

Case Report

Carina Resection and Reconstruction with Formation of a “Neocarina” for an Adenoid Cystic Carcinoma: Case Report

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Abstract

Introduction: Primary Tracheal tumor is rare and rarely resectable, carina resection and reconstruction is a challenging procedure for a thoracic surgeon. We present a case report of an adenoid cystic carcinoma with obstruction at the main tracheal carina, it was protocolized through imaging studies, bronchoscopy and biopsy identifying its possible resection, a carina resection and reconstruction was made using both bronchi in shotgun position.

Case presentation: A 47 year-old male with 1 year of cough and dyspnea and frank hemoptysis, bronchoscopy revealed a neoplasm located at distal third of the trachea with a pedicle located in the membranous wall and left side of the cartilage arch, a obstruction of a 90% of the airway and a length of 4 tracheal rings ending at the main tracheal carina, pathology report as a adenoid cystic carcinoma. The tumor was removed on block with 4 cms of the trachea and the carina lymphadenectomy 4R, 4L, 7 Stations was made, the right and left main-stem bronchi was reapproximated to form a "Neocarina". The postoperative period was favorable, lymph nodes sampling was reported as negative, and follow-up was made by control bronchoscopy studies at 3 and 6 months and one year with a PET-Scan with a negative report with no signs of local recurrence, the patient returned to his job at 7 months after surgery.

Conclusion: Carina resection and reconstruction is a difficult procedure, but impact directly to the survival of the patient, it is needed to protocolized and select the true candidate to this procedure because of the high morbidity and mortality.

Keywords: Tracheal carina; Tracheal tumor; Neocarina

Introduction

Primary Tracheal tumor is rare and rarely resectable [1], the localization of the tracheal tumor, as well as the invasion of the tumor, determines the possibility of its resection, carina resection, and reconstruction is a challenging procedure for a thoracic surgeon, because of the problems posed by intraoperative airway management, the technical challenge of anatomic reconstruction, and the potential for significant postoperative morbidity but nevertheless surgical resection is considered the treatment of choice when they are limited and resectable [2].

We present a case report of an adenoid cystic carcinoma with obstruction of the trachea and a length invasion at the main tracheal carina, it was protocolized through imaging studies (CT and 3D reconstruction), bronchoscopy and biopsy identifying its possible resection, a carina resection and reconstruction was made using both bronchi in shotgun position with a formation of "neocarina", and a postoperative follow-up of 18 months.

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Case Presentation

A 47-year-old male with 1 year of cough and dyspnea, the last month is added frank hemoptysis, bronchoscopy revealed a neoplasm located at distal third of the trachea with a pedicle located in the membranous wall and left side of the cartilage arch, a obstruction of a 90% of the airway and a length of 4 tracheal rings ending at the main tracheal carina, it was made a biopsy that reports an adenoid cystic carcinoma. The CT scan revealed it was infiltrating the membranous wall, no lymph nodes were detected, no invasion of other structures. On admission, routine laboratory studies including arterial blood gas analysis were normal.

The patient was placed in a supine position, a full median sternotomy was made, the tumor was resected with one tracheal ring of margin at the proximal side of the trachea and the carina was resected completely, the tumor was resected en-bloc, in length it was taken 4 cms of trachea, tapes were placed around the mobilized trachea also with the left and right main bronchi. Lymphadenectomy 4R, 4L, 7 Stations were made.

The left main bronchus was intubated across the operative field with a sterile extra-long, flexible, armored single-lumen endotracheal tube for continued ventilation. The right and left main-stem bronchi was reapproximated to form a "Neocarina" which was attached to the distal trachea by simple interrupted anastomotic sutures of 3-0 Vicryl polyglactin in a concentric fashion 5 mm apart. The membranous portion was suture at first, after the completion an air leakage testing was made with a sustained airway pressure of 25 cmH₂O, retrosternal soft drainage was placed. The patient was taken out extubated to a postoperative vigilance at the Intensive Unite Care.

The postoperative period was favorable, the retrosternal drainage was removed on the 5th day, the patient was discharged on the 7th day, the final report of the pathology study confirmed the type of tumor, the lymph nodes sampling were reported as negative.

Postoperative follow-up was made by control bronchoscopy studies at 3 and 6 months and a PET-Scan was made at one year after surgery with a negative report with no signs of local recurrence, the patient returned to his job at 7 months after surgery.

Discussion

Primary tracheal tumors are rare, the carinal resection remains a relatively infrequently used procedure for most thoracic surgeons, and it describes an overall mortality rate of (12.7%) [2-7], to decrease the morbidity it is recommended to extubate these patients at the end of the procedure and it should be achievable in most of them, in this case, the length of the resected trachea was 4 cms, it is described that to minimize the risk of anastomotic complication is better to do it when the resection is limited to less than 4 cms [8,9].

It is recommended to evaluate the possibility of the carina resection and reconstruction with a careful selection of patients also to who can tolerate the physiologic effects of the operation, it is also important to care technical methods this will traduce in less anastomotic tension that should minimize the morbidity and mortality associated [9].

Oncologically It is described in the literature good results when a complete surgical resection is made [10], Only irradiation should be considered for patients with nonresectable disease [11,12], in this case it was possible to resect all the tumor with the according to margins at this time 18 months there is no evidence of recurrence.

Conclusion

Carina resection and reconstruction is indicated in tumors with invasion of lower trachea or carina, it is a difficult procedure, but impact directly to the survival of the patient, it is needed to protocolize and select the true candidate to this procedure because of the high morbidity and mortality.

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