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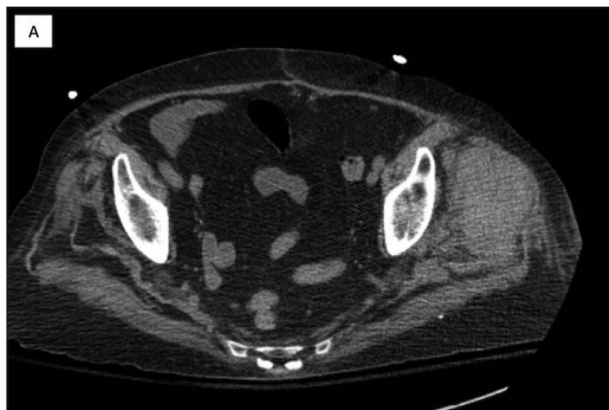
Two Cases of Spontaneous Bleeding in Lung Transplant Recipients Treated with Systemic Anticoagulation for COVID-19

M.T. Olson,¹ A. Omar,² S. Tokman,² J. Carigo,² R. Walia,² and A. Arjuna.² ¹University of Arizona College of Medicine - Phoenix, Phoenix, AZ; and the ²Norton Thoracic Institute, St. Joseph's Hospital and Medical Center, Phoenix, AZ.

Introduction: COVID-19 promotes inflammation and a hypercoagulable state. Antithrombotic therapies may be administered for thromboprophylaxis in those with severe infection requiring hospitalization. Spontaneous bleeding is an infrequent, yet life-threatening complication in patients receiving systemic anticoagulation.

Case Report: Two bilateral lung transplant recipients - 77-year-old female with idiopathic pulmonary fibrosis (patient A) and 69-year-old male with chronic obstructive pulmonary disease (patient B) - each presented with several days' history of dyspnea, cough, and fatigue at 29-months and 11-months post-transplant, respectively; RT-PCR was positive for SARS-CoV-2 infection in both. Over the course of the next few days, patient A rapidly deteriorated with need for intubation despite initial treatment with antibiotics and corticotherapy. Patient B experienced gradual worsening of respiratory symptoms, which required high-flow oxygen supplementation and IV antibiotics. Inflammatory markers were elevated in both patients, and CT of the chest was consistent with atypical pneumonia in each. Patient A received convalescent plasma as a rescue therapy, and patient B received remdesivir with convalescent plasma. Given the hypercoagulable state in each, patient A and B received enoxaparin and IV heparin, respectively. Slowly, hemoglobin and platelet counts dropped in both patients, with need for transfusion and hemodynamic support. CT of the abdomen revealed a left gluteal intramuscular hematoma in patient A; CT of the chest, abdomen, and pelvis revealed a spontaneous chest wall hematoma and small area of retroperitoneal bleeding in patient B (Figure 1A and B).

Summary: These cases raise awareness for the viral-induced hypercoagulable state observed during the disease course. Clinicians should be cautious to avoid any hemorrhagic complications associated with thromboprophylaxis in selected cases, particularly in at-risk immunosuppressed patients.



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Sars-CoV-2 Infection in Lung Transplant Patients - Single Center Experience in Portugal

C.L. Figueiredo,¹ A. Magalhães,¹ A.S. Santos,¹ J.E. Reis,² A. Borba,¹ L. Semedo,¹ P. Calvão,² J. Cardoso,¹ and J. Fragata.² ¹Pulmonology and Portuguese Lung Transplant Center, Hospital Santa Marta, CHULC, Lisboa, Portugal; and the ²Cardiothoracic Surgery and Portuguese Lung Transplant Center, Hospital Santa Marta, CHULC, Lisboa, Portugal.

Introduction: Lung transplant (LT) patients are immunosuppressed and it is yet to be determined if immunosuppression plays a role in SARS-CoV-2 infection. Due to this lack of information about COVID-19 in solid transplant patients, case series are of utmost importance. We report two cases of LT patients with COVID-19 at our LT center.

Case Report: We report a 60-year-old man submitted to a bilateral LT due to COPD in January 2020. Immunosuppression: basiliximab as induction and prednisolone, mycophenolate mofetil and tacrolimus as maintenance therapy. He was discharged 47 days post-operatively. Six months after LT, as routine screening to an elective endoscopy for previously controlled Barrett's esophagus, RT-PCR of naso-pharyngeal swabs detected SARS-CoV-2 RNA, assuming the diagnosis of COVID-19. He was hospitalized for monitoring despite being asymptomatic. Oxygen saturation was always higher than 97% at room air. Leukocyte was $5.730 \times 10^9/L$ (lymphopenia $530 \times 10^9/L$), D-dimer 1913 ug/L, C-reactive protein (CRP) 51,1 mg/l, ferritin 163,7 ng/mL and lactate dehydrogenase (LDH) 370 units/L. CT-scan excluded thromboembolism and active infection. He remain asymptomatic and was discharged. The second case was a 54-year-old man submitted to a bilateral LT due to COPD in June 2020. Immunosuppression: basiliximab as induction and prednisolone, mycophenolate mofetil and tacrolimus as maintenance therapy. He was discharged 76 days post-operatively due to post-infection anastomosis stenosis. Three months after LT, as routine screening to a bronchofibroscopy for reevaluation of stenosis, RT-PCR naso-pharyngeal swabs detected SARS-CoV-2 RNA, assuming the diagnosis of COVID-19. He revealed more dyspnea (mMRC 2) and cough than usual, with no other symptoms. Oxygen saturation was always higher than 96% at room air. Leukocyte $7.560 \times 10^9/L$, CRP 41,5 mg/l, LDH 566 units/L. He stayed at home in isolation with mild symptoms that improved in one week to his previous health status. Both patients had no travel history and no known contact with SARS-CoV-2 infected patient.

Summary: We report 2 cases among a total of 174 LT patients in follow-up at our center (1,1%), we underline that SARS-CoV-2 infection can present itself with mild or no symptoms in LT patients that theoretically are more vulnerable. Also we reinforce the importance of routine screening of these patients before any procedure.

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Four Cases of COVID-19 Infection in Lung Transplant Recipients

S. Türkan,¹ M.F. Sahin,¹ M.A. Beyoglu,¹ A. Yazicioglu,¹ Y.T. Tekce,² and E. Yekeler.¹ ¹Department of General Thoracic Surgery and Lung Transplantation, Ankara City Hospital, University of Health Sciences, Ankara, Turkey; and the ²Department of Infectious Diseases, Ankara City Hospital, University of Health Sciences, Ankara, Turkey.

Introduction: There are limited data about short and long-term problems caused by COVID-19 infection in lung transplant and other organ transplant recipients. We share the clinical, laboratory, radiological and treatment results of four lung transplant recipients after COVID-19 infection who were operated in our clinic.

Case Report: All patients had positive PCR tests for COVID-19, three of four patients had dyspnea and desaturation with ground glass areas on thorax CT. One patient only complained of impaired sense of smell. Three patients with signs of pneumonia were hospitalized and one patient was treated on an outpatient basis. While one of the patients received a combine therapy with favipiravir, hydroxychloroquine, azithromycin, 3 patients received only favipiravir treatment. Three consecutive days of 1000 mg/day methylprednisolone treatment were used in 3 patients with signs of pneumonia and dyspnea, because symptoms did not improve. Death was not observed in any of the cases. The complaint of the patient, who had