Could Recurrent Anxiety Be a New Surgical Indication For Patients with Spontaneous Pneumothorax?

Tekrarlama Anksiyetesi Spontan Pnömotorakslı Hastalar için Yeni Bir Cerrahi Endikasyon Olabilir mi?

Spontan Pnömotoraks ve Anksiyete / Spontaneous Pneumothorax and Anxiety

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Özet

Amaç: Anksiyete, bedensel, duygusal, bilişsel ve davranışsal bileşenleri ile karakterize, psikolojik ve fizyolojik bir durumdur. Bu rahatsızlık, sosyal, mesleki veya diğer önemli alanlarda klinik olarak anlamlı bir sıkıntı ya da bozukluğa yol açar. Tekrarlama anksiyetesi spontan pnömotorakslı hastalarda ciddi bir klinik durumdur ve bazı hastalarda güçlü bir kaygı ve riskli aktivitelerden kaçınma olabilir. Bu çalışmada, "tekrarlama anksiyetesi spontan pnömotorakslı hastalarda yeni bir cerrahi endikasyon olabilir mi?" sorusuna cevap arandı. Gereç ve Yöntem: Toplam 36 spontan pnömotorakslı olgu değerlendirildi, hastaneye kendi istekleri ile tekrarlama anksiyetesi nedeniyle başvurma sıklık verileri toplandı. Hastalar her başvurularında göğüs radyogramı ile değerlendirildiler. Bulgular: Preoperatif dönemde 19 (%52.8) hasta, postoperatif dönemde 2 (%5.6) hasta takip dönemi boyunca tekrarlama anksiyetesi nedeniyle hastaneye başvurdu. Ameliyat öncesi ve sonrası dönem arasında hastaneye başvuru sıklığı arasında yaklaşık 9.5 kat fark vardı. Sonuç: Atak sonrası ciddi tekrarlama anksiyetesi olan ve yaşam kalitesi azalan spontan pnömotorakslı hastalarda cerrahi yaklaşım tercih edilebilir. Özellikle torakoskopik cerrahi, genç ve sağlıklı spontan pnömotorakslı hastalarda ilk atakda tercih edilen yöntem olmalıdır.

Anahtar Kelimeler

Spontan Pnömotoraks; Cerrahi; Tedavi; Anksiyete

Abstract

Aim: Anxiety is a psychological and physiological clinical state characterized by somatic, emotional, cognitive, and behavioral components. This disturbance may causes clinically significant distress or impairment in social, occupational or other important areas of functioning. Recurrent anxiety is a serious clinical entity in patients with spontaneous pneumothorax, and some patients may have strong anxiety and avoid risky activities. In this study, we searched for answer to the question "could recurrent anxiety be a new surgical indication for patients with spontaneous pneumothorax?". Material and Method: A total 36 patients with spontaneous pneumothorax were evaluated, the data of frequency of admission without any recurrence due to the recurrent anxiety were collected, and the patients were evaluated with chest radiography in each admission. Results: In preoperative period 19 (52.8%) patients, in postoperative period 2 (5.6%) patients admitted to the hospital due to their recurrent anxiety in follow-up period. There were approximately 9.5-fold difference between the frequency of admission to the hospital in preoperative and postoperative period. Discussion: Surgical approach may be preferred in post episode whose have declining quality of life and serious recurrent anxiety in patients with spontaneous pneumothorax. Especially thoracoscopic surgery must be the preferred in the first episode of spontaneous pneumothorax in young and healthy patients.

Keywords

Spontaneous Pneumothorax; Surgical; Treatment; Anxiety

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Introduction

Collapse of one or both lungs, caused by accumulation of gas or air in the pleural cavity resulting from non injury is definition of spontaneous pneumothorax (SP) [1], it is a common disease in the practice of thoracic surgery [1], and it is a high morbidity disease due to the recurrences [1]. The aim of the treatment consists of maintaining the air drainage, re-expansion of the lung(s) and preventing the recurrences [1], the rate of recurrence is 16-52%, and seeing within six months to two years [2]. An asthenic body, being taller and thinner than the average person, male gender, smoking, and lung diseases are important risk factors for recurrences [1].

Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive, and behavioral components. This disturbance may causes clinically significant distress or impairment in social, occupational or other important areas of functioning [3]. Some patients may have strong anxiety and avoid risky activities in SP [4]. High recurrence rate and anxiety associated with the anticipation of recurrence are sources of disability for young patients [4], an optimal strategy therefore should provide patients with satisfaction, in addition to safety and low recurrence rate [4]. In conclusion we searched for answer to the question "could recurrent anxiety be a new surgical indication for patients with spontaneous pneumothorax?".

Material and Method

A total 36 consecutive SP patients were evaluated and treated in clinic of thoracic surgery between January 2008 and March 2011. All patients gave written informed consent to participate, and the ethics committee was waived because this study was a clinical observational and management study. Patients' demographic data; "age, gender, clinical presentation, presence of bullous lesions, size, side and type of pneumothorax, recurrences, treatment approaches, frequency of admission with their request to the hospital" were collected. Diagnosis of SP was established with medical history, physical examination and posteroanterior chest x-ray during inspiration. Chest computerized tomography was performed for all patients for detection of bullous lung disease. The pneumothorax size was determined with posteroanterior chest x-ray using the Light index [2]. More than 40% indicated total pneumothorax, 20-40% indicated partial pneumothorax, and less than 20% indicated minimal pneumothorax, we observed with oxygen therapy as long as the size of the pneumothorax remains stabile in patients with minimal pneumothorax, however, we performed tube thoracostomy in patients with partial and total pneumothorax, 28F chest tube was used for tube thoracostomy throughout mid-axillary line of 4th or 5th intercostal space under local anesthesia. When the air leak cessation and providing the re-expansion of lung, the chest tube was clamped for 12 hours, after this process the clamp was opened and if air leak is not detected, the chest tube was withdrawn. The patients who have recurrent pneumothorax or prolonged air leak more than 5 days, we usually performed the surgery. Bullectomy, bleb excision, apical parietal pleurectomy and mechanical pleural abrasion were performed through thoracotomy or video assisted thoracoscopic surgery (VATS).

Some patients were had serious recurrent anxiety, the datas of frequency of admission without any recurrence due to the recurrent anxiety were collected. All patients were consulted to the clinical of psychiatry, and the patient anxiety status was measured with this way, the patients were evaluated with chest radiography in each admission.

Statistical analysis

Statistical analyses were performed using PASW Statistics 15.0 software (SPSS, Inc., Somers, NY, USA). Relationships between categorical variables were analyzed using chi-square statistics. Datas were calculated using the analyze of frequency and descriptive .

Results

The mean age of the patients was 32.11 ± 14.51 years (19-75). All of the patients were male, 11 (30.6%) patients with left side pneumothorax, 25 (69.4%) patients with right side pneumothorax, minimal pneumothorax was in 4 (11.1%) patients, partial pneumothorax was in 19 (52.8%) patients and total pneumothorax was in 13 (36.1%) patients. All of the patients presented with bullous lesions. Chest pain (15: 41.7%) and dyspnea (10: 27.8%) were the most common complains. 31 (86.1%) patients were primary spontaneous pneumothorax (PSP), and 5 (13.9%) patients were secondary spontaneous pneumothorax (SSP). 32 (88.9%) patients underwent tube thoracostomy, 23 (63.9%) patients underwent surgery, 17 (47.2%) patients underwent VATS, and 6 (16.6%) patients underwent axillary thoracotomy. There weren't surgery related mortality or complications. Recurrence was detected in 21 (58.3%) patients, the mean recurrence was seen in 10.38 ± 7.91 month (1-29 month). Recurrence was detected in patients with partial or total pneumothorax. 19 (52.8%) patients admitted to the hospital in preoperative follow-up period without any recurrence due to their recurrent anxiety (rate; 1.36 ± 0.68), 2 (5.6%) patients admitted to the hospital in postoperative follow-up period without any recurrence due to their recurrent anxiety (rate;1) (Table 1). Seven (19.4%) non surgical patients admitted to the hospital without any recurrence due to their recurrent anxiety (rate;1.28 ± 0.48). In total 26 (72.2%) patients admitted to the hospital due to their recurrent anxiety, and the mean rate was 1.34±0.62 (1 to 3). There were not statistically significant, however there were approximately 9.5-fold difference between the frequency of admission to the hospital in preoperative and postoperative period.

Table1. Reccurrent anxiety scores of the patients in preoperative and postoperative period.

	n	%	Mean±SD
Preoperative recurrent anxiety	19	52.8	1,36±0,68
Postopertive recurrent anxiety	2	5.6	1,00±0.00

Discussion

The term 'pneumothorax' was first reported by Itard and then Laennec in 1803 and 1819 respectively [5,6]. The diagnosis is confirmed by physical examination, chest radiography and thoracoscopic examination [2,7]. Therapeutic options are variations, and include the conservative, intermediate and invasive procedures [2]. British Thoracic Society, American College of Chest Physicians, Belgian Society of Pneumology reported the guidlines about the management of SP [2,8].

Second ipsilateral pneumothorax, first contralateral pneumothorax, synchronous bilateral SP, persistent air leak (despite 5-7 days of chest tube drainage) or failure of lung re-expansion, spontaneous haemothorax, professions at risk (eg, pilots, divers), pregnancy were accepted indications for surgical advice [5]. Surgical management can be applied by thoracotomy or VATS [2]. In with thoracoscopic surgery; failure to re-expand is 3.13% (0.24 to 16.7) [4,9], surgical death is 0% (0 to 1.0) [4,9], mortality is 0%/y [4,9], and recurrence is 2.31%/y (0.84 to 10.21) [4,9]. In with open thoracotomy; failure to re-expand is 0% [4,10], surgical death is 0% [4,10], recurrence after the first open thoracotomy is 0.65%/y (0.06 to 2.40) [4], and mortality is 0%/y [4]. However failure to re-expand with pleural drainage is 27.4% (18.0 to 34.4) [4], surgical death is 0% (0 to 0.1) [4], recurrence is 21.7%/y (11.5 to 29.1) [4], mortality after first and second pleural drainage is 0%/y [4], and recurrence after the second pleural drainage is 36.3%/y (10.0 to 50.0) [4]. In with pleurodesis; failure to re-expand is 9.0% (0 to 12.0) [4,11], surgical death is 0% (o to 0.1) [4,11], recurrence is 5.49%/y (2.29 to 7.73) [4], and mortality is 0%/y [4]. The literatures showed that, VATS and thoracotomy have no mortality and low recurrence rate, however pleural drainage have high recurrence rate [2,12]. The recurrence rate was reported 16-52% [2,12], and 34-65% [4], most recurrences seeing within six months to two years, within the first four years were reported 54% [1]. The recurrence increases with more episodes [2,12]. It was reported 20-30% after the first attack, 50% after the second attack and over 80% after the third attack [1,13]. Chemical pleurodesis were applied after the first attack or recurrence for reduce to recurrences [1], however, it was reported about 20% in patients undergoing pleurodesis [1]. The recurrence rate in patients with SSP higher than in patients with PSP (% 26-50 versus 12-27%) [1,13]. Recurrences (21: 58.3%), and prolonged air leak (2: 5.6%) were surgical indications in our study, recurrence was seen in all patients with recurrent anxiety, and they were underwent surgical management in follow-up period (1-29 month).

A method has not been detected predicted the recurrence of SP [1], axillary thoracotomy and thoracoscopy should be considered in the first episode of pneumothorax for minimize the risk of recurrence [1]. In our study the recurrences rate was 58.3% (21 patients), 19 (52.8%) patients admitted to the hospital in preoperative follow-up period due to their recurrent anxiety, and only 2 (5.6%) patients admitted to the hospital in postoperative follow-up period due to their recurrent anxiety, total 26 (72.2%) patients admitted to the hospital due to their recurrent anxiety. There were not statistically significant, however there were approximately 9.5-fold difference between the frequency of admission to the hospital in preoperative and postoperative period. Small number of patients may explain to our result. This high rate showed that, recurrent anxiety is very important and serious clinical entitiy in patients with SP.

Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision, also known as DSM-IV-TR, is a manual published by the American Psychiatric Association that includes all currently recognized mental health disorders. In DSM-IV-TR diagnostic criteria for anxiety due to general medical condition (for this text: pneumothorax) have prominent anxiety predominates in the clinical picture. There is evidence from the history, physical examination, or labarotory findings that the disturbance is the direct physiological consequence of a general medical condition. The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning [3]. In psychiatric treatment of approach having priority if it is possible to treat the general medical condition [14,15]. Moreover, a large portion of anxiety is produced by anticipation of future conditions. Trait anxiety reflects a stable tendency to respond with state anxiety in the anticipation of threatening situations [16].

PSP is a fairly common disease among young and healthy men, and the disability associated with the recurrence cannot be disregarded from an individual as well as a societal point of view. Some patients may have strong anxiety and avoid risky activities such as air activity or scuba diving [4]. Quality adjusted life expectancy is an expected life length that takes into account quality of life measured as utility [4]. PSP affect patients' daily life but not survival [4], patients wish to achieve good, active daily life without disability to the greatest possible extent. The goal of doctors is not only to extend the length of life of patients but also to improve the quality of their health and life status [4]. Furthermore Lee SH et al. [17] reported the first-onset PSP patients show significantly higher levels of anger and perceived stres. It means that anger could play a role in the pathophysiology of PSP [17], so anger plus recurrent anxiety may increase the recurrence rate.

With the traditional treatment, patients would be sent home until the second episode, which usually leaves patients in a state of anxiety because there is no clear indication of when and where the second episode will ocur [18]. Especially young male patients with PSP could benefit most by selecting thoracoscopic surgery as the initial treatment of choice from this outlook [4, 19, 20]. Thoracoscopic surgery, pleural drainage and pleurodesis compared according the quality adjusted life expectancy, thoracoscopic surgery strategy offers longest quality adjusted life expectancy at 1 year and 2 year follow-up. Morimoto et al. [4] reported that thoracoscopic surgery might be the treatment of choice in terms of quality adjusted life expectancy for the first episode of PSP in young and healthy men.

In British Thoracic Society pleural disease guideline 2010 reported the open thoracotomy and pleurectomy remain the procedure with the lowest recurrence rate (approximately 1%) for difficult or recurrent pneumothoraces, and VATS with pleurectomy and pleural abrasion is better tolerated but has a higher recurrence rate of approximately 5% [5], The thoracoscopy for the first episode of PSP is safe, effective, and cosmetically excellent. The most important advantage is that it eliminates to the fear of recurrence in patients [18], that is why we can suggest the surgical management in first pneumothorax attack.

In conclusion, anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive, and behavioral components. This disturbance may causes clinically significant distress or impairment in social, occupational or other important areas of functioning. Recurrent anxiety is important and serious clinical entity in patients with SP, and some patients may have strong anxiety and avoid risky activities. Surgical approach may be preferred in post episode whose have declining quality of life and serious recurrent anxiety in patients with

spontaneous pneumothorax. Especially thoracoscopic surgery must be the preferred in first episode of spontaneous pneumothorax in young and healthy patients. However, further clinical studies need to be undertaken with larger groups to verify about relationship between recurrent anxiety and SP.

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