

# COVID-19 as a concomitant diagnosis and the emergencies behind COVID-19 mask – a real challenge that requires a multidisciplinary view of the patient

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## Abstract

The etiological cause of Coronavirus infection, which has captured the attention of almost the whole world at the moment, is SARS-CoV2. The clinical picture of coronavirus infection varies from asymptomatic to severe respiratory infection with manifestations of respiratory failure, the development of respiratory distress syndrome and even death. Already in the first months of the coronavirus pandemic in the United States there was a serious decline in the number of patients seeking medical care in the Emergency Department (49.3%) compared to 2019. There is evidence of increased mortality during the pandemic, which causality cannot be directly or associated with coronavirus infection. Even in the context of a global pandemic, we must not forget all other diagnoses and conditions that exist as comorbidity, and emergency care must be provided without delay and delay.

## Keywords

Coronavirus infection, diverticulitis, medicine, surgery

## Introduction

The etiological cause of Corona virus infection, which has captured the attention of almost the whole world at the moment, is SARS-CoV2. This naming was recommended on February 11 by the World Health Organization and subsequently became practically worldwide.

SARS-CoV-2 virus is a single-stranded RNA virus with an affinity for epithelial cells and primarily affects the human respiratory system. Like other coronavirus infections such as SARS-CoV and MERS-CoV, which humanity encountered in 2003 and 2012, respectively, SARS-CoV2 can lead to the development of severe life-threatening disease in some infected patients. Its rapid and widespread

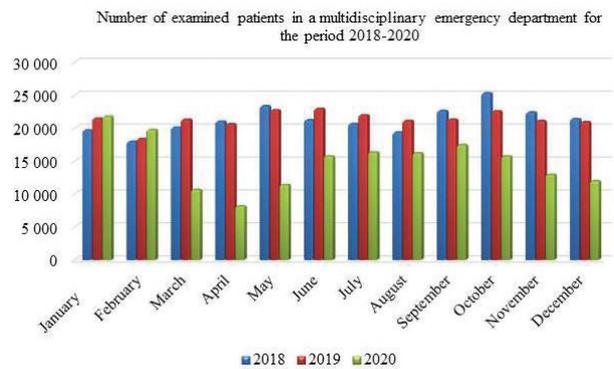
spread, affecting much of the human population, along with the serious course of the disease, led the WHO to declare a “World Pandemic.” The epidemic affects almost every country in less than 6 months, posing a number of challenges to health, the economy and society due to relatively high morbidity and uncontrollably rising mortality (Machhi et al. 2020).

The clinical picture of coronavirus infection varies from asymptomatic to severe respiratory infection with manifestations of respiratory failure, the development of respiratory distress syndrome and even death. In a negligible proportion of patients, the disease is moderate and the frequency of hospitalizations gravitates to 18% depending on age (Guan et al. 2020; Verity et al. 2020). Fever and cough are the leading symptoms in hospitalized patients. (Lovato and Filippis 2020). In milder cases, fever is a less common symptom than gastrointestinal complaints, loss of taste and smell (Sierpiński et al. 2019; Han et al. 2020). To date, a critically small proportion of studies have focused on the study of symptoms in outpatients (Bailie et al. 2020).

Already in the first months of the coronavirus pandemic in the United States there was a serious decline in the number of patients seeking medical care in the Emergency Department 49.3% compared to 2019. A disproportionate decline is observed in pediatric patients, elderly patients and women. Conditions such as syncope, cerebrovascular accidents, renal colic, abdominal pain and back pain are increasingly rare reasons for examinations at the Emergency Centers. The predominant complaints of patients seeking emergency medical care are symptoms of shortness of breath, chest pain, as well as those associated with upper respiratory tract infections. This is an interesting phenomenon, indirectly related to the COVID-19 pandemic, and to everyone’s surprise it is growing alarmingly. The situation thus created requires the attention of specialists as soon as possible to focus on the slowly shifting focus of society mainly on coronavirus infection and the danger that could follow from it – the neglect of other life-threatening conditions and the severe consequences of delayed or untimely adequate care for these conditions within the scope of Emergency Medicine (Boserup et al. 2020; Westgard et al. 2020).

This tendency to reduce the number of patient visits is also observed in the Multi-profile emergency department of UMHATEM “N. I. Pirogov”- Sofia, Bulgaria. Compared to 2018 and 2019, after March 2020 there is a significant decrease in the performed emergency examinations (Figure 1). This decline coincides with the declaration of a State of Emergency in the Republic of Bulgaria. The main reason for seeking medical help are complaints from the respiratory system, namely shortness of breath, cough, at the expense of surgical, neurological urgency and exacerbation of chronic diseases, cardiovascular accidents.

It is time to face the long-term indirect effects of the coronavirus pandemic. Recommendations for social distance, self-quarantine, bordering on self-isolation, and hospital visits only when absolutely necessary have changed patients’ perceptions of the “danger” category. This “ugly” idea has captured a wide range of medical professionals. COVID-19 has become a “leading diagnosis”, shifting



**Figure 1.** Number of examined patients in a multidisciplinary emergency department for the period 2018–2020.

the focus of healthcare from other diseases. For example, on March 13, 2020, the United States declared a state of emergency in response to the coronavirus pandemic. Accordingly, the recommendation to “stay at home” was imposed as an attempt to stop the spread of COVID-19 and reduce the pressure on the health care system. Over the next 10 weeks /March 15–May 23, 2020/ there was a decline in examinations at the Emergency Medical Centers as follows: by 23% for myocardial infarction, 20% for cerebrovascular accidents, 10% for hyperglycemic crises compared to the 10-week period preceding the announced quarantine measures /5 January to 14 March 2019/ and tracking the same diagnoses. Probably some of the factors explaining these changes are health recommendations to reduce the pressure on emergency departments, recommendations to “stay at home” and the fear of people becoming infected with the SARS-Cov2 virus. There is evidence of increased mortality during a pandemic, in which the causes of death cannot be directly or related to coronavirus infection. The significant number of reduced emergency room visits related to life-threatening conditions could explain the increased mortality unrelated to COVID-19. Even in the context of a global pandemic, we must not forget all other diagnoses and conditions that exist as comorbidity, and emergency care must be provided without delay and delay (Lange et al. 2020).

A study by the Israeli Medical Association compared all patients admitted for emergency surgery and trauma in the period March 15–April 15, 2020 with patients hospitalized for the same period a year earlier /control/. The cohort includes 606 patients. During the coronavirus pandemic, a decrease of about 25% was observed ( $P < 0.0001$ ). Patients admitted during the pandemic sought medical attention at a later stage from the onset of symptoms, and were admitted to the hospital in a more serious general condition (Aviran et al. 2020).

Even in a global pandemic, cases in hospitals requiring urgent surgery are a priority. The work of surgical emergency in the context of airborne infection, which has the capacity to become nosocomial, is a real challenge (Ren et al. 2021). Although planned surgeries have been suspended in many countries, patients still need to undergo surgery for malignant neoplasms and / or emergencies such as acute abdominal surgery and polytrauma. All this

requires each system to adapt and provide safe and adequate surgical care for SARS-Cov2-positive patients while minimizing the possibility of nosocomial spread and infection of working medical staff (Heffernan et al. 2020).

Patients with concomitant coronavirus infection who require surgery are at increased risk of complications and mortality. 30-day mortality and surgical complications are more common in patients with concomitant COVID-19 infection – in a total of 701 patients undergoing surgical treatment, 39 /5.6%/ of whom with perioperative COVID-19 infection, 30-day mortality was 12.8% and 1.4% in patients without COVID-19 infection, respectively ( $p < 0.001$ ). It is appropriate in COVID-19 patients to perform only emergency surgical interventions in view of the increased risk of irreversible complications (Inzunza et al. 2020). Patients who underwent surgery had a higher mortality rate if they were diagnosed with COVID-19 after surgery, than if they were diagnosed with COVID-19 before. In addition, higher 30-day mortality was associated with emergency operations, major surgeries, deteriorating general condition before surgery, and those associated with malignancies (Zheng et al. 2020). Perforations of the hollow abdominal organ are a major cause of sudden abdominal pain in patients visiting emergency centers with this symptom. The cause, location of the perforation and the age of the patient are different in developing countries and developed countries. In men, the incidence of this type of complication is three times higher than in women (Hameed et al. 2020).

About 25% of patients with acute diverticulitis at some stage of the disease require emergency surgery. Currently, most patients with peritonitis as a complication of diverticulitis undergo Hartmann-type surgery (Bridoux et al. 2017).

In the presented clinical case, a 59-year-old patient was admitted to the clinic with complaints of severe fatigue, loss of appetite, cough, chills with high fever /up to 38.5°C/, and shortness of breath. The patient has not received regular treatment in an outpatient setting, denies past and concomitant diseases. Due to the complaints he was hospitalized and started complex treatment with antibiotics, vitamins, anti-inflammatory drugs, anticoagulant prophylaxis, mucolytics. On the seventh day of the hospital stay in the morning visit, the patient reported abdominal pain “low down, more to the left”, unresponsive to the applied antispasmodic therapy. The pronounced pain and dyspeptic syndrome required additional diagnostic clarification and in-depth recording of a targeted history of past and concomitant diseases. After a referral, the patient reported a history of colonic diverticulosis. Laterography with Kugel on site /in COVID-19 isolator in view of an-

ti-epidemic measures/ revealed the presence of free gas in the abdominal cavity and many gases in the course of the small intestine and colon. An urgent consultation with a surgeon was conducted. The patient's condition and diagnosis necessitated emergency surgery.

Excerpt from the operative protocol: “The xyphopubic laparotomy revealed fibrinopurulent peritonitis caused by a perforated sigmoid diverticulum. A large amount of purulent exudate was evacuated. The rest of the colon was removed in the form of an unnatural anus, the anus preternaturalis was removed with 6 single sutures with monofilament sutures 3/0 and then a colostomy sac was placed. Abundant lavage with physiological serum. Two drains are placed in the small pelvis. The operative wound is closed in layers in reverse order. A dry sterile dressing is made. “

The postoperative period in the patient runs smoothly, without complications from the concomitant Corona viral infection and good recovery after surgery. During the 15-day hospital stay, he was monitored and treated comprehensively by a surgeon and an internist. The patient is fed, active, without respiratory failure, without shortness of breath and cough, with compensated paraclinical parameters. He is discharged and is subject to follow-up and regular check-ups and dressings on an outpatient basis. The good outcome for the patient is a result of good clinical practice and teamwork of two separate units in a pandemic, requiring isolation as the main approach to dealing with the infection, but not as the main approach to treating patients.

## Conclusion

The remaining diseases have not given way to COVID infection19, although the media and public focus creates an illusory impression of a change in morbidity. On the contrary, they are part of the pathology of patients, they are part of the current reality. In their daily work in a pandemic environment, medical professionals face a new challenge – to accept the idea that patients treated in newly created “isolators” should not be “isolated” from multidisciplinary medical care and teams. The diagnosis of COVID-19 does not exclude the whole spectrum of diseases specific to all specialties. The key moment with emergencies, the subject of Emergency Medicine, is when any delay can be fatal. These patients require even more attention not only because of the often unpredictable evolution of the coronavirus infection itself, but also because of the need for good management of the diagnosis, treatment, and recovery of all those emergencies arising from SARS-CoV2 (+) hospitalized patients.

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