

The treatment of Bronchopleural fistula with tailored metallic occlusion stent

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Background: Bronchopleural fistula (BPF) is an infrequent but life-threatening complication after pulmonary resection. We aimed to explore the feasibility and efficacy of tailored metallic occlusion stent in the treatment of BPF.

Method: We retrospectively reviewed the medical records of the patients who underwent placement of Y-shaped tailored metallic stent between June 2021 and January 2022. A special metallic covered airway stent dedicated for BPF occlusion was designed. The appropriate metallic stent was selected according to the location of fistula and surrounding airway anatomy. One branch of the selected Y-shaped stent was completely closed on-site as occluded branch by suturing and bundling up. The clinical efficacy and complications were analyzed.

Result: A total of 11 patients were included, each patient received one stent. The stents were successfully placed in 10 patients. One failed to complete the placement for excessively large angle at the bifurcation. The follow-up time was ranged from 3 to 10 months. All the 10 patients achieved clinical success. Four patients were cured which defined as complete relief of symptoms, disappearance of pleural residual cavity and the removal of stent for one month; two patients achieved complete remission which defined as complete relief of symptoms, significant shrinkage of residual cavity (>50%) and removal of stent for one month; the other four patients were partial clinical remission, whose symptoms were relieved, residual cavity was shrank (<50%), but stent cannot be removed. The intercostal drainage tube was successfully removed in all patients. The occluded branch sustained well closed during follow-up. The main complications were cough, granulomatous proliferation, mucus retention. No serious complication happened.

Conclusion: Tailoring Y-shaped covered metallic stent on-site is feasible, and the occlusion stent could manage BPF effectively and safely. This innovation might expand the clinical application of metallic stent and provide a new choice for BPF.

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