

## Fiberoptic bronchoscopy via intubation box during COVID-19 pandemic

Dear Editor,

We read with interest the article titled “Bronchoscopic procedures during COVID-19 pandemic: experiences in Turkey” published in the *Journal of Surgical Oncology*.<sup>1</sup> Transmission of SARS-CoV2 virus is generally via respiratory droplets, but airborne transmission may be possible with aerosol-generating procedures.<sup>2</sup> As an aerosol-generating procedure, bronchoscopy has a high risk of aerolization and risk for COVID-19 transmission since the airway of infected patients has been shown to have a high viral load, especially in the nose, throat, and trachea.<sup>3,4</sup> In our clinic, bronchoscopy has been performed via *intubation box* for protecting the bronchoscopy team from aerolization risk from the early days of the pandemic to day and we want to share our experiences of fiberoptic bronchoscopy procedure during the first wave of COVID-19 pandemic.

The first COVID-19 case occurred on March 10, 2020 in our country. Bronchoscopy appointments were postponed during the first 2 weeks of the pandemic in our clinic due to the high transmission risk of this unpredictable virus. However, to prevent delay in diagnosis especially in malignancy suspected patients, the bronchoscopy procedure was started on April 1 by providing appropriate conditions and using personal protective equipment (PPE) including a face shield, gown, gloves, and N-95 respirators.

Asymptomatic cases are an important challenge for the risk of transmitting to other individuals and healthcare workers, although they appear healthy. According to the CHEST/AABIP Guideline and Expert Panel Report, it is recommended to test for COVID-19 infection before bronchoscopy, even if the patient is asymptomatic. It is recommended to perform procedures using PPEs in patients with negative test results before bronchoscopy.<sup>3</sup> In our study, all patients were questioned for COVID-19 symptoms and undergone polymerase chain reaction (PCR) test for COVID-19 before bronchoscopy and all of them were negative for COVID-19.

There is a decrease in cancer screening, diagnosis, and treatment period during the first months of the pandemic related to travel restrictions, postponements of routine controls or diagnostic procedures, the anxiety of transmission risk in both patients and healthcare workers.<sup>5,6</sup> According to the CHEST/AABIP Guideline and Expert Panel Report, it is recommended that bronchoscopy should be performed in a timely and safe manner for both diagnosis and staging indication in cases with suspected lung cancer.<sup>3</sup> In our clinic, bronchoscopy has been performed since the first weeks of the pandemic to prevent diagnosis delay, especially in malignant

patients. And malignancy was the most common indication for bronchoscopy (69.3%).

As known, premedication of bronchoscopy includes nebulized lidocaine but nebulization itself is an aerosol-generating procedure. So nebulized lidocaine administration is not recommended for premedication because it increases the risk of aerolization.<sup>7</sup> We did not use nebulized lidocaine in our clinic. Only intranasal or intraoral lidocaine was applied for topical anesthesia and to minimize cough. Sedation was achieved by applying midazolam intravenous 2–3 mg before the procedure.

Recent publications recommend that bronchoscopy procedures should be performed in a negative pressure room with a reduced number of staff in the bronchoscopy team to minimize the risk of transmission.<sup>7,8</sup> No observers, students, or trainees should be in the bronchoscopy area.<sup>8</sup> The procedure should be performed in the shortest time and with the least number of sampling procedures necessary to achieve the clinical goal.<sup>7</sup> In our clinic, bronchoscopy was performed by an experienced pulmonologist and bronchoscopy nurse. The mean duration of the procedure was nearly 5 min during bronchial lavage while it was approximately 10–15 min in mucosa biopsy, fine needle aspiration, or bronchoalveolar lavage procedures.

The COVID-19 outbreak has led to the development of various devices (intubation box, aerosol box, and surgical tent) and alternative searches to protect healthcare workers from the risk of contamination during tracheal intubation or procedures with a risk of aerolization such as bronchoscopy.<sup>9,10</sup> Since we did not have a negative pressure room, bronchoscopy was performed via *intubation box* during bronchoscopy for protecting the bronchoscopy team from aerolization risk in a well-ventilated room (Figure 1). The intubation box was cleaned with a disinfectant containing 80% alcohol, and UV sterilization was applied 15 min after each patient.

Between April 1 and June 15, 49 patients underwent diagnostic fiberoptic bronchoscopy. There were 38 men (77.6%) and 11 women (22.4%). The mean age of the patients was  $59.02 \pm 12.6$  years. The most common indication for bronchoscopy was malignancy (69.3%), followed by infections including tuberculosis and pneumonia (18.4%). Twenty-eight percent of the cases had normal bronchoscopic findings while bronchoscopic findings suggest malignancy (endobronchial lesion or mucosal tumor infiltration) in 38.7% of cases. Bronchial lavage (77.6%) and bronchial mucosa biopsy (57.1%) were the most common procedures. In this study population, multiple procedures were performed in 27 (55.1%) of the cases.



**FIGURE 1** Flexible bronchoscopy via intubation box [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

One patient had an emergency admission with fever 6 days after the procedure and her COVID-PCR test was positive. She had undergone bronchoalveolar lavage and subcarinal fine-needle aspiration. No positivity was detected in the bronchoscopy team who performed the procedure after the patient's positivity. Since the first COVID-19 case in our country, there have been no COVID-19 cases in our bronchoscopy team.

Although the study data includes only one center and reflects a small number of cases, it is thought to be important because it is the only center in the city where bronchoscopy is performed in the early period of the pandemic and cases are referred to here for bronchoscopy from other centers.

In conclusion, it is thought that bronchoscopic procedures can be performed safely by taking the necessary precautions to reduce the risk of aerosolization during both premedication and the procedure. The use of PPE and intubation box during bronchoscopy helps to keep healthcare workers safe. Feeling safe by the healthcare team can also ensure that bronchoscopy is performed without delay in patients and can prevent the diagnosis delay in especially malignancies, which is one of the important problems experienced during the pandemic period.

#### CONFLICT OF INTEREST

The authors declare that there are no conflict of interests.

#### ETHICS STATEMENT

Ethical approval was obtained from Kocaeli University Local Ethical Committee. The image used in the figure was taken during bronchoscopy and written consent was obtained from the patient.

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