



Acute Appendicitis in a COVID-19 Patient—Surgical Dilemma and Operative Challenges

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Received: 12 July 2020 / Accepted: 11 December 2020 / Published online: 16 January 2021

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To the Editor,

The diagnosis of acute abdominal pathologies may be problematic in COVID-19 patients as fever and abdominal pain, and elevation of acute phase reactants can be seen in both conditions. Treatment is challenging because operative interventions carry risks for the patient and healthcare workers (HCW). Here, we summarized a confirmed COVID-19 patient with acute appendicitis early after antiviral treatment.

A 75-year-old man presented with fever, fatigue, and myalgia since 3 days. He had hypertension and grade 2 chronic renal disease for many years. The physical examination was unremarkable except fever (38.5 °C). Thorax computerized tomography (CT) revealed typical infiltration for COVID-19; nasopharyngeal swab was positive for SARS-CoV-2. He was hospitalized, treated with favipiravir for 5 days according to Turkish National Guideline on COVID-19, and fever was resolved [1].

Two days after antiviral treatment, fever up to 39 °C and progressive diffuse abdominal pain emerged. Abdominal examination revealed mild tenderness without defense and rebound. Leukocyte count was 4400 μ L, lymphocytes 306 μ L, CRP 8.79 mg/dL (0–0.8), ferritin 516 μ L (20–336). After consultation with general surgery, abdominal CT was performed and acute distal appendicitis with an appendicolith was diagnosed (Fig. 1). Oral intake was discontinued, and parenteral antibiotics (ceftriaxon + metronidazole) were started. During follow-up, abdominal stiffness, tenderness, and defense emerged within 24 h, and decision to perform

appendectomy has given. Vital signs, leukocyte and creatinine level were as follows before surgery: pulse 90/min, body temperature 37.8 °C, leukocyte count 5200 μ L, creatinine 1.15 mg/dL. Written informed consent was taken from the patient. For renal protection, volume and blood pressure controlled optimally and avoided from nephrotoxic drugs during and after surgery. The operative team consisted only essential staff: two surgeons, one anesthesiologist, one nurse, and one technician dressed with full personal protective equipment (face shield, eye glasses, FFP3 mask, two gloves, coif, surgical overalls). Patient transferred according to our hospitals' protocol to the operation theater, designated for COVID-19. Operation theater has negative pressure, viral filters, restricted access, and separate dressing room. All equipment and medications used during operation were ready inside the room ahead of the surgery. Open appendectomy was performed in 25 min by senior surgeon under spinal anesthesia according to international guidelines [2]. The patient recovered without any complications.

The clinical spectrum of COVID-19 is heterogeneous. Beside fever, cough, fatigue, shortness of breath, recently, nausea and vomiting was added to possible COVID-19 symptoms [3]. The emerging of new symptoms in our patient was compatible with the worsening of COVID-19 [4]. However, common symptoms and the strict isolation procedures can lead to mis- or underevaluation of the COVID-19 patients. Physicians should keep in mind all other abdominal pathologies in the differential diagnosis of abdominal pain in COVID-19 patients.

Surgery is still the gold standard for most of the appendicitis cases [5, 6]. During COVID-19 pandemic, surgery, especially in an elderly patient with active pneumonia, had higher risk of morbidity, mortality, and viral transmission [7]. Emergency surgeries are inevitable, must be performed under universal isolation precautions for COVID-19 [8]. Spinal anesthesia may prevent from the risks of aerosol generation and must be used whenever possible [9]. Operating these patients by a senior surgeon with a small team may also shorten

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Fig. 1 White arrow, appendicolith in proximal appendix lumen

operating time, reduce the possible complication rates, and viral transmission risk of HCW. Cooperative and multidisciplinary approach has been very important to provide best results under these extraordinary conditions.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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