Bronkopulmoner Karsinoid Tümörler: 15 Olgu Sunumu

Bronchopulmonary Carcinoid Tumors: Report Of 15 Cases

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Abstract

Objective: Bronchopulmonary carcinoid tumors are rare and constitute less than 5% of all lung tumors. In this study, we aimed to evaluate results, treatment modalities and clinical features in carcinoid tumor patients who underwent surgical operation in our clinic in the light of literature.

Materials and Methods: We retrospectively reviewed 15 patients with a diagnosis of carcinoid tumor, who were surgically treated in our clinic between January 2000 and December 2010. Patient characteristics of age, gender, symptoms, localization of lesion, diagnosis, treatment modality and morbidity and mortality ratios were reviewed in addition to length of hospital duration.

Results: 8 (53.3%) of cases were male and 7 (46.7%) were female. Mean age was 38.7. Typical carcinoid tumor was detected in 14 cases while atypical carcinoid tumor was determined in only one patient. Carcinoid tumor localized in main bronchus or lobar bronchi in 14 cases and peripheral localization was observed in one case. Lobectomy was performed in 8 cases (53.3%), inferior bilobectomy in 3 cases, sleeve superior lobectomy in 1 case, bronchoplastic resection in 2 cases and wedge resection in 1 case. Postoperative atelectasis developed in one patient only. Hospital mortality was not seen in any of the cases. Mean length of hospital stay was 9.2 (5-13) days.

Conclusion: In bronchopulmonary carcinoid tumors, complete resection of tumor tissue while preserving normal lung tissue provides promising results.

Keywords: carcinoid tumor, clinical findings, surgery

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Özet

Amaç: Bronkopulmoner karsinoid tümörler nadir olup tüm akciğer tümörlerinin %5'inden azını oluştururlar. Bu çalışmada kliniğimizde cerrahi tedavi uygulanan karsinoid tümörlü olguların klinik özellikleri, tedavi biçimleri ve sonuçlarının literatür verileri ışığında değerlendirilmesi amaçlandı.

Materyal ve Metot: Ocak 2000 ve Aralık 2010 yılları arasında kliniğimizde karsinoid tümör tanısı alıp cerrahi ile tedavi edilen 15 olgu geriye dönük olarak incelendi. Hastaların yaşı, cinsiyeti, semptomlar, lezyonun lokalizasyonu, teşhisi, tedavi biçimi ve morbidite ve mortalite oranları ile hastane yatış süreleri gözden geçirildi.

Bulgular: Olguların 8'i (%53.3) erkek, 7'si (%46.7) kadındı. Ortalama yaş 38.7 idi. Olgulardan 14'ünde tipik karsinoid tümör görülürken bir olguda atipik karsinoid tümör tespit edildi. Olguların 14'ünde karsinoid tümör ana bronş veya lob bronşuna yerleşirken bir olguda periferik yerleşim söz konusu idi. Olgulardan 8'ine (%53.3) lobektomi, 3 olguya bilobektomi inferior, 1 olguya sleeve üst lobektomi, 2 olguya bronkoplastik rezeksiyon ve 1 olguya wedge rezeksiyon uygulandı. Postoperatif sadece bir olguda atelektazi gelişti. Olguların hiçbirinde hastane mortalitesi gözlenmedi. Ortalama hastane yatış süresi 9.2 (5-13 gün) gün idi.

Sonuç: Bronkopulmoner karsinoid tümörlerde normal akciğer dokusu korunarak tümörün tam rezeksiyonu yüz güldürücü sonuçlara sahiptir.

Anahtar Kelimeler: Karsinoid tümör, klinik bulgular, cerrahi

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Introduction

Bronchopulmonary carcinoid tumors have a low-grade malignant potential and constitute less than 5% of all pulmonary tumors[1]. Carcinoid tumors are classified in two groups as ''typical'' and ''atypical'' tumors, based on clinical and therapeutic significance. Ten year survival is over 90% in typical carcinoid tumors. Atypical carcinoid tumors follow a more aggressive course and are inclined to develop metastasis, with a 10 year survival rate of less than 60%[1,2]. In this trial, we aimed to evaluate clinical characteristics, treatment modalities and results of carcinoid tumor patients, surgically treated in our department, in the light of literature data.

Materials and Methods

Fifteen consecutive patients who were surgically treated for carcinoid tumor in Department of Thoracic Surgery of Ataturk University Medical School during January 2000 and December 2010 were reviewed retrospectively. All cases were pre-operatively evaluated in terms of direct chest radiography, computerized tomography and bronchoscopy.

Data were identified through patient files, surgical intervention recordings, bronchoscopy and pathology reports and outpatient clinical recordings. Results were compared with literature data.

Results

Eight patients (53.3%) among our cases were males and 7 patients were females (46.7%). Age of cases varied in a range of 18-57 and mean age was determined as 38.7. History of hypertension was present in one case. Two patients were diagnosed with asthma during previous year and were being treated accordingly. One case was diagnosed as carcinoid tumor 10 years ago but patient had refused surgical operation. Patient re-applied to our department upon development of hemoptysis.

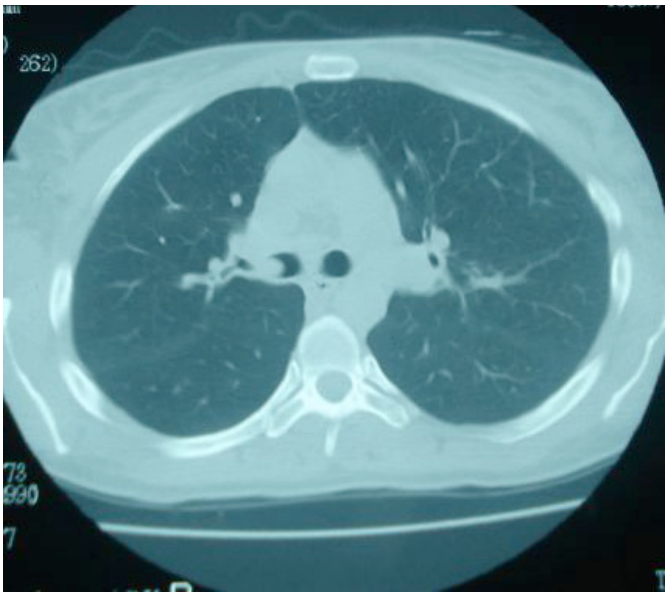
Duration of symptoms among patients varied between 2 months and 13 years (mean 2.5 years). The most common symptoms were cough (9 cases), sputum (8 cases) and chest pain (5 cases) (***Table 1***).

Tablo 1: Symptoms in carcinoid tumor cases

Symptom	n	%
Cough	3	60
Sputum	8	53.3
Chest pain	5	33.3
Dispnea	4	26.7
Hemoptysis	3	20
Fever	2	13.3
Sweating	1	6.7
Palpitation	1	6.7
Headache	1	6.7
Recurrent pneumonia	1	6.7
Back pain	1	6.7
Abdominal pain	1	6.7

Radiographic examination revealed hilar fullness in 11 cases (73.3%) and atelectasis in 7 patients (46.7%). In computed tomography (CT) examination, endobronchial lesion was observed in 2 cases (13.3%) while radiological evaluation was normal in 2 patients (13.3%) (***Figure 1***).

Figure 1: Endobronchial lesion in right main bronchus in a 30 year-old woman

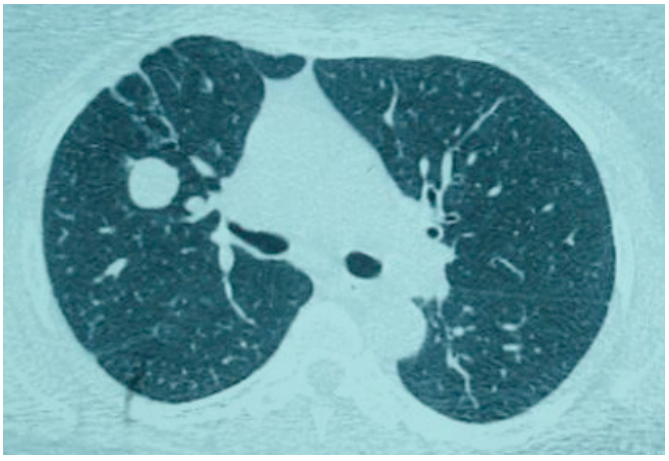


In 12 cases (80%), disease was histopathologically diagnosed by flexible bronchoscopy prior to surgical operation while 3 cases (20%) were diagnosed via thoracotomy. Carcinoid tumor was localized on right side in 12 cases (80%) and the most common localizations were determined as right inferior lobe and intermediate bronchus (3 cases in each group) (***Table 2***). Carcinoid tumor was localized in main bronchus or lobar bronchi in 14 cases and peripheral localization was evident in one patient (***Figure 2***).

Tablo 2: Localization of carcinoid tumors

Localization	n	%
Right	12	80,0
Inferior lobe bronchus	3	20,0
Intermediary bronchus	3	20,0
Upper lobe bronchus	2	13.3
HMain bronchus	2	13.3
Middle lobe bronchus	1	6.7
Peripheral localization	1	6.7
Left	3	20,0
Inferior lobe bronchus	2	13.3
Upper lobe bronchus	1	6.7

Figure 2: A case of carcinoid tumor with peripheral localization



While typical carcinoid tumor was present in 14 cases, atypical carcinoid tumor was determined in one patient. Lobectomy was performed in 8 cases (53.3%). Sleeve upper lobectomy was performed in one case while bronchoplastic resection was realized in two patients and wedge resection was performed in the case with peripheral localization (***Table 3***). In pathological examination, no involvement of tumor was detected in lymph nodes in any of the typical carcinoid tumor cases; on the other hand, mediastinal lymph node involvement was determined in the case with atypical carcinoid tumor. Post-surgical pathological staging identified stage IA in 5 cases (T1aN0 in 3 cases, T1bN0 in 2 cases), stage IB in 7 cases (T2aN0), stage 2B in 2 cases (T3N0) and stage 3A in 1 case (T2aN2).

Tablo 3: Surgical interventions administered in cases

Type of Resection	n	%
Lobectomy	12	80,0
Bilobectomy inferior	3	20,0
Bronchotomy+Bronchoplasty	3	20,0
Sleeve lobectomy	2	13.3
Wedge resection	2	13.3

Postoperative atelectasis developed in only one patient. Flexible bronchoscopy was performed in this patient. No mortality was observed during hospital stay in any of the patients. Mean duration of hospitalization was determined as 9.2 days (5-13 days).

Discussion

Bronchial carcinoids were first described in 1882 by Müller; Obemdorfer used the term "carcinoid" for the first time in 1907. In 1939, Kramer indicated that prognosis of carcinoid tumors have a better prognosis than bronchogenic carcinoma and included these tumors in the group of bronchial adenoma[3]. However in 1972, Arrigoni identified that some carcinoids have a more aggressive course and classified carcinomas into two groups as "typical" and "atypical" carcinoids[4]. Since 2004, these tumors are included in bronchopulmonary neuroendocrine tumor (BP-NET) classification.

Male/female ratio in carcinoid tumors is quite different from primary malignant lung tumors and was determi-

ned as 0.9/1[5]. In the current trial, 8 cases were males and 7 cases were females.

No specific symptom and physical examination finding is evident in carcinoid tumors. Clinical findings of carcinoid tumors vary according to localization of lesion. In tumors with central localization, bronchus is fully or partly obstructed which leads to atelectasis, inflammation and mucus plug[5]. These cases are usually symptomatic. Symptoms may be long lasting. Symptoms like cough, dyspnea, chest pain and hemoptysis are common. Frequent pneumonia attacks may be observed in patients. In a patient with hemoptysis and frequent pneumonia attacks, bronchial carcinoid tumor should be suspected[6]. On the other hand, peripheral tumors usually display an asymptomatic course and are diagnosed incidentally[7]. All of our cases were symptomatic and symptoms developed on an average of 2.5 years ago.

In 75% of carcinoid tumor cases, abnormal findings may be observed in postero-anterior chest radiograms[8]. Computerized tomography findings show similarities with other bronchial tumors. Computerized tomography was shown to be beneficial in terms of detecting the effects of primary tumor, metastatic lesions, calcifications and bronchial obstruction[9,10]. In the current trial, hilar fullness in 11 cases (73.3%) and atelectasis in 7 cases (46.7%) were determined in radiological evaluation. In computerized tomography, endobronchial lesion was found in 2 patients (13.3%) while radiological evaluation was normal in 2 cases (13.3%).

Bronchoscopy is a significant diagnostic method in carcinoid tumors.

Davilla et al. [6] indicated that 85% of patients may be diagnosed by bronchoscopic biopsy. In our trial, 12 cases (80%) were diagnosed preoperatively by flexible bronchoscopy. No serious bleeding was observed during flexible bronchoscopy and rigid bronchoscopy was not utilized in any of the patients.

Typical carcinoid tumors are also called as Kultchitsky type I cell tumors. Most cases display central localization. Around 20% of cases localize in main bronchus and 60% present with localization in lobar or segmental bronchi while 20% of patients display peripheral localization[11-13]. In our trial, 2 of 14 cases with typical carcinoid tumors (14.3%) localized in main bronchus and 11 cases (78.6%) localized in lobar bronchi. Peripheral localization was observed in 1 case (7.1%).

Atypical carcinoid tumors have relatively malignant histological features and display a more aggressive course, as compared to typical carcinoids. Risk of metastatic development is high with a 5-year survival rate of 56-77% and 10-year survival rate of 35-56%[14,15]. In the current trial, atypical carcinoid was diagnosed in only one patient. Mean age in typical carcinoid cases was 37.8 while the corresponding mean age among atypical cases was 52. Tumor was located in intermediary bronchus. Pathological N2 involvement was observed.

Fundamentals of treatment in carcinoid tumors are complete resection of tumor, while preserving lung tissue as far as possible. Lymph nodes should also be resected, together with the tumor. In cases where thoracotomy is contraindicated, bronchoscopic treatment may be utilized. Nd:YAG laser, photodynamic laser treatment and electrocautery may be used for this purpose[16]. Under appropriate conditions, bronchotomy may be performed and wedge resection may be applied to affected bronchial wall. In cases with involvement of main bronchial system or intermediate bronchi, tumor may be resected via sleeve resection of bronchus, provided that there is no parenchymal destruction. In small typical carcinoid tumors with peripheral localization, wedge resection may be performed. For tumors with central localization, sleeve resections or sleeve lobectomy may be regarded as other alternatives which provide appropriate surgical approach while from pneumonectomy. More aggressive surgical interventions are required in atypical carcinoids, which should be performed in combination with systemic lymphadenectomy. In the current trial, lobectomy was performed in 8 cases (53.3%), bilobectomy inferior in 3 cases (20%), bronchoplastic resection in 2 cases (13.3%), sleeve upper lobectomy in 1 case (6.7%) and wedge resection in 1 case (6.7%).

In conclusion, bronchopulmonary carcinoid tumors have a low grade potential for malignancy. Flexible bronchoscopy is a significant approach in diagnosis. Some cases are diagnosed asthma and unnecessary medical treatment can be applied. In surgery of these tumors, normal lung tissue should be protected as much as possible. The results of carcinoid tumor surgery are quite good.

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