**Figure 1.** Detail of the distribution of urological surgeries by subgroup in both years. The figure shows the comparison between the two cohorts and the total number of surgeries and by subtype in each one of them

however, conducting adequate protocols the outcome should not be affected. of patients undergoing genitourinary cancer surgeries



**Figure 2.** Outline of the protocol used in our centers for admission to surgery in COVID-19 related period: In an outpatient surgery, as a preoperative requirement a COVID-19 PCR is requested two days before surgery. If the result is positive for COVID-19, the surgery is postponed. If the test result is negative for COVID-19, the patient can be admitted for surgery. In a hospitalized patient, the case is discussed between the treating team and the operation room management team, always requiring a previous negative COVID-19 PCR result on a recent sample. In an emergency surgery, the patient is operated without delay with the necessary measures to prevent transmission, assuming the patient was positive for COVID-19.

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