

Vaka Raporu/Case Report

An Extremely Large Lung Abscess; Surgical or Medical Treatment?

Büyük Bir Akciğer Apsesi; Drenaj mı Medikal Tedavi mi?

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ÖZET

Akciğer absesi; aspirasyon ya da mikrobiyal klirens mekanizmalarındaki yetersizlik olması sonucu akciğer parankiminde nekrozun eşlik ettiği süperatif akciğer enfeksiyonudur. Eski yıllarda akciğer absesi önemli bir mortalite ve morbidite nedeni iken anaerobik antibiyotik tedavilerinin artması sonucu insidans ve mortalite oranları azalmıştır. Buna rağmen hala %15-20 oranında mortaliteye sahiptir. Anaerobik antibiyotikler son derece etkili olmasına rağmen, bazı durumlarda cerrahi müdahale gerekebilir. Altı cm ve daha büyük boyutlar çoğu kaynak tarafından cerrahi girişim veya drenaj endikasyonu olarak belirtilmiştir. Bizim vakamız 12 cm ile cerrahi sınırın tam iki katı büyüklüğe sahipti. Solunum sıkıntısı ve rüptür riski mevcuttu. Standart rejimlerle tedavi edilerek tama yakın düzelme sağlandı. Böylece hem cerrahi bir girişimin komplikasyonlarından korunmuş oldu hem de absenin büyüklüğü ne olursa olsun klasik tedavi rejimlerinin etkinliği gösterilmiş oldu.

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Anahtar Kelimeler: Akciğer absesi, Apse tedavisi, Anaerobik enfeksiyonlar.

ABSTRACT

Lung abscess; It is a suppurative lung infection accompanied by necrosis of the lung parenchyma as a result of insufficient aspiration or microbial clearance mechanisms. While lung abscess was an important cause of mortality and morbidity in the past, incidence and mortality rates decreased as a result of the increase in anaerobic antibiotic treatments. Despite this, it still has a mortality rate of 15-20 percent. Although anaerobic antibiotics are extremely effective, surgery may be required in some cases. Sizes 6 cm and larger are indicated by most sources as an indication for surgery or drainage. Our case was 12 cm in size, exactly twice the surgical margin. There was respiratory distress and risk of rupture. Almost complete recovery was achieved by treatment with standard regimens. Thus, both the complications of a surgical procedures were protected and the effectiveness of classical treatment regimens was demonstrated regardless of the size of the abscess.

Keywords: Lung abscess, Abscess treatment, Anaerobic infections.

INTRODUCTION

A lung abscess is a localized suppurative lesion of pyogenic microorganisms resulting in tissue necrosis and cavity formation in the lung parenchyma. It is often a complication of aspiration pneumonia. Currently, mortality in primary lung abscess is approximately 15-20%. In particular, anaerobic bacteria are the common cause of pulmonary abscesses. Symptoms are often cough, sputum, fever, and night sweats. In radiography, segmental placement is noteworthy. It usually seems on the right lung because the anatomic structure of the right bronchus and the aspirated material is more likely to escape. An antibiotherapy including anaerobes should be used in the treatment. The main surgical indications

are abscess larger than 6 cm, massive bleeding, empyema, malignancy, and symptoms lasting more than 12 weeks (Bartlett, 2020; Ozlu et. al., 2012; Kuhajda et. al., 2015; Sabbula et. al., 2020).

Case

A 22-year-old woman presented to our department with complaints of cough, phlegm, shortness of breath, fever, night sweats, runny nose, and weakness. Her complaints were ongoing for 2 weeks. A physical examination revealed the following findings: height, 158 cm; body weight, 55 kg; body temperature, 39°C; heart rate, 130 bpm; blood pressure, 110/70 mmHg; and oxygen saturation, 85% in room air. The laboratory findings on admission demonstrated an elevated peripheral blood white blood cell count (WBC) 19.700U/L (4.6-10,200) and CRP level

420mg/dl (0-5). Her symptoms were severity and she had difficulty breathing. The standard chest radiograph (Figure 1) showed a pulmonary abscess which a diameter of 12 cm. The patient was hospitalized and ampicillin-sulbactam 1 gr 4x1 and metronidazole 500 4x1 were started intravenously. Postural drainage was performed. On the 4th day of treatment, the CRP value was decreased to 263mg/dl and WBC was 14.400 U/L. But the symptomatic improvement was not achieved. The patient's saturation was still low and tachypnea continued. Computerized tomography for thorax was performed and pulmonary abscess with a diameter of 12x6 cm was also reported (Figure 1).

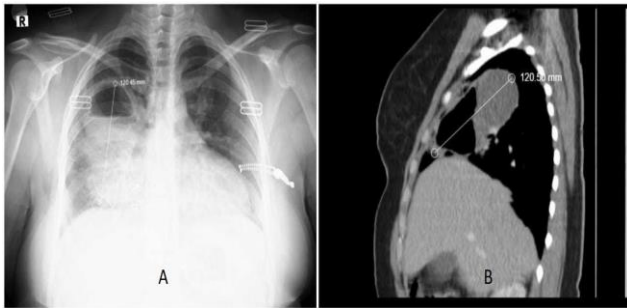


Figure 1. Pulmonary abscess with a diameter of 12x6 cm; A: posterior-anterior chest radiograph, B: computerized tomography

It was twice the surgical margin. It was thought that the abscess might rupture. Because of its large diameter, percutaneous tube drainage was planned as a surgical intervention. A consultation was requested from the department of thoracic surgery. The operation is decided. The patient did not accept the operation. All risks that may occur if surgery is not performed were explained and the necessary consent forms were signed. Therefore it was decided to continue the current medical drug therapies. On the 7th day of treatment, CRP was found to be 50 mg/dl, WBC was 10,000 U/L and the level of pus was regressed (Figure 2).

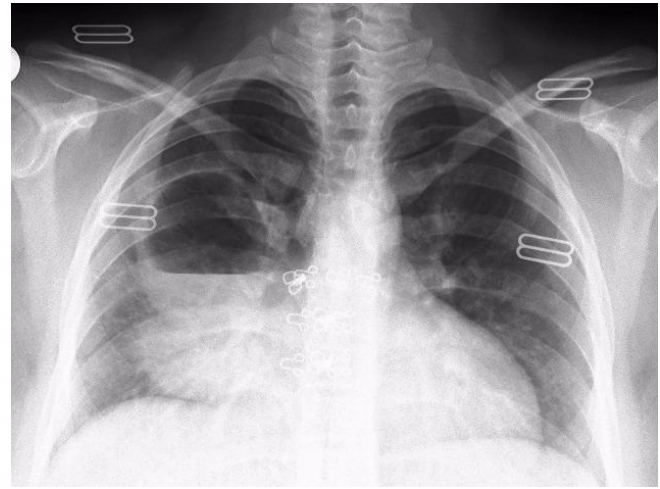


Figure 2. The chest radiograph on the 7th day of treatment

Cough and fatigue were completely corrected the saturation was 94 without oxygen. She was discharged at the end of 10 days of treatment. No interventional procedure was performed and continued treatment with oral amoxicillin (3x1000mg) and metronidazole (4x500mg). Total treatment was completed in 6 weeks and the lesion completely recovered (Figure 3).

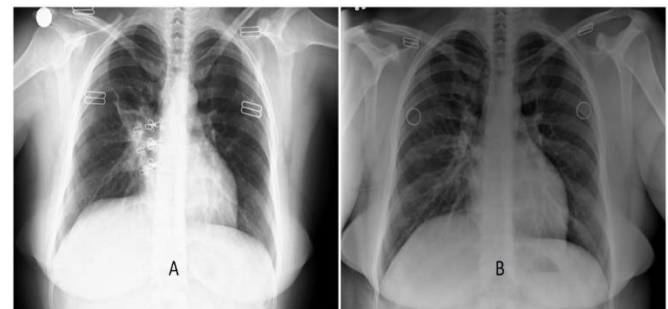


Figure 3. The chest radiograph; A: at the end of the treatment (after 6 weeks), B: after one year

DISCUSSION

Medical treatment with long-term antimicrobials is the main point of treatment of pulmonary abscesses. Penicillin and clindamycin positive results have been reported in studies conducted with antibiotics in the early period and penicillin is generally preferred. Then, penicillin and clindamycin resistance was observed in anaerobes. Almost all anaerobes and most facultative organisms are known to be susceptible to

combinations of beta-lactam, beta-lactamase inhibitors. Today, the general approach is to use beta-lactam, beta-lactamase inhibitors, or second cephalosporins together with clindamycin or metronidazole. The optimal duration of antibiotics is not known, but most cases have been shown to improve after 6 weeks of treatment (Schiza and Siafaks, 2006).

The usual indication of surgery is abscess greater than 6 cm in diameter, massive bleeding, empyema, malignancy, abscesses associated with an obstructed bronchus, failure to respond to medical management if symptoms last more than 12 weeks with appropriate therapy, or abscesses involving relatively resistant organisms (Bartlett, 2020; Ozlu et. al., 2012; Kuhajda et. al., 2015; Sabbula et. al., 2020). The usual surgery procedure is drainage or resection of lung abscess. Drainage can be performed percutaneous or endoscopically with a local approach, or it can be performed open under general anesthesia. Options for local drainage are percutaneous transthoracic tube drainage or endoscopic drainage with bronchoscopy. The usual resection procedure is a lobectomy. If necessary, pneumonectomy is performed (Bartlett; Sabbula et. al.). Percutaneous drainage requires special care to prevent contamination of the pleural space and is an easy-to-do surgical procedure. It can be followed by ultrasound or computerized tomography (Kelogrigoris et. al., 2011; Kuhajda et. al., 2015; Bartlett, 2000). It is indicated in 11-21% of patients in whom antibiotic therapy has failed (Mueller and Berlin, 2002; Kuhajda et. al. 2015). The complication rate of drainage is about 16% and mortality about 4% (Wali, 2012; Kuhajda et. al. 2015). Complications of tube drainage are spillage of the necrotic detritus, infection bronchopleural fistula or bleeding. Endoscopic drainage of lung abscesses with bronchoscopy is an alternative to chest tube drainage. Bronchoscopy can diagnose an underlying disease such as endobronchial stenosis or malignancy. It requires an experienced operator and is performed by inserting a pigtail catheter into the abscess cavity. The catheter is left in place until the cavity is drained.

The most important complication of this is the spillage of abscess contents into the airways (Kuhajda et. al., 2015; Bartlett, 2020).

Open drainage, lobectomy, and pneumonectomy are the other treatment methods for surgical treatment. Air leakage, bronchial fistula, empyema, mediastinitis are the main complications of these. Mortality rate after surgical treatment is about 11-28% (Herth, 2005).

Abscesses larger than 6 cm are unlikely to resolve with antibiotic therapy alone and might require surgical or percutaneous intervention. Today, it is reported in most sources that a lesion of this size requires surgical intervention. Rupture and respiratory failure are important complications. They are secondary to underrecognition, undertreatment, or untreated underlying cause of the lung abscess (Sabbula et. al., 2020).

The patient was young, healthy, with no underlying disease and no immunodeficiency. The abscess had a diameter of 12 cm. The most suitable period for a delay before percutaneous tube drainage initiation remains unknown (Shlomi, 2010). Although there was laboratory improvement, clinical and radiological improvement could not be achieved on the fourth day. Rupture probability was considered. However, a surgical approach was not performed and conventional medical treatment was continued. After 6 weeks, the patient completely recovered.

Conclusion

In most cases, lung abscesses are successfully treated by antibiotic therapy with a cure rate of around 90%. The complication and mortality rates of surgery are significantly higher than medical treatment. Although this case is twice the surgical margin, it responded to medical treatment and was presented to give information to the literature. Thus, it was hoped that more patients would be protected from the complications and mortality of the surgery.

Disclosure Statement

The author has no conflicts of interest.

REFERENCES

- Bartlett J.G. (2020). Lung abscess, <https://www.up-todate.com/contents/lungabscess>. (Accessed on April 02, 2021.)
- Herth F, Ernst A, Becker HD (2005). Endoscopic drainage of lung abscesses: technique and outcome. *Chest*, 127(4),1378-81.
- Kelogrigoris M, Tsagouli P, Stathopoulos K, Tsagaridou I, Thanos L. (2011). CT-guided percutaneous drainage of lung abscesses: review of 40 cases. *Journal Belge de Radiologie*, 94(4),191-5.
- Kuhajda I, Zarogoulidis K, Tsirgogianni K. (2015). Abscess etiology, diagnostic and treatment options. *Annals of Translational Medicine*, 3(13), 183.
- Mueller PR, Berlin L. (2002). Complications of lung abscess aspiration and drainage. *American Journal of Roentgenology*, 178(5),1083-1086.
- Özlu T, Metintaş M, Karadağ M, Kaya A (2012). *Göğüs Hastalıkları El Kitabı*. Ankara, Rotatıp Kitabevi, 280-282.
- Sabbula BR, Rammohan G, Akella J. (2020). Lung Abscess, <https://www.ncbi.nlm.nih.gov/books/NBK555920/> (Accessed on April 05, 2021.)
- Schiza S, Siafaks NM. (2006). Clinical presentation and management of empyema, lung abscess and pleural effusion. *Current opinion in pulmonary medicine*, 12(3),205-11.
- Shlomi D, Kramer MR, Fuks L, Peled N, Shitrit D. (2010). Endobronchial drainage of lung abscess: the use of laser. *Scandinavian journal of infectious diseases*, 42(1),65-68.
- Wali SO. (2012). An update on the drainage of pyogenic lung abscesses. *Annals of thoracic medicine*, 7(1),3-7.