

## Surgery at the Time of COVID-19 Pandemic: Forgotten Disease

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### ABSTRACT

SARS-CoV-2 dramatically affected the quality of life of millions of people worldwide. The healthcare systems are rearranging their resources to pursue surgical activity, but delays were inevitably expected, especially for benign hepato-biliary-pancreatic disease, such as gallstone disease.

To analyze the entity of the COVID-19 related effects on surgical activity for cholelithiasis, surveys were distributed to surgeons in different institutions across the world. Data showed that beds of intensive care units were mainly dedicated to SARS-CoV-2 patients. COVID-19 infections also affected part of the health caregivers, sometimes not adequately trained to the new operating room settings. As a consequence, elective surgeries for gallstone diseases which represents one of the most common surgical procedures were postponed, and medical treatments were preferred whenever possible, resulting in high risk of developing gallstones disease-related morbidity. An alarming decrease of laparoscopic cholecystectomies was recorded, unless emergency situations were encountered.

The COVID-19 pandemic significantly decreased the surgical management of different diseases, such as gallstone disease, resulting in a huge number of untreated patients who could develop severe morbidity. Day surgery and ambulatorial procedures could provide effective solutions to face the current emergency situation, as well as specific dedicated COVID-19-free pathways for patients affected by benign surgical diseases.

**Keywords:** Gallstone disease; Cholecystectomy; Elective surgery; COVID-19 pandemic; SARS-CoV-2

### ABBREVIATIONS:

COVID-19: Coronavirus Disease 2019; GD: Gallstone Disease; ICU: Intensive Care Unit; OR: Operating Room; SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2

### COMMENTARY

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection deeply affected entire countries and it is still responsible for uncountable deaths worldwide. Many countries were totally unprepared by the consequences of the coronavirus disease-19 (COVID-19) either on the whole society –for the severe lockdown and restrictions–nor on healthcare systems. Even if much has been learned about the COVID-19 during the last months, too many questions are still unanswered and researchers are desperately struggling to better understand the COVID-19 behaviors.

Routinely scheduled surgery was abruptly interrupted or delayed after the COVID-19 spread, since the majority of medical resources

and intensive care units (ICU) were fully employed to treat COVID-19 patients [1]. Therefore, most “non-urgent” scheduled surgeries for benign diseases were cancelled, prioritizing more urgent oncological cases, which were to be postponed as less as possible.

Hepato-biliary-pancreatic (HBP) surgeries did not make exception, since plenty of surgical procedures were delayed or cancelled due to COVID-19 pandemic. The most dreadful consequences were experienced by those patients who were affected by hepatobiliary or pancreatic tumors that require a short time treatment window whose diagnosis or care were delayed [2]. The benign HPB surgeries have been almost completely suspended or limited, thus leading complications and morbidity that often require hospitalization and further medical treatment [1].

Postponements on surgical activities also occurred due to the COVID-19 spread among the medical personnel, sometimes not adequately trained, and then forced to be quarantined accordingly to

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achieve a proper and prompt healing. Thus, SARS-CoV-2 screening test, such as serologic exams with CLIA or ELISA methodology or PCR-based nasal or pharyngeal swabs, were intensified to earlier detect and treat COVID-19 positive patients accordingly to their clinical condition.

Nevertheless, several COVID-19 surgical guidelines were conveyed in order to provide the best patients' care not only for oncological procedures, but also for benign, elective or emergency surgery, both in COVID-19 positive and negative patients [3]. The common overarching goal is to provide patients with a timely surgical care when presenting urgencies, but also optimizing resources and preserving the health of caregivers [4].

Due to the lack of medical resource in many scenarios across the world, attempts of surgical management should not be pursued when satisfactory results aren't accomplished in order not to waste the scarce supplies. Hence, multidisciplinary meetings should discuss the use of surgery, evaluating its risks and benefits in accordance with the phase of the COVID-19 spread in each country [4].

Cholelithiasis is one of the most common medical issues, affecting roughly 20% of the population [5]. Patients with cholelithiasis are symptomatic in one third of the cases, for whom the laparoscopic cholecystectomy is the standard of care [6]. An international survey on the management of gallstone disease (GD) during the COVID-19 pandemic (MEGAVID study) showed an alarming decreased rate in cholecystectomy for symptomatic cholelithiasis during the COVID-19 outbreak in multiple countries[1], despite it represents one of the most performed surgery between the general population.

The preferred management of GD through COVID-19 pandemic included the use of antibiotics and painkillers for symptomatic and chronic subjects [1,4]. The laparoscopic cholecystectomy or when required - the endoscopic retrograde cholangio-pancreatography were reserved only to refractory cases, while non-responder patients carrying a prohibitive anesthesiologic risk underwent percutaneous cholecystostomies [1,4].

The COVID-19 spread influenced also the commitment to minimally invasive approaches [1,3]. In fact, at the beginning of pandemic, in order to not expose the operating room (OR) staff to the deflating trocars aerosol, the traditional laparoscopic surgery has been mainly recommended if specific filters were applied on the operating trocars. Even if the SARS-CoV-2 is a respiratory virus transmitted through aerosolization and droplets, it could also be encountered in the body fluids, so the exposition to any aerosolization (i.e., from venting of insufflation gases or electrocautery) must be always avoided [7].

Nevertheless, laparoscopic procedures have not been completely considered safe, unless further precautions, such as higher air exchange cycle rates in the OR as well as filtering and evacuation systems for pneumoperitoneum gases, were adopted to reduce the risk of viral transmission[1,8]. Moreover, disposable materials are commonly preferred over reusable instruments and alcoholic solutions to sanitize hands must be always easily accessible [3]. Likewise, healthcare providers need to be adequately supplied with personal protective equipment to reduce the COVID-19 contagion, trying to guarantee reasonable standards of care to all patients affected by GD.

As well-known, laparoscopic procedures allow prompter healings

than open surgery, reducing hospital stays and post-operative infections [5,6]. To solve the dramatic decrease of surgical laparoscopic procedures, specific pathways for COVID-19-free patients might represent a valid alternative, as successfully adopted by several hospitals investigated in the MEGAVID survey [1]. For these patients who do not need ICU stay, the ambulatory surgery might be an efficacious solution both for its cost-effectiveness [9] and to minimize the risk of COVID-19 diffusion by patient-to-patient interactions. On this regard, in many countries, to overcome this problem, the patients were asked to self-quarantine for 14 days prior to surgery even if the preoperative SARS-CoV-2 PCR test (always required before the operation) was negative.

Despite the MEGAVID survey is limited by the rapidly changing scenario of the COVID-19 pandemic, the results are able to provide a clear idea of the "COVID-19 effects" on the treatment of GD and the approaching to laparoscopic procedures.

Many efforts were made in the management of surgical patients since COVID-19 was declared as a public health emergency on March 11, 2020, thus epidemiology studies are required in order to better understand the real influence over time of delaying the surgical window of HPB benign disease.

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