


Letter to the Editor
Concerning the Article
From Cai et al. Focusing on Coronavirus Disease 2019 Impact on Lung Cancer Resection, Published in June 2020

To the Editor:

We read with great interest the article by Cai et al. focusing on the impact of coronavirus disease 2019 (COVID-19) on lung cancer resection. Among the 139 patients they operated on, they focused on seven patients who were positive for COVID-19. The authors reported three deaths (42.8%) related to COVID-19 infection, leading them to conclude that “lung resection surgery might be a risk factor for death in patients with COVID-19.” This conclusion seems hasty. First, the authors focused on a very small sample that prevents drawing any conclusions. Furthermore, the main comorbidities reported by the authors could have led to the death of the patients regardless of their COVID-19 status. In particular, a cardiac contribution to death cannot be ruled out in a patient with a coronary artery disease. In addition, no detailed information was provided for the patient with interstitial lung disease. Hence, one can wonder whether the death was caused by pulmonary fibrosis, which is known to place patients at higher risk of pulmonary decompensation after lung surgery. Finally, even though the forced expiratory volume in 1 second is given in liters and not in percentage predicted, one can speculate that patient 7 with a forced expiratory volume in 1 second of 1.39 liters had very poor pulmonary function and was at higher risk of postoperative pulmonary complications. In line, the diffusing capacity of the lungs for carbon monoxide, which is known to be an independent prognostic factor of outcomes after lung surgery, was not provided for any patient, preventing proper evaluation of the pulmonary function of these patients.

To support their conclusion, the authors cited the publication by Liang et al., a study of 18 patients, concluding an increased risk of death or intensive care unit admission in the case of cancer (OR: 5.4 [95% confidence interval: 1.8–16.2]), highlighting a higher risk in the case of lung cancer. However, this publication had few limitations. First, in the cohort of patients positive for COVID-19, the percentage of patients harboring cancer (approximately 1%) and the proportion of those with lung cancer (0.3%) were low, preventing drawing of any conclusions. Moreover, half of the patients with cancer had a disease course superior to 4 years, which may have probably led to the inclusion of cured cancers.

The authors concluded a higher risk of severe events in patients with cancer owing to the immunosuppressive state. However, accumulated evidence has revealed that the development of cancer is usually associated with overexpressed immunosuppressive cytokines, suppressed induction of proinflammatory danger signals, impaired dendritic cell maturation, and enhanced functional immunosuppressive leukocyte populations, which are contradictory to the events believed to result in severe events in patients with COVID-19.

In conclusion, there are, so far, not enough robust data in the literature to conclude on the harmful effect of lung cancer surgery in patients positive for COVID-19. Large studies are, therefore, more than necessary to continue offering the best care to patients with lung cancer.

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Response to Letter to the Editor

To the Editor:

We thank Dr. Seitlinger for the interest in our work and his comments. As Dr. Seitlinger mentioned in the letter, the diffusing capacity for carbon monoxide is a useful parameter to evaluate the diffusing capacity of the lung. In our center, spirometry and arterial blood gas test are routinely taken before operation for each patient; unfortunately, the diffusing capacity for carbon monoxide tests are not taken. The decision for operation was made on the basis of clinical performance, results of spirometry, and arterial blood gas test. In this cohort, patient 3 had a relatively poor lung function with forced expiratory volume in 1 second of 1.39 liter and percent forced expiratory volume in 1 second of 68.5%, whereas the preoperative arterial blood test on breathing air revealed a partial pressure of oxygen equal to 93 mm Hg and partial pressure of carbon dioxide equal to 34.1 mm Hg.

We also noted that the three patients in this cohort who died had comorbidities of interstitial lung disease, chronic obstructive pulmonary disease, and coronary atherosclerosis, respectively. As we know, comorbidities could raise the incidence of severe postoperative complications, which can further increase the risk of death for patients after lobectomy. In our cohort, none of the patients had surgery-related postoperative complications. Moreover, the clinical course of these seven patients illustrated that the disease worsened immediately after onset of symptoms of coronavirus disease 2019 (COVID-19) infection, and the fatality rate was much higher than that of the general population. These findings suggested that, besides comorbidities, the stress of lung resection might be a risk factor for death among patients who contracted COVID-19 during the perioperative period. The effects of different operation patterns, including operation approach and lymphadenectomy on COVID-19, remains to be evaluated. Surgical stress results in a reduction in the number of CD8-positive T-cells that produce interferon gamma in response to tumor-associated antigen. Interferon gamma is an important cytokine involved in the antiviral immune response. Furthermore, operation induces an elevation in the number of circulating neutrophils followed by a strong elevation in the number of inflammatory monocytes. The systemic inflammatory response induced after surgical procedure promotes the emergence of tumors whose growth was otherwise restricted by a tumor-specific T-cell response. We speculated that surgical stress in patients with cancer might suppress the T-cell-mediated antiviral response.

It was indeed hard to draw a full picture on the basis of such a small sample size, but these cases provided important clinicopathologic information of the specific patient population at that time. We are thankful for the comments and for pointing out further research possibilities. Large studies and further investigation are necessary to evaluate the influence of operation on the progression of COVID-19.

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References