

Parenchymal sparing resection for carcinoid of the right main bronchus

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Abstract: Surgery represents the treatment of choice for bronchial carcinoid tumors. Bronchoplasty for malignant and benign conditions are safe procedure but not often used. We present a case of carcinoid tumour of the right main bronchus successfully treated with parenchymal sparing resection and bronchoplasty. This is the preferable procedure for central typical carcinoid tumour located closed to the carina.

Keywords: Neuroendocrine tumors; carcinoid; parenchymal sparing pulmonary resection; bronchoplasty

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Introduction

Surgery represents the treatment of choice in bronchial carcinoid tumors (1). Bronchoplasty for malignant and benign conditions are safe procedure but not often used. Moreover, bronchial carcinoid tumors can arise everywhere in the lung and sometimes in very difficult position. A carcinoid which arises in the right main bronchus, 1 cm below the carina and in front of the right upper lobe bronchus could pose several questions to the surgeon and to the oncologist. Herein we present such a case which has been successfully treated with wedge resection of the airways and bronchoplasty.

Case presentation

The full case report has been recently published (2) and it is also summarized in the video (*Figure 1*). Chest CT showed an endobronchial obstruction in front of the origin of the right upper lobe. A rigid bronchoscopy showed the presence of a highly vascularized, polylobulated neoplasm protruding in the lumen of the right main bronchus, 1cm from the carina and in front of the right upper lobar uptake. The biopsy of the lesion demonstrated a typical carcinoid tumour.

A lung sparing approach with a systematic lymphadenectomy was performed. We adopted a muscle-sparing mini-thoracotomy with optic assistance. General anaesthesia was maintained via double lumen tube intubation. The arch of the azygos vein was resected to better approach the origin of the right main bronchus. The upper lobe bronchus and the bronchus intermedius were encircled. Intraoperative bronchoscopy was performed to determine the cut edges of the bronchotomy which was performed on the posterior wall of the right main bronchus. The lesion was removed with a wedge resection of the airways, and the margin were sent for frozen section. The bronchial defect was 3.5 cm × 2 cm large. The margins were clear from tumour and therefore the bronchial defect was closed confectioning a bronchoplasty with interrupted 4-0 Prolene sutures. Again, intraoperative bronchoscopy was performed, through the tracheal tube, to inspect the endobronchial side of the suture, rule out air leak and stenosis of the repaired airways. Systematic nodal dissection was performed. On the first postoperative day the patient developed a right upper lobe collapse which was treated with suctioning bronchoscopy. The patient was discharged on post-operative day 7 without further complication. Final pathology was T3N0-stage IIB. At 5-year follow-up the patient was discharged from follow up with no recurrence.



Figure 1 A case of carcinoid tumour of the right main bronchus treated with parenchymal sparing resection and bronchoplasty (3). The video summarizes the clinical case and demonstrates the procedure. The defect in the right main bronchus is repaired with interrupted non-absorbable sutures. Histologic features are also showed at the end of the clip.

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Comments

The brilliant result, maintained at 5 years, confirms the efficacy of bronchoplasty technique in patients with carcinoid tumors of the right main bronchus. Although some authors would have created a secondary neo-carina between the bronchus intermedius and the right upper lobe bronchus through an anterior thoracotomy or even by minimally invasive approaches, we decided to preserve the anterior wall of the right main bronchus, as showed in the video. If the margins were positive, or a stenosis of the airway was noted after the repair, we would have performed a sleeve resection with re-implantation of the upper lobe. With the advancement of minimally invasive techniques complex airway reconstruction may be attempted by uniportal, multiportal or robotic approach in dedicated centres (4-6). In conclusion, parenchyma-sparing resection is the preferable procedure for typical central carcinoid tumour located close to the carina.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Informed Consent: Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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