Clinical Features of Psychogenic Voice Disorder and the Efficiency of Voice Therapy and Psychological Evaluation

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Summary: Objectives. The aim of this study was to define the clinical features of psychogenic voice disorder (PVD) and explore the treatment efficiency of voice therapy and psychological evaluation.

Method. Fifty-eight patients who received treatment following the PVD diagnosis and had no organic or other functional voice disorders were assessed retrospectively based on laryngoscopic examinations and subjective and objective assessments. Epidemiological characteristics, accompanying organic and psychological disorders, preferred methods of treatment, and previous treatment outcomes were examined for each patient. A comparison was made based on voice disorders and responses to treatment between patients who received psychotherapy and patients who did not.

Results. Participants in this study comprised 58 patients, 10 male and 48 female. Voice therapy was applied in all patients, 54 (93.1%) of whom had improvement in their voice. Although all patients were advised to undergo psychological assessment, only 60.3% (35/58) of them underwent psychological assessment. No statistically significant difference was found between patients who did receive psychological support concerning their treatment responses and patients who did not. Relapse occurred in 14.7% (5/34) of the patients who applied for psychological assessment and in 50% (10/20) of those who did not. There was a statistically significant difference in relapse rates, which was higher among patients who did not receive psychological support ($P < 0.005$).

Conclusion. Voice therapy is an efficient treatment method for PVD. However, in the long-term follow-up, relapse of the disease is observed to be higher among patients who failed to follow up on the recommendation for psychological assessment.

Key Words: Dysphonia–Functional voice disorder–Psychogenic voice disorder–Voice therapy–Functional aphonia/dysphonia.

INTRODUCTION

Psychogenic voice disorder (PVD) (also known as conversion dysphonia, psychological functional dysphonia, phononeurosis, or hysteric aphonia/dysphonia) is a vocal behavioral disorder that is not a structural or neurological laryngeal disorder.[1,2] In general, patients with PVDs are observed to have an acute onset, and most of them had stress-related problems in the past.[2] PVD may occur due to psychological disorders such as anxiety, depression, personality disorders, somatization, and conversion reaction.[1–3]

Excluding any organic disorder, the PVD diagnosis can be made based on the recovery of noncommunicative voices (such as coughing, crying, and laughing) in aphonia- or dysphonia-type voice disorders. Vocal fold atrophy with incomplete glottic closure, presbylarynx, muscle tension dysphonia (MTD), and some hyperfunctional voice disorders can be considered for the differential diagnosis of PVD.[4,5] In some cases, it is difficult to distinguish PVD and MTD, both of which are functional voice disturbances, only by looking at endoscopic findings. During the examination, improvements in voice can be observed by means of noncommunicative voices in PVD, and these fluctuations are leading the physician to the differential diagnosis.

Despite the availability of various treatment methods for PVD, voice therapy accompanied by psychological approaches is the most frequently suggested method.[6,7] However, there is limited evidence about the long-term success of these methods. The primary aim of this study was to understand the clinical feature and course of PVD, and the secondary aim was to find out the effect of voice therapy and psychiatric evaluation on the outcome of treatment. For these purposes, patients' charts were reviewed retrospectively, and the clinical features of patients diagnosed with PVD and the treatment efficiency of the voice therapy and psychological counseling given were studied.

MATERIALS AND METHOD

In this study, a retrospective examination was conducted based on the records of 58 patients who applied to our clinic between 2010 and 2015 with a voice disorder complaint and were treated as a result of the PVD diagnosis. This study was approved by the Institutional Review Board of Ankara University Faculty of Medicine.

In reaching the PVD diagnosis, an otorhinolaryngological examination was accompanied by endoscopic methods to ensure there were no organic, neurological, or etiological factors, and the patients were observed to have normal noncommunicative voices. Patients with mutational falsetto, another functional dysphonia, were excluded from the study. All patients completed the standardized assessment protocol for voice disorders in the clinic and underwent a speech therapy evaluation.

The videolaryngostroboscopy was performed using a rigid telescope (70° or 90°, 8 mm; Karl Storz, Germany) or flexible nasopharyngolaryngoscope (3.3 mm; Karl Storz, Germany) in those patients who did not allow for examinations with the rigid

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telescope. These examinations assessed the presence of laryngeal lesions, abnormal movements, and behavior of the larynx during phonation and inspiration. These tests were complemented by stroboscopy (stroboscopic light source—5052 model; Richard Wolf GmbH, Germany), assessing the amplitude, symmetry, synchronism, and frequency of mucosal wave movement, as well as the glottal closure and opening phase.

Several factors were examined, such as the detailed general medical history concerning voice disorders, the onset and progression of the voice disorder, triggers or associated factors, accompanying symptoms, any psychological disorder history, any prescribed psychiatric drugs received, and the presence of a psychological stimulus in daily life or interpersonal conflicts.

The diagnosis of PVD was established in patients who had vocal symptoms accompanied by normal videolaryngostroboscopy results, ease in recovering noncommunicative voices despite being aphonic or dysphonic, and suspected psycho-emotional disorder associated with the picture of dysphonia. Patients with recent reports of laryngeal lesion, any laryngeal movement disorders, laryngitis due to laryngopharyngeal reflux or infection, or other comorbidities associated with the current picture of dysphonia were assessed and excluded.

In our clinic, patients diagnosed with PVD are initially given information and counseling concerning their disease and the laryngoscopic findings by the physician, and then they receive voice therapy. A 40-minute voice therapy is scheduled in two to four sessions. The aim of the voice therapy is primarily to achieve the natural voice by using noncommunicative voices (coughing, clearing the throat, laughing and gargling sounds). After recovering the natural voice, there is a gradual transition to speech production. Rarely are other methods such as direct voice therapy (voice function and voice resonance exercises) or indirect voice therapy (emotional awareness, relaxation, and breathing exercises) provided depending on the patients' preference. When the patient and the therapist are both convinced that the voice has improved, the patients are informed by the speech therapist about the disease so they understand the connection between a potential underlying psychological problem and PVD. All patients are recommended to go through a psychological evaluation.

Retrospective file screening obtained information on whether a relapse was found during the posttreatment follow-up and whether the patients received psychological assessment and treatment. In cases where some patients' information was not sufficient (such as patients who live in other cities), phone calls were made to inquire further about recurrence and their posttreatment process. The patients who were included in this study were those whose follow-up information was available for at least 18 months after the completion of the voice therapy. In this time frame, those whose voice situation regressed to the initial application stage and who needed voice therapy again were considered as relapse.

The *Statistical Package for the Social Sciences* for the *Windows* 11.5 (Microsoft Corporation, Redmond, WA) package program was used for the data analysis. Descriptive statistics were shown as average ± standard deviation for normally distributed variables, as median (minimum-maximum) for non-normally distributed variables, and as the number of cases and percentage (%) for nominal variables. A *t* test was used to find the significance of mean differences, and a Mann-Whitney *U* test was used to find the significance of differences in mean values between the groups. Nominal variables were evaluated by a Pearson chi-square test and Fisher's exact test. A *P* value <0.005 was accepted as statistically significant.

RESULTS

Patient characteristics and disease features

This study included 58 patients whose information was available and sufficiently detailed; 48 were female (82.8%) and 10 were male (17.2%). The average age of the patients was 48.05 ± 14.3 (18–67). The average follow-up time was 21.4 months (±3.7) after the end of the therapy. Regarding occupation, the vast majority of patients had non-voice-related professions such as housewives, retired people, and students (37/58, 63.7%). Occupational information of the patients is presented in Table 1.

On average, 22.14 ± 13.6 days (7–90) passed from the occurrence of the initial symptoms until the diagnosis. Of all the patients, 50 (86.2%) had an abrupt onset of voice-related symptoms, all occurring in 1 day, whereas eight patients witnessed a gradual occurrence of voice disorders (13.8%). Thirty-five patients (60.3%) had voice-related complaints only, without other accompanying symptoms. In 23 (39.6%) of all patients, there were also additional symptoms such as swallowing difficulties, sore throat, and other gastroesophageal reflux symptoms.

Twenty-one (36.2%) patients had an upper respiratory tract infection (URI) or a lower respiratory tract infection (LRI) (such as acute laryngitis, rhinitis, or bronchitis) that was found to precede the PVD. In the case of 20 patients (34.5%), it was noted that they reported trigger factors such as crying, yelling, getting angry, or feeling overwhelming sadness preceding the onset of the voice disorders (Table 2).

TABLE 1.
Occupational Information of Patients Diagnosed with PVD

Occupation	Sex		Total
	Female	Male	(n/%)
	(n)		
Housewife	18	0	18/31.3
Retired	10	1	11/18.9
Public servant	7	2	9/15.5
Student	4	1	5/8.6
Teacher	2	0	2/3.44
Salesperson	2	0	2/3.44
Worker	0	2	2/3.44
Bank employee	1	0	1/1.7
Lawyer	1	0	1/1.7
Doctor	1	0	1/1.7
Judge	1	0	1/1.7
Nurse	1	0	1/1.7
Manager	0	1	1/1.7
Religious official	0	1	1/1.7
Engineer	0	1	1/1.7
Unemployed	0	1	1/1.7
Total	48	10	58/100

TABLE 2.
PVD Triggering Factors

Trigger Factor	N	%
Existent	41	70.7
Getting angry	5	8.6
Crying	5	8.6
Yelling	10	17.2
URI/LRI	21	36.2
Nonexistent	17	29.3
Total	58	100

It was found that of all the patients, 15 (25.9%) had a history of at least one episode of previous PVD-related voice disorder before being admitted to our clinic. Five of these 15 patients had diagnoses of previous psychological disorders. Previously diagnosed psychological disorders affected 22.4% of patients (13/58), and 17.2% patients (10/58) were regularly prescribed medical treatment for the same reason. The diagnoses of patients' psychological disorders are presented in Table 3.

Treatment and follow-up

A mean of 1.29 (±0.8; minimum, 1; maximum, 5) voice therapy sessions was performed. All patients were advised to undergo psychological assessment during their treatment; however, only 35 of 58 patients (60.3%) applied to receive this assessment. Voice recovery was achieved in 54 patients (93.1%) following intensive voice therapy. However, 4 of the 58 (6.9%) remained dysphonic with no changes achieved, and 3 of these 4 patients did not apply to receive any psychological assessment and therapy. These four patients had no previous episode of PVD-related voice disorder episode. In the long-term follow-up, 15 of 58 patients (25.9%) had relapses. Ten of the 15 patients who had relapses failed to access psychological follow-up.

TABLE 3.
Patients' Previously Diagnosed Psychological Disorders

Psychological Disorders	n	%
Existent	13	22.4
Sleep disorder	2	3.4
Panic attack	3	5.2
Anxiety	4	6.8
Depression	4	6.9
Nonexistent	45	77.6
Total	58	100

A comparison between the patients who underwent psychological follow-up and those who did not shows no statistically significant difference in the rate of response to treatment ($P > 0.005$) (Table 4). There is a statistically significant reduction in the relapse rate among the patients who underwent a regular psychological follow-up ($P < 0.005$) (Table 4). The PVD relapse rate was found to be 5.81 times higher among the patients who did not receive psychological support (odds ratio: 5.81 at a confidence interval of 1.59–21.28). Any previous diagnosis of a psychological disorder among some patients has no statistical significance in recovery or the relapse of the PVD ($P > 0.005$).

DISCUSSION

There are various forms of descriptions of PVD, a functional voice disorder, including conversion aphonia, hysterical aphonia/dysphonia, ventricular aphonia/dysphonia, psychosomatic aphonia, phononeurosis, and functional aphonia/dysphonia. In current literature and clinical practices, there is no consensus over the description of a voice disorder that leads to dysphonia/aphonia without the presence of a structural or neurological pathology.[1] There are difficulties in diagnosing PVD because it has a variable clinical manifestation and it may be mixed up with other functional voice disorders. Although there was no indication of organic or neurological diseases in the videolaryngostroboscopic examination of PVD patients, there may be similar findings, such as failure of the true vocal folds to adduct, vocal fold bowing, hyperadduction of the true folds and ventricular band, anterior–posterior squeezing of the supraglottic structures, and paradoxical movements of the vocal fold, as we have seen in MTD.[1] Thus, the videolaryngoscopic assessment is not always capable of differentiating psychogenic dysphonia from other functional dysphonias. We believe visible features observed during laryngoscopy should not be used as the basis for the diagnosis of this disorder. However, the most important distinguishing factors here are patient history, course of disease, fluctuations through noncommunicative voices, and response to voice therapy.

TABLE 4.
Recovery and Relapse Rates of Patients According to Regular Psychological Follow-Up

		Regular Psychological Follow-Up: Yes	Total	Total	*P*
Recovery	Yes	34 (97.1%)	54 (93.1%)	54 (93.1%)	>0.005
	No	1 (2.8%)	4 (6.8%)	4 (6.8%)	
	Total	35 (100%)	58 (100%)	58 (100%)	
Relapse*	Yes	5 (14.7%)	15 (27.7%)	15 (27.7%)	<0.005
	No	29 (85.3%)	39 (72.2%)	39 (72.2%)	
	Total	34 (100%)	54* (100%)	54* (100%)	

* Four of 58 patients had no recovery. Thus, relapse-related statistical calculations did not take these four patients into account.

PVD develops mostly among women.[1,2,8] In our clinic, of all the patients diagnosed with PVD, 82.8% were women. Eighteen of the 48 female patients were housewives. The reason behind why it is mostly housewives rather than others who are diagnosed with this disorder may have to do with the gender roles of women in the male-dominated structure of Turkish families and society and lower levels of education. This area may be explored by further research. In the study conducted by Andresson and Schalén, PVD patients were found to have poor social networks and lower professional statuses than the control group.[2] It was seen in this study that most of these patients are housewives, retired people, or students and are not required to meet any voice demand in their profession and low professional status (Table 1).

There is a lack of information on PVD incidence, which may be caused by difficulties in diagnosis or misdiagnosis. PVD is often confused with such diagnoses as acute laryngitis, MTD, and presbyphonia.[9] It was noted that 21 of 58 patients (36.2%) had a history of URI/LRI that triggered the voice disorder and could have misled the physician making the initial examination. Also, 34.4% of the patients (20/58) had histories that might have led to the misuse of the voice or acute vocal fold damage caused by yelling, crying, or getting angry. Similar patient histories or misunderstandings during diagnoses may cause delays in PVD diagnoses. In the study, it was determined that the voice complaint suddenly developed within a day in the majority of the patients (86.2%). We think that this information, together with the others, is a very important clue for differential diagnosis while taking the disease history.

In PVD, psycho-emotional and psychosocial disorders are usually identified, including anxiety, distress, depression, conversion reaction, personality disorders, and interpersonal conflicts in the family or professional environment.[2,3,9] The results of our study show that 22.4% of the patients (13/58) diagnosed with PVD had a previously diagnosed psychological disorder and 17.2% of them (10/58) received regular medical treatment for this reason (Table 3). However, these findings are based on information obtained from patient history data, not from medical information obtained after psychological evaluation. However, the fact that these patients had previously diagnosed psychological disorders causes no statistically significant difference regarding PVD recovery or relapse. Other studies also point out that voice therapy alone cannot provide a comprehensive improvement in cases where PVD coexists with other psychological disorders.[10] In order for PVD patients to be better understood, information must be gathered from otolaryngologists, speech therapists, and psychiatric staff also working with the same patients.

There are various treatment approaches available for PVD, with a consensus on the use of symptomatic voice therapy, counseling, treating underlying psychological factors, and combining these elements.[2,6,7,11] On the other hand, there is a lack of research demonstrating the relapse rate or long-term success of these treatment methods. The literature shows PVD recovery or improvement rates up to 70%; however, in cases where counseling is the only treatment method, the relapse rate increases to 80%.[6,12,13] In the present study, our approach (which combines visual feedback of the laryngoscopic findings, information provision concerning the disorder, and the voice therapy) resulted in a recovered voice for 54 of 58 patients (93.1%). No improvement was achieved in the voices of four patients. Recommended psychological assessment failed in three of those four patients, who received only voice therapy.

Although all patients were advised to undergo psychological assessment, only 35 (60.3%) of them accepted it. In our clinical practice, it was observed that the patients more readily acknowledged the importance of psychiatric assessment once they had regained their voices through voice therapy. A statistically significant difference was not identified in the recovery rate after treatment when comparing those who received psychiatric counseling in addition to voice therapy and those who received voice therapy only. However, during follow-up, relapse was found to occur in 10 of 20 (50%) patients who received voice therapy only. In the follow-up of the patients who received psychiatric counseling in addition to voice therapy, there were fewer patients (5/34) (14.7%) with relapses, representing a statistical significance (Table 4). As we agree, Kolbrunner et al suggest that voice therapy alone can be an alternative only for PVD patients who failed the follow-up psychotherapeutic intervention.[14] Sudhir et al and Baker underlined the importance of understanding the complex association between neuropsychological, intrapsychological, and interpersonal behaviors that affect these patients.[1,11] In this study, the likelihood of treatment compliance and follow-up of patients accepting psychological evaluation may appear to be a potential bias in patient selection. However, psychiatric assessment does not affect the success of voice therapy, but it is effective in the recurrence of the disease, indicating that voice therapy alone is not the treatment of this disease. In the present study, the multidisciplinary approach is believed to have been the key to success in all patients during both treatment and diagnosis.

CONCLUSION

As a functional voice disorder, PVD is difficult to diagnose, which requires the elimination of all possible organic disorders through a detailed examination to be carried out for diagnosis and differential diagnosis. Voice therapy is an effective treatment method once the diagnosis is correctly established. However, voice therapy alone is not sufficient for the long-term treatment of this psychogenic disorder. Although PVD has psychogenic influences, most patients with PVD initially consult an otorhinolaryngologist and speech therapist. Most patients, after receiving the diagnosis, resist psychological assessment before the recovery of the voice. As a result, psychiatric approaches to be applied in conjunction with voice therapy with a multidisciplinary team in PVD will increase the chance of permanent recovery while reducing disease recurrence.

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