

GENERAL RECOMMENDATIONS OF URGENT SURGICAL CARE IN THE CONTEXT OF THE COVID-19 PANDEMIC (SARS COV-2) FROM THE SPANISH ASSOCIATION OF SURGERY (AEC)

- *These recommendations are subject to continuous review, depending on the global situation of the pandemic and the particular needs of each hospital, as well as the recommendations of the competent authorities and the evidence/bibliography that appears in this regard.*
- *It is important to highlight that the current scientific evidence in this regard is minimal and is mainly based on the extrapolation of other similar viral infections or the recommendations carried out by Scientific Organizations or expert meetings.*

1. How important is urgent surgical care in this situation?

Urgent surgical care has a fundamental role in this pandemic situation that we are experiencing since it is the only one that cannot be delayed or suspended.

In this way, our main objective must be aimed at preserving vital healthcare activity and protecting healthcare personnel, without forgetting the protection of our patients involved and the rest of the hospitalized/general population.

As in other circumstances in which surgeons have had to treat patients with highly infectious diseases or with very high mortality rates, the AEC agrees that the surgeon must attend to all potentially surgical patients. For this, the availability of personal protective equipment (PPE) and suitable masks (N95, FFP2, FFP3) must be required in each center.

2. How do we organize a Surgical Emergency Service at present?

Urgent surgical assistance must be ensured at all times, taking into account the general and organizational recommendations suggested by the AEC, with local adaptation coordinated with the device designated in each center for managing the current situation.

The number of professionals required for surgery should be minimized as much as possible and their degree of training and/or experience should be maximized.

3. What digestive symptoms do patients with COVID-19 present?

Extra-respiratory involvement by COVID-19 is very rare and is usually restricted to nonspecific symptoms (nausea, vomiting, epigastric discomfort...) and very exceptionally hepatotoxicity, mainly due to some of the treatments used.

Digestive symptoms, especially diarrhea (also nausea) may precede the respiratory symptoms. These patients may have a worse prognosis since it seems related to an increase in the viral load and therefore an increase in complications.

Forms of presentation of COVID-19 have been reported with gastrointestinal symptoms that simulate surgical diseases, mainly in a way similar to an acute pancreatitis (pancreatitis-like) picture, so its detection should be considered in patients presenting with this clinical picture, even without respiratory symptoms.

4. Should a SARS-CoV-2 screening test be performed in all patients with urgent surgical pathology?

SARS-CoV-2 screening is strongly recommended for every patient with surgical disease in the current epidemiological context, even in asymptomatic patients. This recommendation includes urgent surgical patients as the main target population.

Previously defined respiratory symptoms for SARS-CoV-2 coinfection must be investigated: fever, dyspnea, cough, anosmia, ageusia... as well as suggestive analytic markers like lymphopenia, thrombocytopenia, normal procalcitonin and high PCR, ferritin, D-dimer or abnormal enzymatic levels (LDH, AST/ALT).

Although the investigation of these symptoms mainly involves the initial contact of the patient with the Emergency Department, surgeons must strictly verify that this information has been collected and, if not, obtain it appropriately in the first contact with the potential patient with surgical urgency.

5. What test should we perform in patients with urgent surgical pathology?

For COVID status determination, available tests are recommended, performed independent or simultaneously with the diagnostic process of the urgent surgical pathology. Ideally, availability of quick tests warrants results in 10-15 minutes, lapse of time that may be delayed in all cases, but they are not available in all centers and their low sensitivity has been reported. Results of regular tests with PCR for SARS-CoV-2 RNA delays 6-8 hours, and the decision must be made to wait for or to operate without them, based on the time-dependent nature (and therefore the impossibility of delaying) of the pathology. Especially in the latest, though universal indication is recommended, the following diagnostic tests are suggested:

- Chest x-ray: Easy and quick to perform, recommended in all patients even with low suspicion of COVID-19. The possibility of a false negative during the first days of viral infection must be considered.
- Chest CT scan: Today, many abdominal surgical emergencies require a diagnostic abdominal CT scan. With the current evidence of the precocity and high sensitivity of chest CT as a diagnostic method of SARS-CoV-2 involvement, it is recommended that in all patients who are going to undergo an abdominal tomography, the examination be extended to the thoracic cavity. In those cases with US diagnostic and surgery cannot be delayed until disposal of the test results, Chest CT scan must be performed even in patients without viral coinfection symptoms; this indication may be limited to patients with suspected COVID in extremely urgent patients.
- POCUS (Point-of-Care Ultrasound): The portable ultrasound examination is equally effective in diagnosing SARS-CoV-2 lung involvement and prevents patient transfer, although it requires specific training and experienced personnel. The existence of at least 3 B-lines in 2 contiguous intercostal spaces is considered pathological. In those centers with qualified doctors, their diagnostic possibilities should be closely considered.

6. What measures should we take in case of urgent intervention in a confirmed or clinically suspected positive COVID-19 patient?

Follow the general recommendations issued by the AEC in the event of surgical intervention in the context of the current pandemic ([https://www.aecirujanos.es/files/noticias/152/documentos/Manejo_guirurgico_v2\(1\).pdf](https://www.aecirujanos.es/files/noticias/152/documentos/Manejo_guirurgico_v2(1).pdf))

Structurally, it is recommended that the centers have a specific operating room only for COVID-19 confirmed patients. Patients with high clinical or radiological suspicion of viral coinfection with time-dependent pathology and impossibility to wait for test results must be also operated in this area. Specific protection measures (PPE + N95/FFP2/FFP3 masks) must be available for every urgent surgical operation independently of the patient Covid status.

Staff in the operating room must be minimized, entrance of the surgical team (surgeon, assistant/s, surgical technician) must be delayed until the beginning of the surgical procedure and they must exit the surgical theatre before extubation.

7. Should we change the surgical indications for urgent surgical pathology in this situation?

There is great controversy as to the responses that can be made in this regard. Some publications with very few cases have reported a higher rate of viral-related symptoms with a poor prognosis in postoperative courses, as well as a higher rate of complications. This, along with the healthcare pressure of some centers concerning the pandemic, has led to the proposal to change certain common surgical indications for conservative management options (antibiotic treatment in uncomplicated appendicitis, conservative treatment of cholecystitis ...). In contrast, there is a fear that an unsatisfactory evolution will determine a more serious condition that will require a higher level of care that we may not be available, while a decisive surgery may translate to an early discharge. In this context, it is generally recommended **TO CONSIDER NON OPERATIVE MANAGEMENT OPTIONS CLEARLY DEFINED FOR SEVERAL DISEASES ACCORDING TO PATIENT'S GENERAL AND COVID STATUS AND HEALTHCARE CONDITIONS**. Each decision must be individualized and must be based on an accurate diagnosis.

In those patients with suspicion or confirmation of concomitant SARS-CoV-2 infection, consideration of the need for intervention should be especially rigorous in light of the data previously reported, and the severity of the infection should be included in the decision making process.

In any case, it is recommended that each center follows the same indication criteria for surgical urgencies.

In the pandemic context, and according with reports concerning current and progressive hospital occupation, individualized and specific evaluation of patients with doubtful postoperative course is strongly recommended, with a multidisciplinary approach (Anaesthesia, ICU) that supports any final decision. Acute disease, previous general status, provision of care needs and hospital occupation must be taken into account.

8. Should we modify our surgical technique in case of an urgent surgical intervention?

In general, we should not modify our surgical technique, but we can take into account the following recommendations:

- *Surgical approach:* Currently, some evidence has been published regarding viral contamination and personnel exposure that occurs during the laparoscopy through the aerosols generated. However, in contrast, there is information related to the use of electrocautery and aerosolization in open gastrointestinal procedures, as well as greater contact with surgical gloves that could generate micro-breaks on the barrier mechanisms. On the other hand, the repercussion in terms of postoperative stay related to the laparoscopic approach is well known, an element to be especially taken into account in this time of mass occupation. Thus, the general recommendations are to WEIGHT SPECIFIC RISK/BENEFIT PARAMETERS CONCERNING THE USE OF LAPAROSCOPIC APPROACH IN THE PATIENT WITH SURGICAL EMERGENCY AND COINFECTION BY SARS-CoV-2. In the case of opting for the laparoscopic approach, the individual protection procedure must be strictly followed, devices must be used to filter released CO₂, work must be carried out at the lowest possible pneumo-pressure, as long as it does not compromise the exposure of the surgical field, prolonged Trendelenburg positioning should be avoided due to the deleterious effects on the cardiopulmonary function of the COVID patient, the use of energy devices should be limited, specially when used continuously in the same area, **continuous change of surgical instruments should be limited** and the insufflation should be suctioned thoroughly before trocar removal. We refer again to

the recommendations issued in the general document issued by the AEC.

([https://www.aecirujanos.es/files/noticias/152/documentos/Manejo_quirurgico_v2\(1\).pdf](https://www.aecirujanos.es/files/noticias/152/documentos/Manejo_quirurgico_v2(1).pdf)).

- *Surgical technique*: Although it is a general principle of Emergency Surgery to carry out THE GREATEST POSSIBLE BENEFIT WITH THE LOWEST SURGICAL TIME AND MINIMIZING POSTOPERATIVE COMPLICATIONS, its strict compliance at the current juncture is recommended. **Time must be considered when defining a surgical strategy in order to minimize ventilation and exposure, particularly when wearing PPE.** Despite the existence of publications that show a greater risk of viral transmission with the creation of ostomies, related to the presence of the virus in feces, in the current situation it is recommended to minimize high risk anastomoses in order to avoid major complications and the consumption of resources, especially in Intensive Care Units.
- *Surgery must be performed* by the LOWEST NUMBER OF PEOPLE POSSIBLE to carry out the surgery safely and quickly, as well as led by the surgeon who has the most experience at that time to minimize risks, complications and the time of exposure in the operating room.

9. What are the post-operative implications of SARS-CoV-2?

The confirmed or highly suspicious patient should be evaluated postoperatively by a single professional, taking appropriate measures at all times.

There is no clear evidence, but it seems that postoperative complications are greater in this type of patient, in most cases associated with a respiratory infection.

10. What considerations should be raised in the care of the trauma patient in the current situation of the pandemic due to SARS-CoV-2?

The evaluation of a trauma patient must be carried out in the trauma bay with the established protective measures.

Due to the epidemiological context, all trauma patients should be considered as potentially infected and, therefore, extreme individual protection measures should be taken: WATERPROOF COATS, GLASSES, WATERPROOF SHOES AND GLOVES that will be maintained throughout the patient's care: transfer to CT, Rays of Vascular, operating room or ICU. **When procedures with potential of aerosolization have to be performed (as chest tubes placement), extreme protection with complete PPE must be considered.**

The trauma team personnel assigned to initial care in the current situation should be minimized.