Postoperative Coronavirus Disease 2019 Infection in a Patient with Recurrent Colon Carcinoma: First Surgical Case Experience in the Pandemic

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Abstract

Coronavirus disease 2019 (COVID-19) is a disease that can present in different ways depending primarily on the age, gender, presence of comorbidities, and immune status of the patients. In this report, we aimed to present the case of detection of postoperative COVID-19 infection in a patient with a diagnosis of recurrent colon tumor. This case was also the first surgical case of COVID-19 infection at the general surgery clinic of the oldest university hospital in Istanbul. A 73-year-old male patient underwent surgery owing to recurrent colon carcinoma. He did not have any known lung disease. Complementary colectomy, splenectomy, and liver metastasectomy were performed. He was discharged on postoperative day 8. However, the patient was admitted to the emergency room again the next day because of vomiting and abdominal distention. There were no active leakage findings on radiologic screening. Despite antibiotherapy, the patient continued to have high C-reactive protein levels during follow-up, and he also had a fever and respiratory difficulties. The findings on chest computed tomography scan indicated bilateral pneumonic infiltrations and acute respiratory distress syndrome. The patient tested positive for COVID-19 with the polymerase chain reaction test. Despite intensive care support, the patient died of COVID-19 pneumonia. Despite the COVID-19 outbreak, urgent surgical procedures and oncological surgeries continued to be performed. Many complications can be seen in oncological patients after surgical procedures. In this case, we saw that surgical complications and COVID-19 symptoms can overlap during the postoperative period.

Keywords: Colon carcinoma, coronavirus disease 2019, pneumonia, surgery

Nüks Kolon Karsinomu Olan Hastada Postoperatif Dönemde COVID-19 Enfeksiyonu: Pandemideki İlk Cerrahi Tecrübesi

Öz

COVID-19, esas olarak hastaların yaşına, cinsiyetine, komorbid hastalık varlığına ve bağışıklık durumuna bağlı olarak farklı şekillerde ortaya çıkabilen bir hastalıktır. Nüks kolon tümörü tanısı ile ameliyat edilen ve COVID-19 tespit edilen olguyu sunmayı amaçladık. Olgu aynı zamanda İstanbul'daki en eski Üniversite Hastanesi Genel Cerrahi Kliniğinde COVID-19 tanılı ilk cerrahi olguydu. Yetmiş üç yaşında erkek hasta nüks kolon karsinomu nedeniyle ameliyat edildi. Bilinen bir akciğer hastalığı yoktu. Tamamlayıcı kolektomi, splenektomi ve karaciğer metastazektomi operasyonu yapıldı. Postoperatif 8. günde taburcu edildi. Ancak hasta ertesi gün kusma ve karın şişliği nedeniyle acil servise başvurdu. Radyolojik görüntülemede aktif anastomoz kaçağı bulgusu yoktu. Antibiyoterapiye rağmen hastanın takibinde yüksek CRP değerleri devam etti ve ayrıca ateş ve solunum güçlüğü vardı. Toraks BT'deki görünüm bilateral pnömonik infiltrasyonlar ve ARDS ile uyumlu idi. COVID-19 için yapılan PCR testi pozitifti. Yoğun bakım desteğine rağmen, hasta COVID-19 pnömonisi nedeniyle kaybedildi. COVID-19 salgınına rağmen acil cerrahi işlemler ve onkolojik ameliyatlar yapılmaya devam edilmektedir. Onkolojik hastalarda cerrahi operasyondan sonra birçok komplikasyon görülebilir. Olgumuzla ameliyat sonrası dönemde cerrahi komplikasyonların ve COVID-19 semptomlarının üst üste gelebileceğini gördük.

Anahtar Kelimeler: Kolon karsinomu, COVID-19, pnömoni, cerrahi

Health authorities in Wuhan, China, identified a group of pneumonia cases with an unknown etiology in December 2019. The cause of the disease was identified as a novel coronavirus (severe acute respiratory syndrome coronavirus-2 [SARS-CoV-2], previously known as 2019-nCoV). The coronavirus disease 2019 (COVID-19) had spread throughout China, and the World Health Organization officially declared the COVID-19 epidemic as a public health emergency of international concern. The disease then spread world-

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wide in only 2 months with a high transmission rate and still causes severe mortality and morbidity [1-3].

Herein, we aimed to present the case of detection of postoperative COVID-19 infection in a patient with a diagnosis of recurrent colon tumor. This was also the first surgical patient with COVID-19 at the general surgery clinic of the oldest university hospital in Istanbul. In this case, we saw that surgical complications and COVID-19 symptoms can overlap during the postoperative period.

Case Presentation

A 73-year-old male patient who underwent sigmoid resection and Hartmann procedure 3 years ago owing to an obstructive tumor was admitted to our clinic with recurrent and metastatic colon tumor. Hypermetabolic lesions between the intestinal loops, 2 metastatic lesions, and 2-cm lesions in liver segments 4 and 8 were detected through positron emission tomography-computed tomography (CT). The patient had a history of cerebrovascular attack, myocardial infarction, and congestive heart failure with no known lung disease. The patient was presented before a multidisciplinary tumor board and examined thoroughly. Owing to the metastatic lesions that do not respond to adjuvant chemotherapy and recurring colon cancer, surgery was decided to be the best choice of treatment for the patient.

The operation was performed just before the COVID-19 pandemic was reported in Turkey. During laparotomy, the patient underwent total colectomy with ileorectal anastomosis and splenectomy after widespread metastatic lesions were seen on the colonic mesentery and spleen. The lesions in liver segments 4 and 8 were also excised. There were no complications, and the patient was discharged on postoperative day 8 with an abdominal drain. The abdominal drain was not removed because drain discharge was continuous. It was scheduled to be removed in follow-up.

The patient was admitted to the clinic again on the day after being discharged with slight abdominal distention. Although bowel sounds had decreased, he had flatus and stool discharge. There was no significant drainage from his abdominal drain. A nasogastric tube was inserted, and 600 mL of fluid discharge was noted in 24 hours. Abscess or collection of fluid was not detected in the abdominal CT. Abdominal fascia had partial dehiscence, but the skin was intact. His laboratory results on the readmission day were as follows: leukocyte count, 17,600/μL; hematocrit (hct), 35.1%; lymphocyte count, 1,400/μL; albumin, 3.08 g/dL; aspartate aminotransferase, 39.2 units/L; and alanine aminotransferase, 31.3 units/L. The chest x-ray of the patient was unremarkable (Figure 1).

Figure 1. Chest x-ray of the patient on the day of readmission

On the first day of readmission, a combination of meropenem and teicoplanin was administered to the patient on extended-spectrum beta-lactamase (+) *Escherichia coli* reproduction in the patient's drain culture.

On the third day of readmission, the patient had a fever (39°C) and sudden wheezing. His laboratory results were as follows: leukocyte count, 11,100/μL; hct, 29.6%; lymphocyte count, 400/μL; albumin, 2.4 g/dL; and C-reactive protein (CRP) level, 296 mg/mL. There was minimal infiltration in the lower lobe of the right lung and no evidence of pneumonia in the chest x-ray. The patient was consulted with pulmonary diseases and infectious disease clinics. Antibiotic treatment was arranged as vancomycin and teicoplanin. Bronchodilator therapy was added as well.

On the fifth day of readmission, the CRP level had increased to 318 mg/dL and leukocyte count to 15,042/μL despite the treatment. Low-flow nasal oxygen therapy was started. However, high fever and respiratory distress continued. Perihilar fullness and pneumonic infiltrations were observed at the bottom of the right lung on the chest x-ray (Figure 2).

On the sixth day of readmission, despite the high-volume nasal oxygen support, the patient experienced remarkable respiratory distress and tachycardia (132 beats/minute). Blood-gas analysis results of the patient were as follows: pH, 7.54; pO_2 mm Hg, 48.4; pCO_2 mm Hg, 45.3; lactate, 5.1; SO_2, 85.8 mm Hg. The patient was taken to the intensive care unit (ICU).

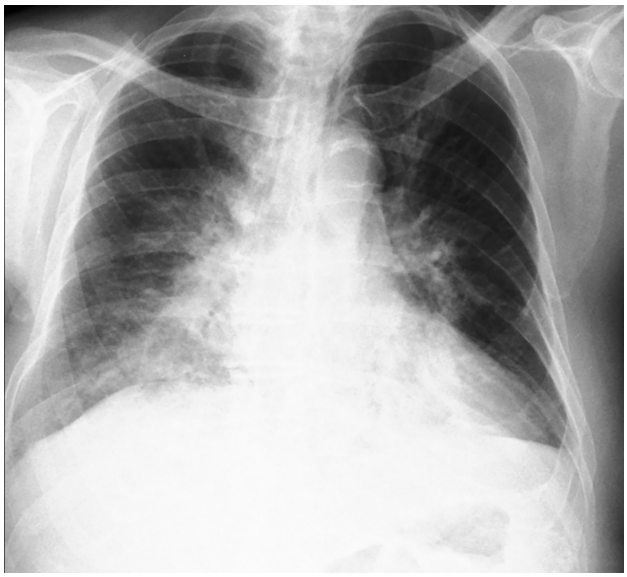

Figure 2. Chest x-ray of the patient on the fifth day of readmission

Figure 3. Bilateral pulmonary effusion on chest computed tomography

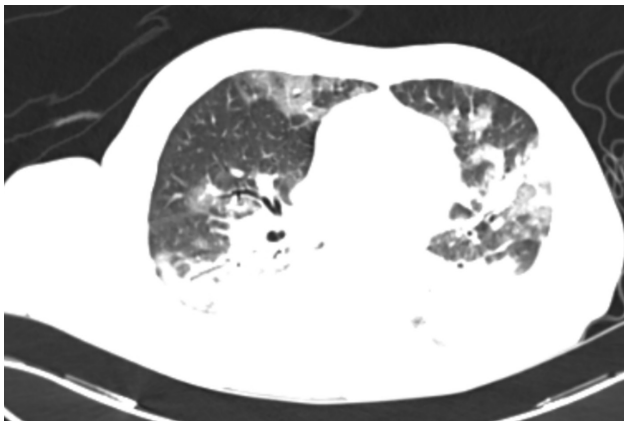

Figure 4. Ground-glass opacities on chest computed tomography

The next day, the patient was intubated in the ICU. On chest CT, bilateral pleural effusions and ground-glass opacities were seen (Figures 3 and 4). Because the first case was reported in Turkey recently, COVID-19 pneumonia was suspected, and the patient was isolated as soon as he started showing the symptoms. Contact isolation rules were applied. Amikacin, clarithromycin, and oseltamivir were added to the meropenem-vancomycin combination. After 2 days, polymerase chain reaction (PCR) test results confirmed the diagnosis of COVID-19 infection. Hydroxychloroquine was added to the treatment. Despite all the treatments, the patient died on readmission day 8 in the ICU.

Discussion

Once a pandemic begins, every patient admitting to a hospital, even for surgical reasons, should be suspected to have a COVID-19 infection unless proved otherwise, and personal protective equipment (PPE) should be used for routine care. SARS-CoV-2 has a high transmission rate and poses a significant risk for healthcare workers, particularly in the clinical settings where droplet precautions and use of PPE are not a component of daily practice. Tyrell and Bynoe, who cultivated the viruses from patients with common colds, first described the coronaviruses in 1966. SARS-CoV-2 belongs to the B-cell lineage of the beta-coronaviruses, is closely related to the SARS-CoV, and led to the COVID-19 outbreak [4, 5]. The disease is reported to be highly transmissible and spreads by human-to-human transmission via droplets or direct contact and infection [6]. Many healthcare workers have been infected so far, and more clusters of cases are being detected each day [1, 3]. A curative vaccine has not been developed yet. Early detection and efficient control of the route of transmission (i.e., isolation of suspected cases, disinfection) are still the most effective ways to fight the COVID-19 outbreak [7].

The clinical factors of age >50 years, comorbidities, dyspnea, chest pain, cough, expectoration, decreased lymphocyte count, and increased inflammation are the risk factors for severe/critical COVID-19 pneumonia [8]. Fever is the most common symptom, followed by cough among patients with pneumonia caused by SARS-CoV-2. Bilateral lung involvement with ground-glass opacity is the most common finding in chest CT [6]. The incidences of consolidation, linear opacities, crazy-paving pattern, bronchial wall thickening, lymph node enlargement, pericardial effusion, and pleural effusion are higher in patients with COVID-19 infection than in those without the infection [8]. Studies have revealed that the mortality rate is between 1.4% and 4.3% [9].

In surgical practice, elective surgery cases were limited in many centers because of the emergency surgery cases [10]. Researchers are beginning to publish guidelines regarding which elective surgeries can be performed with precautions [11].

Our case was evaluated as a semi-urgent case, and the patient underwent surgery owing to the recurrent colon tumor. When the patient underwent operation, there were no cases of COVID-19 infection, which was yet to be officially announced as a pandemic in Turkey. Moreover, the patient's symptoms began only 3 days after the first officially reported case of COVID-19. The patient's lung symptoms were evaluated primarily as nosocomial pneumonia that developed on atelectasis. However, the rapid deterioration of the patient's status, persistent elevation of CRP levels, and presence of lymphopenia indicated the presence of an atypical factor. The presence of ground-glass opacities on the CT was the main factor that led us to suspect COVID-19 pneumonia along with the other factors mentioned earlier.

The time interval between the fecal and respiratory sample PCR tests indicated that the viral particles survived longer in the gastrointestinal tract than in the respiratory tract. When the viral load in stool is high or in a virus-friendly environment, SARS-CoV-2 can spread easily through feces. Ong et al. [12] presented a typical gastrointestinal spread of infection in their study. Therefore, preoperative caution is required in colorectal surgery.

Currently, despite the COVID-19 outbreak, urgent surgical procedures and oncological surgeries continue to be performed. Our case is an example of the management of surgical cases without known respiratory findings. One of the 2 assistant doctors who took care of this patient was later diagnosed with COVID-19 infection. Therefore, PPE should be used, and droplet precautions should be ensured to avoid unexpected in-hospital transmission, particularly for the patients admitting with any findings of infection, even those with a surgical source.

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