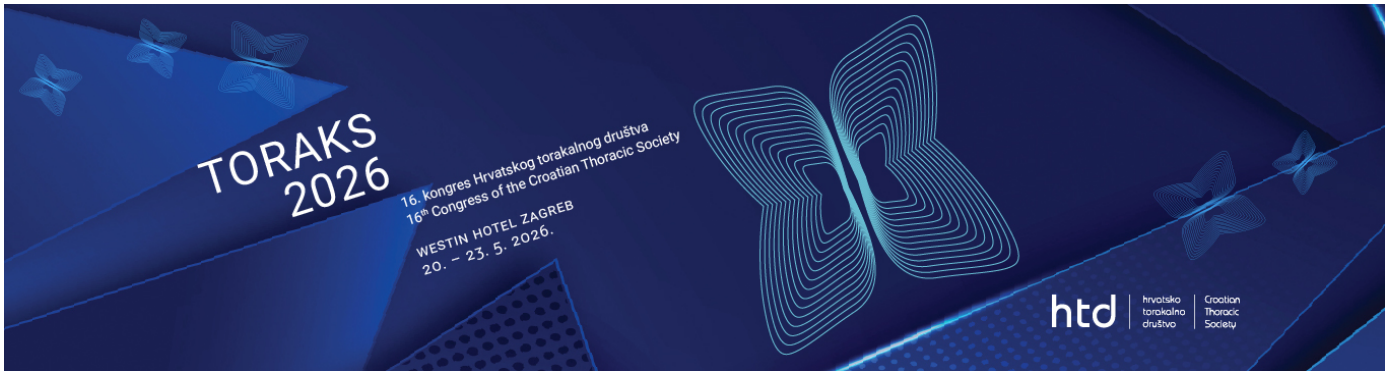


ENDOBRONCHIAL VALVE PLACEMENT FOR TREATMENT OF CHRONIC BRONCHOPLEURAL FISTULA: THE FIRST REPORTED CASE IN CROATIA

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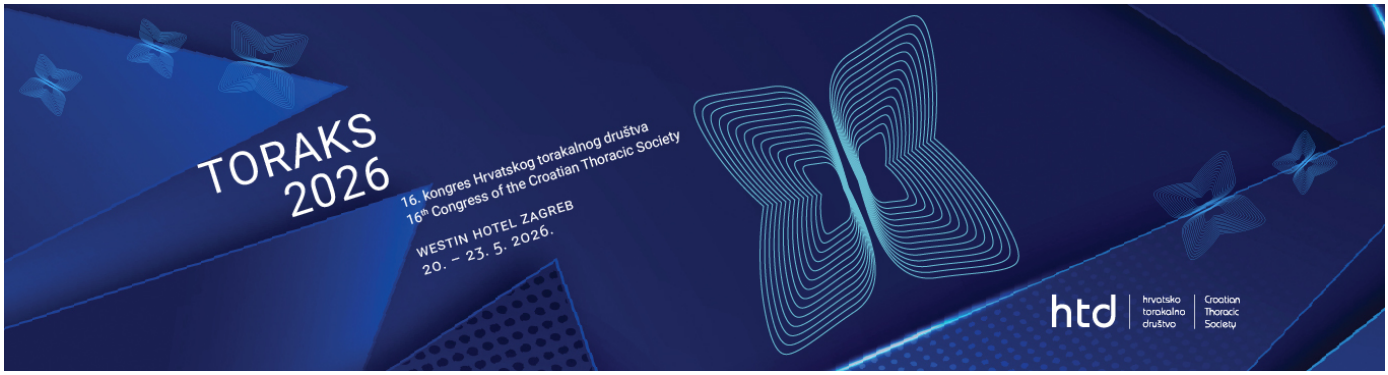
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Background:

Bronchopleural fistulas (BPF) are severe postoperative complication in patients who underwent thoracic surgery. They are characterised by a communication between the bronchus and the pleural space and represent a significant challenge in management. Treatment strategies vary from surgical treatment to bronchoscopic techniques of obliteration of small fistulas with endobronchial injections or sealant. The approach with endobronchial valve (EBV) placement is mostly considered as salvage therapy when specific clinical and anatomical conditions are met. This is the first reported case in Croatia of using EBV placement as therapy for chronic hydropneumothorax with persistent air leak caused by post-lobectomy BPF.

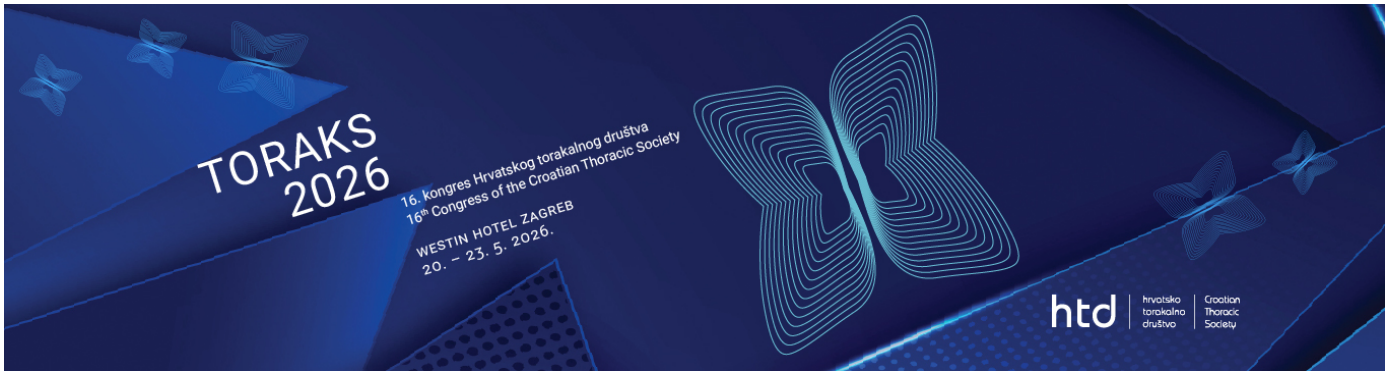


Conclusion:

EBVs are one-way devices designed to occlude airflow to the affected lung segment. While primarily approved for emphysema treatment, their use for BPFs and persistent air leak in patients with pneumothorax of various causes has been increasingly reported. Usage for the treatment of postoperative BPFs represents a rare indication with variable success rates that are highly dependent on anatomical and clinical conditions of the patient but should be considered for patients without other surgical or bronchoscopic options. This is the pioneering case of EBV treatment in Croatia, demonstrating an efficacious modality for selected patients with persistent air leak, achieving both clinical and radiological success.

Case:

A 64-year-old female patient, who underwent a right lower lobectomy for the treatment of lung adenocarcinoma, developed persistent and productive cough and a low-grade fever one year after surgery. The symptoms initially improved with antibiotic treatment. However, subsequent follow-up multi-slice computed tomography (MSCT) showed progression of right sided pleural effusion, leading to the development of right-sided hydropneumothorax. Although chest drainage confirmed persistent air-leak, the fistula was not visualised on bronchoscopy, making bronchoscopic interventions with sealants impossible. After thorough workup, including repeated imaging studies and bronchoscopies, MSCT confirmed that the cause of chronic hydropneumothorax was a BPF at the level of the peripheral bronchus of right segment 6 (RB6). Additional MSCT and bronchoscopy were performed for precise localization and to determine dimensions of BPF followed by the procedure of EBV placement. Pre-procedural localisation of the BPF was confirmed by balloon occlusion of the RB6 bronchus which resulted in 0ml/min air leak recorded on the Thopaz digital chest drainage system. The patient was



intubated with endotracheal tube number 8 as the working channel and the EBV was placed. This led to the cessation of the air-leak and fluid secretion, chest tube removal and reduction of pneumothorax on the radiological check-ups.