

Evaluation of Kinesiophobia, Pain and Functional Status in Adhesive Capsulitis and Rotator Cuff Syndrome

Adeziv Kapsülit ve Rotator Manşon Sendromunda Kinezyofobi, Ağrı ve Fonksiyonel Durumun Değerlendirilmesi

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Abstract

Objective: Kinesiophobia, which is defined as the fear of moving due to the fear of re-injury, impairing the quality of life of the patients, causes various degrees of disability and participation problems, adversely affects the treatment, and may cause the pain to become chronic and may predispose to depression. Severe pain and limitation of movement in a short time are common in muscle, joint and ligament pathologies of the shoulder, which is one of the most common problems of the upper extremity. We aimed to conduct this study in patients with a diagnosis of rotator cuff and adhesive capsulitis, anticipating that the presence and degree of kinesiophobia should be considered when planning treatment for shoulder diseases.

Method: A total of 80 patients, aged 30-75 years, who had shoulder pain complaints for at least 1 month and applied to the outpatient clinic for rehabilitation, diagnosed with rotator cuff syndrome (n=40) and adhesive capsulitis (n=40) were included in the study. Pain degree of the patients, active joint range measurement of the painful shoulder, anxiety and depression, degree of disability and presence of kinesiophobia; it was evaluated with the numerical rating scale (NRS), the arm, shoulder and hand problems questionnaire (DASH), the hospital anxiety depression scale (HAD), and the Tampa kinesiophobia scale. The patients voluntary consent for the study and approval of University of Health Sciences Turkey, İstanbul Bakırköy Dr. Sadi Konuk Training and Research Hospital Ethics Committee with protocol number 2019-421 was obtained on 12.09.2019.

Öz

Amaç: Tekrar yaralanma korkusuna bağlı hareket etme korkusu olarak tanımlanan kinezyofobi, hastaların yaşam kalitesini olumsuz etkileyerek çeşitli derecelerde özür ve katılım problemlerine yol açmakta, tedaviyi olumsuz etkilemekte ve ağrının kronikleşmesine, depresyona yatkınlığa neden olabilmektedir. Sık görülen kas iskelet sistemi problemlerinden olan omuz hastalıklarında ağrı ve kısa sürede gelişen hareket kısıtlılığı önemli bir sorun olarak karşımıza çıkmaktadır. Omuz hastalıklarında tedavi planlanırken kinezyofobinin varlığının ve derecesinin de göz önünde bulundurulması gerektiğini öngörerek rotator manşon ve adeziv kapsülit tanılı hastalarda bu çalışmayı yapmayı amaçladık.

Yöntem: Çalışmaya fiziksel tıp ve rehabilitasyon kliniği ayaktan hasta polikliniğine en az bir aydır olan omuz ağrısı şikayeti nedeniyle başvuran, 30-75 yaş arası, radyolojik ve klinik muayene ile 40 (n=40) rotator manşon sendromu ve 40 (n=40) adeziv kapsülit tanısı konulmuş hastalar dahil edildi. Hastaların ağrı yoğunluğu (hareketle-istirahatte), ağrılı omuz aktif eklem açıklığı ölçümü, psikolojik durum, engellilik ve kinezyofobi varlığı; sayısal değerlendirme ölçeği (NRS), Kol, omuz ve el sorunları anketi (DASH), hastane anksiyete depresyon ölçeği (HAD) ve Tampa kinezyofobi ölçeği ile değerlendirildi. Hastalardan gönüllü onam formu onayı alındı ve Sağlık Bilimleri Üniversitesi, İstanbul Bakırköy Dr. Sadi Konuk Eğitim ve Araştırma Hastanesi Etik Kurulu'ndan 12.09.2021 tarihinde 2019-421 protokol numarası ile etik onay alındı.



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Abstract

Results: NRS with movement, at rest and sleep, HAD and TAMPAs measurements of the cases did not show any statistically significant difference according to the groups ($p>0.05$). The DASH score of the cases in the adhesive capsulitis group was found to be statistically significantly higher than that of the cases in the rotator cuff syndrome group ($p<0.05$). In both groups, a moderate kinesiophobia score was determined according to the Tampa kinesiophobia scale. However, there was no statistically significant difference between the groups.

Conclusion: In this study, kinesiophobia was detected in both patients with rotator cuff syndrome and adhesive capsulitis. It is emphasized that in addition to pain, functional status and psychological factors, the presence of kinesiophobia should be considered in the evaluation, treatment planning and follow-up of patients.

Keywords: Adhesive capsulitis, kinesiophobia, rehabilitation, rotator cuff syndrome, shoulder pain

Öz

Bulgular: Olguların hareketle, istirahat ve uykuda NRS değeri, HAD ve TAMPAs ölçümleri istatistiksel olarak gruplar arasında anlamlı farklılık göstermedi ($p>0.05$). Adeziv kapsülit grubunda ki olguların DASH skoru rotator manşon sendromu grubunda ki olgulardan istatistiksel olarak anlamlı düzeyde yüksek bulundu ($p<0.05$). Her iki grupta da Tampa kinezyofobi ölçeğine göre orta derece kinezyofobi puanı belirlendi. Fakat gruplar arasında istatistiksel olarak anlamlı bir fark yoktu.

Sonuç: Bu çalışmayla kinezyofobi gerek rotator manşon sendromu tanımlı gerekse adeziv kapsülit tanımlı omuz ağrılı hastalarda saptanmıştır. Bu hastalarda ağrı, fonksiyonel durum ve psikolojik faktörlerin yanı sıra kinezyofobinin de göz önünde bulundurulması gerektiği vurgulanmaktadır. Tedavinin planlanmasında kinezyofobi varlığı göz önünde bulundurulmalıdır.

Anahtar kelimeler: Adeziv kapsülit, kinezyofobi, omuz ağrısı, rehabilitasyon, rotator manşet sendromu

Introduction

Shoulder pain is one of the important medical, social and economic problems affecting the upper extremity in the society. Shoulder pain is an important cause of morbidity, which ranks third after low back and neck pain in musculoskeletal pain admissions in primary care (1). In a Cochrane study in which all interventions related to shoulder diseases were compiled, it was reported that shoulder pain is seen between 6.9% and 34% in the general population and the treatment of shoulder disorders constitutes 1.2% of all general treatments (2). Pain and limitation of movement that develops in a short time in shoulder diseases appear as an important problem. It has been shown that pain and limitation of movement continued for at least 1 month in 18.6-31% of the patients, and persistent symptoms developed in 22-68% up to 12 months (3). Rotator cuff syndrome is the cause of pain in 0.5-7.4% of patients suffering from shoulder pain, and adhesive capsulitis is the cause of pain in approximately 2-5% (4-6). In recent studies, in addition to the shoulder pain caused primarily by the shoulder joint and surrounding structures; some other factors are reported to be effective in the development and chronicity of pain and limitation. Especially psychological factors (anxiety, depression, fear) are indicated in studies as capable to have an effect on shoulder diseases. Among these factors, fear has an important place; especially trying to protect the painful shoulder of the patient due to fear of movement may increase the limitation of motion and disability of the shoulder (7,8). Kinesiophobia, which is defined as the fear of movement and activity due to the feeling of painful injury or re-injury, negatively affects the

rehabilitation of the patients, increases their limitations and causes the pain to become chronic. There are few studies evaluating the effect of kinesiophobia on pain and functional status in patients with rotator cuff syndrome and adhesive capsulitis in the literature (2,3). The aim of this study was to investigate the degree of kinesiophobia and its effect on pain and functional status in patients with rotator cuff syndrome and adhesive capsulitis.

Materials and Methods

Patients between the ages of 30 and 75 years, who were diagnosed with rotator cuff syndrome and adhesive capsulitis by radiological (magnetic resonance imaging) and clinical examination, who were admitted to the outpatient clinic of the physical medicine and rehabilitation clinic with complaints of shoulder pain at least for a month, were included in this study. The demographic data of the patients (age, gender, educational status, occupation, etc.) were recorded. In addition, detailed anamnesis, detailed locomotor system examinations and neurological examinations of the patients were carried out by an experienced physical medicine and rehabilitation physician. The shoulder range of motion of the patients were measured and special tests (Hawkins, neer, shoulder painful arc test, Supraspinatus isometric strength tests) were applied for the diagnosis of rotator cuff syndrome and adhesive capsulitis. Patients with a history of systemic disease (diabetes mellitus, heart disease, etc.), rheumatological disease, malignancy, stroke, multiple sclerosis, entrapment neuropathies, etc. neurological conditions, habitual shoulder subluxation, fracture history, previous surgery history, psychosomatic or

major depression and patients with history of a shoulder intraarticular injection for the shoulder pain in the last 3 months were excluded from the study.

One hundred and thirty patients (n=130) who applied to our outpatient clinic with complaints of shoulder pain were evaluated. Reflected pain due to cervical discopathy in 10 patients, previous shoulder surgery in 2 patients, a painful shoulder injection one month ago in 6 patients, a history of additional disease in 13, bicipital tendinitis in 5, calcific tendinitis in 3, 11 of them due to their previous treatment were excluded from the study. A total of 80 people diagnosed with 40 adhesive capsulitis (n=40) and 40 rotator cuff syndrome (n=40) were included in the study. The patients were evaluated in terms of pain intensity (motion-rest), painful active range of motion of shoulder joint, psychological status, disability and kinesiophobia. "Zero-ten" numerical rating scale (NRS) was used to evaluate the pain of the patients. The NRS consists of a 10 cm long horizontal line. The sign at the beginning of the line defines "0 cm" painlessness and the sign "10 cm" at the end of the line defines the highest unbearable pain (9). People were asked to put a mark on this horizontal line for the maximum pain they felt during rest, sleep and activity, and the results were recorded in "cm".

Active shoulder range of motion measurement was performed by an experienced physician with goniometer in flexion, extension, abduction, external and internal rotation movements, and the average of 3 measurements was taken.

Shoulder disability and function were evaluated with the disabilities of the arm, shoulder and hand questionnaire (DASH). The DASH questionnaire consists of 21 questions are answered according to the 5-point Likert system. It is scored between 0 and 100 (0- no disability, 100- maximum disability). Its Turkish validity and reliability were made in 2006 by Düger et al. (10,11).

Psychological state was evaluated with the hospital anxiety depression scale (HAD). HAD is a scale in which the symptoms of anxiety and depression are screened, completed by the patient and used frequently in the hospital setting (12). Points between 0-7 are considered normal, 8-10 points are considered borderline, and over 11 are considered abnormal. Its Turkish validity and reliability were made by Aydemir et al. (13).

Tampa kinesiophobia scale (TKS) was used to evaluate kinesiophobia. The original of TKS was developed by Robert et al. (14). In 1995, the final version of 17 questions was published by Vlaeyen et al. (15). In our country, the

validity and reliability of TKS in Turkish in 2011 was made by Tunca Yılmaz et al. (16). The total score between 13-22 is mentioned that the kinesiophobia is subclinical, 23-32 mild, 33-42 moderate, and 43-52 severe kinesiophobia (17).

The patients' voluntary consent for the study 2019-421 number and 12.09.2019 University of Health Sciences Turkey, İstanbul Bakırköy Dr. Sadi Konuk Training and Research Hospital Ethics Committee approval was obtained on.

Statistical Analysis

NCSS (Number Cruncher Statistical System) program was used for statistical analysis. Descriptive statistical analysis (mean, standard deviation, median, frequency, percentage, minimum, maximum) were used while evaluating the study data. The suitability of quantitative data to normal distribution was tested by Shapiro-Wilk test and graphical analysis. Student's t-test was used for comparing normally distributed quantitative variables between two groups, and Mann-Whitney U test was used for comparing quantitative variables that did not show normal distribution between two groups. In comparison of qualitative data, Pearson chi-square test, Fisher's Exact test and Fisher-Freeman-Halton exact test were used. Statistical significance was accepted as $p < 0.05$.

Results

The study was conducted with a total of 80 cases, 63.7% (n=51) of whom were female and 36.3% (n=29) of whom were male. The ages of the subjects participating in the study ranged from 34 to 75, and the mean age was found to be 54.69 ± 9.85 years. The socio-demographic characteristics of the patients are shown in Table 1.

In the study, age, gender, marital status, education, occupation, dominant hand and painful shoulder distributions did not show statistically significant difference between the groups ($p > 0.05$). There was female gender and housewife majority in both groups. The diseased shoulder is the dominant upper extremity side.

The range of motion measurements (flexion, extension, abduction, internal and external rotation), kinesiophobia and quality of life values of the affected shoulder joint in all directions of the groups are shown in Table 2.

Shoulder flexion, extension, abduction, adduction and rotation range of motion measurement values of the cases in the adhesive capsulitis group were found to be significantly lower than the cases in the rotator cuff syndrome group

($p < 0.05$). Pain NRS (movement, rest and sleep), HAD and TKS measurements of the cases did not show any statistically significant difference according to the groups ($p > 0.05$). The DASH score of the cases in the adhesive capsulitis group was found to be statistically significantly higher than the cases in the rotator cuff syndrome group ($p < 0.05$).

The mean score of kinesiophobia was 40.44, the score was 41.43 in the adhesive capsulitis group and 39.45 in the rotator cuff syndrome group. Moderate kinesiophobia was detected in both groups. However, there was no statistically significant difference between the groups. The correlation of kinesiophobia on shoulder range of motion, disability and pain intensity in both groups is shown in Table 3. There was a weak correlation between kinesiophobia and pain and limitation of joint movement in the group with rotator cuff syndrome.

Discussion

While the symptoms and signs of adhesive capsulitis and rotator cuff syndrome overlap, the patient's complaints often differ. While patients with adhesive capsulitis often have severe pain; there is also reduced active and passive

range of motion. (18). Patients with rotator cuff syndrome typically complain of pain with active movement. However, passive range of motion is usually within normal limits. In acute and chronic pain, a negative vicious circle occurs between avoidance of movement and pain (19). In this study, we investigated the effect of kinesiophobia on pain and functionality in patients with rotator cuff syndrome and adhesive capsulitis. In the study, no superiority was found in pain level between the groups, but shoulder ROM measurements were more limited in the adhesive capsulitis group. However, no significant difference was found between groups, in which we evaluated the degree of kinesiophobia, and the pain and ROM measurements.

Kinesiophobia was defined for the first time in 1990 as "a fear of activity that reduces excessive, irrational, and physical movement resulting from a feeling of vulnerability to painful injury or re-injury" [Kori et al. (20)]. When pain is perceived as a non-threatening perception, the people try to participate in daily activities. On the contrary, if the pain is perceived as catastrophic and there is a fear associated with the pain, avoidance of pain and safety-seeking behaviors may occur (20). Recent studies have also shown that kinesiophobia, which is defined as the fear of moving,

Table 1. Evaluation of demographic characteristics of patients with rotator cuff syndrome and adhesive capsulitis

Total		Groups			p
		Adeziv capsulit	Rotator cuff syndrome		
Age	Min-max (median)	34-75 (54)	38-75 (56.5)	34-70 (52.5)	^a 0.055
	Med ± SD	53.64±8.58	55.50±7.83	51.77±8.98	
Gender	Female	51 (63.7)	24 (60.0)	27 (67.5)	^b 0.485
	Male	29 (36.3)	16 (40.0)	13 (32.5)	
Marital status	Single	2 (2.5)	0 (0.0)	2 (5.0)	^c 0.601
	Married	68 (85.0)	35 (87.5)	33 (82.5)	
	Divorced	3 (3.8)	1 (2.5)	2 (5.0)	
	Widow	7 (8.8)	4 (10.0)	3 (7.5)	
Education status	Primary school	38 (47.5)	20 (50.0)	18 (45.0)	^b 0.889
	Middle school	17 (21.3)	9 (22.5)	8 (20.0)	
	High school	15 (18.8)	7 (17.5)	8 (20.0)	
	University	10 (12.5)	4 (10.0)	6 (15.0)	
Occupation	Housewife	30 (37.5)	16 (40.0)	14 (35.0)	^c 0.802
	Shoulder strain job	15 (18.8)	8 (20.0)	7 (17.5)	
	Retired	26 (32.5)	13 (32.5)	13 (32.5)	
	No-shoulder job	9 (11.3)	3 (7.5)	6 (15.0)	
Dominant hand	Right	74 (92.5)	36 (90.0)	38 (95.0)	^d 0.675
	Left	6 (7.5)	4 (10.0)	2 (5.0)	
Shulder pain	Right	45 (56.3)	22 (55.0)	23 (57.5)	^b 0.822
	Left	35 (43.8)	18 (45.0)	17 (42.5)	

^aStudent's t-test, ^bPearson chi-square test, ^cFisher-Freeman-Halton test, ^dFisher's Exact test, SD: Standard deviation

Table 2. Comparison of range of motion, pain, sleep quality, depression, anxiety, functional status and kinesiophobia values in patients with rotator cuff syndrome and adhesive capsulitis

Total		Groups			p
		Adeziv capsulitis	Rotator cuff syndrom		
Shoulder flexion	Min-max (median)	30-180 (150)	30-170 (110)	90-180 (180)	* 0.001**
	Med ± SD	139.81±37.42	110.63±26.56	169±19.59	
Extantion	Min-max (median)	10-60 (42.5)	10-50 (40)	15-60 (45)	* 0.001**
	Med ± SD	38.81±12.51	32.75±13.25	44.88±8.12	
Abduction	Min-max (median)	30-180 (110)	30-170 (90)	70-180 (175)	* 0.001**
	Med ± SD	125.63±43.63	94.75±27.64	156.5±33.71	
I. rotation	Min-max (median)	10-90 (50)	10-70 (45)	40-90 (70)	* 0.001**
	Med ± SD	56.38±18.35	44.75±11.93	68±16.2	
E. rotation	Min-max (median)	10-90 (45)	10-80 (40)	10-90 (70)	* 0.001**
	Med ± SD	52.19±22.75	39.63±15.42	64.75±22.07	
Movement NRS	Min-max (median)	0-10 (6)	0-10 (5.5)	0-10 (6.5)	* 0.478
	Med ± SD	6.13±2.81	5.9±2.82	6.35±2.82	
At rest NRS	Min-max (median)	0-10 (8)	0-10 (7.5)	0-10 (8)	* 0.301
	Med ± SD	6.94±2.94	6.75±2.66	7.13±3.21	
Sleep quality	Min-max (median)	0-10 (5)	0-10 (5)	0-10 (5)	* 0.496
	Med ± SD	5.41±3.09	5.65±2.73	5.18±3.43	
HAD	Min-max (median)	0-21 (7)	0-21 (7)	2-17 (7)	* 0.424
	Med ± SD	7.46±4.03	7.83±4.41	7.1±3.62	
TAMPA	Min-max (median)	23-58 (40)	29-58 (40.5)	23-54 (39.5)	* 0.185
	Med ± SD	40.44±6.63	41.43±6.26	39.45±6.92	
DASH	Min-max (median)	5-98.3 (39.55)	13.3-98.3 (43)	5-69.2 (37.5)	* 0.005**
	Med ± SD	42.95±20.8	49.42±21.57	36.49±18.04	

*Student's t-test, *Mann-Whitney U test, **p<0.01, HAD: Hospital anxiety-depression scale, TAMPA: Kinesiophobia rating scale, DASH: Arm, shoulder, hand problems evaluation questionnaire, I. rotation: Internal rotation, E. rotation: External rotation, SD: Standard deviation, NRS: Numerical rating scale

Table 3. Relationship between TAMPA score and other parameters in groups

Adeziv capsulitis		TAMPA score	
		Rotator cuff syndrome	
Shoulder flexion	^g r	-0.066	-0.161
	p	0.687	0.322
Extantion	^g r	0.096	-0.244
	p	0.556	0.129
Abduction	^g r	0.160	-0.081
	p	0.324	0.617
I. rotation	^g r	-0.084	-0.197
	p	0.605	0.223
E. rotation	^g r	0.064	-0.243
	p	0.693	0.130
Movement NRS	^f r	-0.016	0.246
	p	0.920	0.125
At rest NRS	^g r	0.110	0.233
	p	0.499	0.147
Sleep quality	^f r	-0.180	0.053
	p	0.267	0.747
HAD	^f r	-0.014	0.032
	p	0.932	0.845
DASH	^f r	0.062	-0.008
	p	0.704	0.962

^gSpearman's correlation coefficient, ^fPearson correlation coefficient, DASH: Arm, shoulder, hand problems assessment questionnaire, I. rotation: Internal rotation, E. rotation: External rotation, HAD: Hospital anxiety-depression scale, NRS: Numerical rating scale

is associated with altered motor behaviors that may mask individuals true functional capacities when faced with a stressful action (8).

Kinesiophobia has been found to be a central factor in the pain process that develops from acute pain. The cognitive fear prevention model explains that when a painful experience is interpreted as threatening, the activity can produce disastrous cognitions that will cause further pain and re-injury. As this continues, it can lead to avoidance behavior in the long term causing a patient trapped in a cycle of increased pain, more pain and fear of disability as well as disability, use and depression (21). Supporting this model, studies on patients with chronic low back pain reported that patients with greater pain-related fear had higher pain and disability scores (15,18). In addition, studies on acute low back pain and osteoarthritis in primary care have confirmed the relationship between fear avoidance and disability (18,22). A meta-analysis by Zale et al. (23) showed a strong association between fear of pain and disability in people experiencing acute pain less than 3 months. This finding was consistent with the fear avoidance model of chronic pain, as pain-related fear may predict disability after acute injury and serve to preserve disability. There is also evidence showing that reduced fear of pain is associated with recovery after acute injury (26). In a study by Mintken et al. (24) it has been reported that fear of pain should be taken into account when evaluating patients with shoulder pain.

The main purpose in the treatment of shoulder disorders is to reduce pain and increase range of motion (24). In treatment, kinesiophobia is a barrier to physical activity. In addition, the resulting hypervigilance and avoidance behavior increase pain and disability. In addition, it can be used as a modifiable factor, and it is possible to achieve earlier pain relief and functional recovery (25,26).

Exercise therapy provides significant benefits in individuals with shoulder pain and is usually the first treatment option (8,25). In the follow-up of patients who were recommended exercise therapy in rotator cuff syndrome, it was observed that approximately 50% of them reapplied 6-12 months after the treatment with the complaint of chronic pain (26). This situation led to the need to investigate the underlying causes of shoulder pain (27,28). Symptoms of adhesive capsulitis can last up to several years. It is worrisome that the person restricts shoulder movements regardless of pain and protects the shoulder in daily work. In most studies investigating the relationship between pain and disability in patients who have medical treatment, physical therapy

or undergone surgery, it has been stated that kinesiophobia is one of the causes in the chronicity of pain (6,29,30). Luque-Suarez et al. (8) similarly, in a study conducted by kinesiophobia, the effect of kinesiophobia on pain severity and disability was determined in individuals with chronic shoulder pain, and it was stated that it was an important factor in treatment. In contrast, Clausen et al. (31) however, they did not find the effect of kinesiophobia on pain and disability significant (8).

In this study, moderate kinesiophobia was detected in patients with adhesive capsulitis and rotator cuff tendinitis. However, when the two groups were compared, the effect of kinesiophobia on pain and functional status was not statistically significant. It was observed that patients with adhesive capsulitis were more anxious about exercising. We think that this anxiety will decrease with pre-treatment education.

It was thought that the underlying reason for the chronicity of shoulder pain was that the patient did not use her shoulder by trying to protect her shoulder due to pain beliefs and fear. Anxiety, depression, somatization, fear avoidance, kinesiophobia can also cause permanent pain by affecting central pain modulation (26,31). Therefore, the underlying psychological causes of chronic pain should be considered. In a systematic review, psychological factors such as anxiety in 23.2%, depression in 22.8-26.2%, and insomnia in 70.2% of patients with rotator cuff syndrome were reported (32). It has been shown that anxiety and depression have an effect on pain in patients with adhesive capsulitis, and that the severity of pain and functional limitation may be higher in patients with psychological disorders (33). In this study, the HAD scale was used to evaluate the psychological state of both patient groups. However, there was no significant difference between the two groups in terms of the effects of psychological factors on pain and functionality.

Study Limitations

Among the limitations of our study may be the lack of post-treatment evaluation of the patients and the small sample size. The positive side of our study is that it drew attention to the relationship between shoulder pain, which we frequently encounter, and kinesiophobia.

Conclusion

Kinesiophobia is an important factor in the treatment of shoulder pain. In this study, the presence of kinesiophobia was detected in both patients with rotator cuff syndrome and patients with adhesive capsulitis, but it was not found

that kinesiophobia was influential on pain and quality of life. We suggest that kinesiophobia should be considered while planning the treatment in the rehabilitation of patients with shoulder pain.

Ethics

Ethics Committee Approval: The patients voluntary consent for the study and approval of University of Health Sciences Turkey, İstanbul Bakırköy Dr. Sadi Konuk Training and Research Hospital Ethics Committee with protocol number 2019-421 was obtained on 12.09.2019.

Informed Consent: Informed consent was obtained.

Peer-review: Internally and externally peer-reviewed.

Authorship Contributions

Concept: B.A., M.V., Design: B.A., M.V., Data Collection or Processing: B.A., M.Ç., S.E., Analysis or Interpretation: B.A., M.V., M.Ç., S.E., Drafting Manuscript: B.A., S.E., M.V., Critical Revision of Manuscript: M.V., M.Ç., S.E., Writing: B.A.

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