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## Extraordinary Treatment of Right Pneumonectomy Fistula with Endobronchial Technique

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**Introduction:** Right pneumonectomy operations have more morbidity and mortality than other lung resections. In particular, the right bronchopleural fistula may compromise the function of the left lung and increase mortality. We present the endoscopic closure of a bronchial fistula with ventricular septal defect (VSD) occluder designed for closure of a ventricular septal defect with angiographic techniques.

**Case Presentation:** A 62-year-old male patient admitted to our clinic with diagnoses of adenocarcinoma from bronchoscopic biopsy from a 7.2x7.1x6.5 cm suvmax 11.66 lesion in the right lower lobe and and a malignant epithelial tumour with a transthoracic biopsy from a 5.4 x 4.5 cm SUVmax: 9.97 lesion in the right upper lobe on PET-CT was operated with right pneumonectomy in March 2018. Two months after right pneumonectomy, chemotherapy was planned. After the first course of chemotherapy, the patient was referred to us with nausea, vomiting and disordered general condition. Bronchoscopy revealed a bronchial fistula (BPF) of 6 \* 7 mm on the right bronchial stump. In view of the size of the BPF and residual pneumonectomy space in the clinical follow-up of the patient, we planned to close it with VSD occluder, which was designed to cover the ventricular septal defect with VATS angiographic techniques. The procedure was performed under general anesthesia in the operating room. Intraoperatively, the patient was placed in the supine position the fistula was observed not only thoracoscopically with the right VATS camera port inserted but also with rigid bronchoscopy. A 10 mm VSD occluder was placed in the proximal disc to cover the entire fistula orifice. The patient's development was satisfactory and the thoracostomy was closed after a few months.

**Conclusion:** Bronchopleural fistula (BPF) is a rare complication of pulmonary resection. For closure of ventricular septal defects, it is appropriate to use an occluder which is 20% to 30% larger than the largest defect diameter. Since the fistula was measured 6 x 7 mm in our patient, an 10 mm VSD occluder was used to cover the entire fistula orifice of the proximal disc. Endobronchial techniques have been reported for the biological administration of fibrin glue, coils and stents depending on the size of the fistula. As a result; when we consider the minimally invasive nature of endobronchial procedures, they are especially useful in high-risk patients. Although there is less experience with the use of occluder for closure of large fistulas, the results are satisfactory.

**Keywords:** Bronchopleural fistula, pneumonectomy, use of occluder