

Surgical Treatment of Bronchiectasis; Analysis of 2 Years

Bronşektazinin Cerrahi Tedavisi; 2 Yilin Analizi

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Abstract: In this study bronchiectasis was analyzed with its etiology, symptoms, diagnosis, indications for surgery and surgical route. The aim of this study was to evaluate treatment outcomes in surgically treated patients with bronchiectasis. Seven patients with bronchiectasis who underwent surgery for bronchiectasis between January 2017 and January 2019 were included in the study. Age, sex, symptoms, etiologic factors, radiological findings, surgical procedures, postoperative morbidity and mortality, and were analyzed. The mean age was 32 to 65 years. Three of patients were males, 4 of patients were women. Symptoms were different in the patients. All patients had persistent and recurrent infection story. Cough, fetid sputum were present in all patients. Hemoptysis was present in only two cases. The etiology was recurrent childhood infection in two patients, pneumonia in four patients, and unknown etiology in one patient. Chest X-Ray, high resolution thorax computer scan(HRCT), and bronchoscopy were performed to these patients. Bronchiectasis was left-sided in three patients, right-sided in four patients. It was mainly confined to the lower lobes either alone in three patients, right lower lobe in one patient and left lower lobe in two patients; in right upper lobe in one patient; in conjunction with lower lobe and lingual in one patient; right upper lobe and right lower lobe together in 1 patient, and right middle lobe and lower lobe together in 1 patient. Indications for resection were failure of antibiotic therapy for several times in 5 patients, hemoptysis in 2 patients. Surgery was lobectomy in 4 patients, bilobectomy in 1 patient, lobectomy and wedge resection together in two patients. No complications occurred. All of patients had relief of their preoperative symptoms. If persistent and recurrent infections occurred with a failure of several times of conservative antibiotic treatment, surgery for bronchiectasis can be performed with acceptable morbidity and mortality at any age for localized disease. Good preoperative preparation and complete resection provides us control of the symptoms and good results.

Key Words: Bronchiectasis, pneumonia, complete resection

Özet: Bu çalışmada bronşektazi etyolojisi, semptomları, tanısı, cerrahi tedavi endikasyonları ve cerrahi girişim şekli ile analiz edilmiştir. Çalışmanın amacı cerrahi tedavi edilen bronşektazi hastalarının tedavi sonuçlarını değerlendirmektir. Ocak 2017 ve Ocak 2019 arasında bronşektazi tanısı ile cerrahi uygulanan 7 hasta çalışmaya dahil edildi. Yaş, cinsiyet, etyolojik faktörler, radyolojik bulgular, cerrahi prosedürler, postoperatif morbidite ve mortalite açısından analiz edildi. Hasta yaşları 32 ile 65 yaş arasındaydı. Üç hasta erkek, 4 hasta kadındı. Semptomlar hastalarda farklılık gösteriyordu. Her hastada öksürük ve kötü kokulu balgam vardı. Hemoptizi 2 hastada vardı. Etiyoloji, iki hastada rekürren çocukluk çağı enfeksiyonu, 4 hastada pnömoni ve bir hastada etyoloji bilinmiyordu. Akciğer grafisi, yüksek rezolusyonlu toraks bilgisayarlı tomografisi(HRCT) ve bronkoskopi bu hastaların hepsine uygulandı. Bronşektazi, 3 hastada sol tarafta, 4 hastada sağ tarafta yerleşimliydi. Üç hastada sadece alt loblarda olup bunun 2 si sol alt lob, diğeri sağ alt lob yerleşimliydi. Bir hastada sağ üst lob yerleşimli, 1 hastada sol alt lob ve lingula beraber, 1 hastada sağ üst lob ve alt lob beraber, 1 hastada ise sağ orta lob ve alt lob beraber yerleşimliydi. Cerrahi endikasyon 5 hastada defalarca geçirilmiş başarılı olmayan antibiyotik uygulamaları, 2 hastada ise hemoptiziydi. Cerrahi 4 hastada lobektomi, 1 hastada bilobektomi inferior, 2 hastada lobektomiye ek olarak wedge rezeksiyon olarak uygulandı. Defalarca antibiyotik uygulamasının başarısız olduğu inatçı ve tekrarlayan enfeksiyon durumunda bronşektazi için cerrahi tedavi her yaştaki lokalize hastalık için kabul edilebilir morbidite ve mortalite oranları ile uygulanabilir. İyi preoperatif hazırlık ve komplet rezeksiyon bize semptomların kontrolünü ve iyi sonuçları sağlar.

Anahtar Kelimeler: Bronşektazi, pnömoni, komplet rezeksiyon.

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1. Introduction

Bronchiectasis is defined as permanent dilatations of bronchi with destruction of the bronchial wall. Bronchiectasis was first described by Laenec in 1819 and, before the antibiotic era, was considered a morbid disease with a high mortality rate from respiratory failure(1) Bronchiectasis is usually caused by pulmonary infections and bronchial obstruction, It is still a serious problem in developing countries as our country(2) Surgery is the only option for potential cure for bronchiectasis.,although improvement of the outcome for nonsurgical treatment has been shown due to the development of more effective antibiotics and conservative therapeutics(3,4) Current reports about the surgical management for bronchiectasis show that limited localized disease was associated with good postoperative prognosis (5).

2. Patients and Methods

We retrospectively reviewed the medical records of 7 patients who under went surgical

resection for bronchiectasis between January 2017 and January 2019, at the department of thoracic surgery in Eskişehir Osmangazi University Medical Faculty. Patients were admitted to the department from either the chest disease department or our outpatient clinic as a referral from another chest hospitals. In all patients chest X-ray (Figure 1) and high resolution thorax computed tomography (HRCT) (Figure 2) were performed to evaluate the type, severity, and distribution of bronchiectasis and pulmonary function tests were carried out for all patients. Sputum cultures were tested and specific antibiotics were given to the patients according to the antibiogram results. Patients were performed chest physiotherapy until the daily volume of the sputum decreased to 30 mL or less. . Fiberoptic bronchoscopy (FOB) was performed in every patient to clear secretions and to inspect the endobronchial masses or foreign bodies.

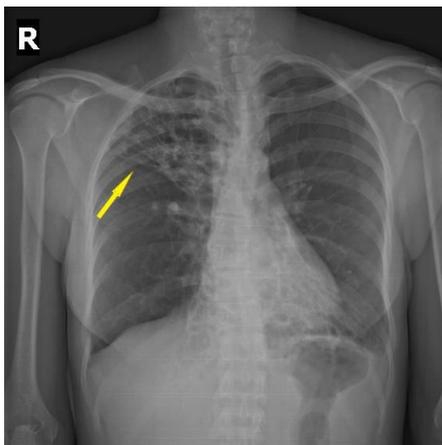


Figure 1. Right upper lobe bronchiectasis in chest X-ray

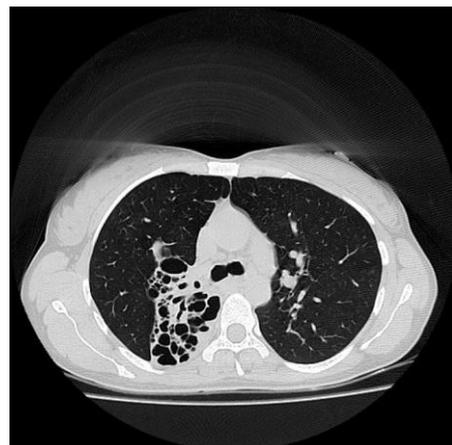


Figure 2. Right upper lobe bronchiectasis in CT

Table 1. General clinical characteristics of the patients

Variable	No. of patients
Age	32-65
Female/Male	4-3
Smoker (Female-Male)	4-3
Comorbidities	
Pneumonia	4
Infection during childhood	2
Unknown etiology	1

Table 2. Bronchiectasis locations

Location	Number of patients
Left	
Lower lobe	2
Lower lobe+Lingula	1
Right	
Upper lobe	1
Upper lobe+Lower lobe	1
Middle lobe+Lower lobe	1
Lower lobe	1

3. Surgical Procedures

A double-lumen endotracheal tube and a posterolateral thoracotomy incision were used in all patients. Resection type was based on the affected region and the cardiopulmonary reserve. If the disease is limited to one lobe, lobectomy was performed. If disease is extending to the other lobe, wedge resection was performed additional to the lobectomy. During pulmonary resection, excessive bronchial dissection was avoided, and peribronchial tissues were preserved. Bronchial stumps were closed with bronchial stapler and covered its layer with pericardial fat tissue, mediastinal pleura to avoid bronchopleural fistula. Postoperative management included intensive chest physiotherapy and administration of antibiotics and analgesics.

5. Discussion

Bronchiectasis is usually caused by pulmonary infections or bronchial obstruction and a multiform disease whose anatomical and clinical characteristics. Bronchiectasis is still a problem in developing countries as our country (5,6). In spite of the advances in

4. Results

Seven patients were underwent for surgery. Two patients were performed left lower lobectomy, one patient was performed right lower lobectomy, one patient was performed right upper lobectomy, one patient was performed right upper lobectomy and wedge resection to the lower lobe, one patient was performed left lower lobectomy and wedge resection to the lingula and one patient was performed bilobectomy inferior (right middle lobectomy and right lower lobectomy together). There were no intraoperative or postoperative deaths. No patient needed blood transfusion. In 6 patients had uneventful postoperative course. Complications occurred in the remaining 1 patient (prolonged air-leak, residual air-space)

thoracic surgery, the optimal treatment for bronchiectasis remains controversial.

Adequate treatment of pulmonary infections of childhood is very important in bronchiectasis. Most of the patients have recurrent infections and inadequate antibiotic

therapy in their histories as like the other series (7, 8)

Bronchogram was the standard procedure for diagnosis before the CT usage. After the widespread use of the CT, bronchogram was nearly not needed and used now a days. CT shows us the occupying disease and distribution between the lobes of the disease. Images demonstrate bronchial dilatation, peribronchial inflammation and parenchymal disease in CT scans (9,10,11). CT findings are adequate to make a decision for complete resection in bronchiectasis.

Treatment should be medical primarily. If medical treatment is unsuccessful or frequent episodes of disease exist surgical therapy should be considered (12). Chest physicians follow these patients for many years with medical treatment. The most common symptoms were chronic cough, expectoration of purulent sputum. Sometimes the daily volume of the sputum could be raised up to 300–400 ml. Also these patients suffer from social isolation. The costs of treatment increases with large usage of antibiotics in every episode. This also causes loss of work and getting larger that leads to the destroyed lung in every recurrence. If symptoms are persistent and failed due to the antibiotic therapies; when hemoptysis is occurred in every episode of the disease and when the disease is diagnosed as unilateral,

segmental or lobar, surgery should be considered. The failure in antibiotic therapy in every episode may lead the disease getting widespread and life threatening symptoms like hemoptysis.(12). The goals of surgical treatment are complete resection and to provide disease free comfortable life. In intraoperative examination suspected areas can be observed. At this time suspected areas that could not be determined by radiological examination should also be resected for complete resection and to decrease recurrence. If bronchiectasis is diagnosed in childhood, surgical treatment should be done to avoid the recurrence of pneumonia and spreading of the disease. Pneumonectomy is reported to be a high-risk procedure especially for benign disease, but it may become necessary in rare cases of unilateral presentation with destroyed lung. In our cases, there were no need to perform pneumonectomy. In our patients complete resection was performed and our patients had total relief or substantial improvement in their preoperative symptoms.

In conclusion, surgical resection of localized bronchiectasis is a safe procedure with acceptable perioperative morbidity and mortality rates, and proven improvement of quality of life. For successful results, complete resection should be performed.

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