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## Phobic postural vertigo A long-term follow-up (5 to 15 years) of 106 patients

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■ **Abstract** One hundred and six patients diagnosed between 1987 and 1998 to have somatoform phobic postural vertigo were examined in a follow-up study with a self-evaluating questionnaire. The improvement rate after a mean follow-up time of 8.5 years (5 to 15.9 years) was 75% (27% of the patients reported a complete remission). While the majority of these patients experienced improvement or remission during the first year after assessment of diagnosis and a short-term psychotherapeutic approach, some patients also had considerable improvement even after two or more years. There was a negative correlation between the duration of the condition before assessment of the diagnosis

and the improvement/regression rate. The improvement/regression rate was independent of gender, age, preceding vestibular or non-vestibular organic disorders, and the various medical, physical, or psychotherapeutic interventions. Transient relapses occurred in 47% of the improved patients once or repeatedly. The probability of developing a relapse remained constant throughout the entire follow-up. None of the patients required a revision of the initial diagnosis on the basis of the questionnaire.

■ **Key words** phobic postural vertigo · postural sway · follow-up · somatoform disorders

### Introduction

Somatoform disorders play a causal or contributory role in a large portion of patients who present with complex dizziness. In the course of their illness about 70% of these patients with complex somatoform dizziness still show symptoms and are more impaired in their professional and daily activities even after several years than are patients with organic forms of dizziness [8, 10, 28]. The most frequent underlying psychiatric disorders are anxiety and depressive as well as dissociative somatoform disorders. Somatoform phobic postural vertigo (PPV) [1, 2] is a syndrome characterized by a persistent sense of unsteadiness or postural imbalance, and recurrent dizziness attacks. Phobic avoidance is an associated

behaviour. The patients often have good and bad days. In clinical settings where the syndrome has been studied, the prevalence of PPV is quite high [3, 15, 23]. It is the most common form of dizziness in middle-aged patients seen in a neurological dizziness unit [27]. The disorder often begins after a major stressor or a physical illness [16], but it may also develop following a vestibular disorder [14].

It has been debated whether PPV is a vestibular or a psychiatric disorder [15]. One could argue that PPV is a subtype of panic disorder, one in which vertigo is the major complaint [26]. To address this question, Kapfhammer et al. [16] examined 42 patients with PPV using a structured psychiatric interview. It revealed that a panic disorder had been diagnosed in only one-third of the patients. If PPV were a homogeneous condition, it

could not be a panic disorder, because two-thirds of the patients did not suffer from panic attacks. Another attribute of PPV patients is that they engage in phobic avoidance behaviour. If PPV were a variant of a psychiatric disorder, the most likely candidate would be agoraphobia. However, about one-third of the PPV patients did not have agoraphobia.

Three other conditions resemble PPV: space phobia [18], "Mal de débarquement syndrome" [7, 19], and "visual vertigo" [5]. Space phobia, a pseudo-agoraphobic syndrome, describes a fear of absent visuospatial support for balance (open spaces) and of falling. Affected patients have various neurological or vestibular disorders. This special form of late-onset phobia is not necessarily accompanied by episodic unsteadiness and thus seems different from PPV. Mal de débarquement syndrome refers to the sensation of swinging, swaying, unsteadiness, and disequilibrium that is commonly experienced immediately upon disembarking after sea travel and lasts a few hours. In some individuals it persists for weeks to years after their return to land [11]. A syndrome sometimes called "visual vertigo" refers to an abnormal vestibular visual interaction and is provoked by visual environments with large size (full field) repetitive or moving visual patterns [5, 6].

Thus, the neurological diagnosis of PPV can be classified in various psychiatric diagnostic categories according to DSM-IV. Nevertheless, PPV as a typology has retained its great clinical usefulness, for it identifies patients presenting with this condition with high reliability [16]. These patients almost always at first contact neurologists and not psychiatrists or psychotherapists, since their prevailing complaint is distressing vertigo [1].

In 1994 in a first follow-up of 78 patients with PPV 6 months to 5.5 years after their original referral, we found a favourable course with a 72% improvement rate [4]. The aim of the current study was to investigate the long-term course after assessment of diagnosis with respect to factors that might have an influence on the rate of improvement and relapses.

## Patients and methods

The patients were examined with a self-evaluating questionnaire inquiring about

- past and current status of the condition classified by one of the four categories: symptom-free, improved, no change, or worsened
- period in which improvement or regression took place
- estimation of the complaints as regards work and social activities: slightly restricted or partially fit for work, not restricted or fit for work, highly restricted or unfit for work
- history of medical, psychotherapeutic, physiotherapeutic, or other interventions
- occurrence of relapses, their frequency, and therapy
- history of vestibular or organic disorders unrelated to PPV

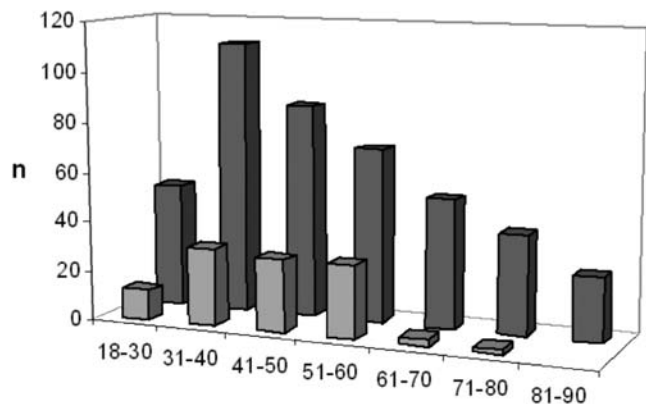
In addition, the patient's initial medical documents were evaluated with respect to duration of symptoms before assessment of the diagnosis; history of a vestibular or organic disorder before PPV; neurological, otoneurological, and neuro-orthoptic findings; and electronystagmographic and video-oculographic data.

Of the 303 patients to whom the questionnaire was sent, 106 completed it; these were included in the study. Of the 197 remaining, the current address could not be determined in 95 patients, 4 had died in the meantime of diseases independent of PPV, and 3 returned their questionnaires incomplete.

All of the 106 patients had been diagnosed and treated with a similar approach in the same department between 1987 and 1998. Gender distribution was 64 men (mean age 43.5 years, when the diagnosis was established) and 42 women (mean age 45 years) (Fig. 1). The diagnosis of PPV was based on the following six characteristic features [4] revealed by a standardized interview and clinical examination:

1. Dizziness and subjective disturbance of balance during upright posture and gait, despite normal clinical balance tests.
2. Postural vertigo described as fluctuating unsteadiness, often taking the form of attacks or sometimes the perception of illusory body perturbations for mere fractions of seconds.
3. Anxiety and distressing vegetative symptoms accompanying and subsequent to the vertigo, elicited by direct questioning, although most patients experienced vertigo attacks both with and without excess anxiety.
4. Vertigo attacks that can occur spontaneously, but upon specific questioning are found to be associated with particular constellations of perceptual stimuli (bridges, staircases, empty rooms, streets, driving a car) or social situations (department store, restaurant, concert, meeting, reception) from which the patients have difficulty withdrawing and which they recognize as provoking factors. There is a tendency for rapid conditioning, generalization, and avoidance behaviour to develop.
5. Typically, an obsessive-compulsive type personality in patients often found to have affective lability and mild (reactive) depression.
6. Frequently, onset of the condition following periods of particular stress or after the patient has experienced an illness, usually a vestibular disorder.

To establish the diagnosis, features 1 to 4 were mandatory; features 5 and 6 were optional. Otoneurological and neuro-ophthalmological investigations at the time of assessment of the diagnosis showed centrally compensated unilateral vestibular deficits due to former vestibular neuritis in 11 patients, and mild ocular motor abnormali-



**Fig. 1** Age distribution of 434 patients with PPV seen as outpatients in our neurological dizziness unit from 1998 to 2003 (dark columns). Age distribution of 106 patients with PPV who participated in this long-term follow-up (gray columns)

ties in 12 patients; there was also slight saccadic smooth pursuit [7], strabismus [4], congenital nystagmus [1]. In none of these patients could the vestibular or ocular motor disturbances explain the symptomatology associated with considerable impairment of stance and gait. The number of patients who exhibited compensated vestibular deficits or ocular motor abnormalities confirms the figure found in an earlier evaluation [14].

Our therapeutic regimen consisted mainly of relieving patients of their fear of an occult organic disease by providing them with a detailed explanation of the mechanism that causes and the factors that provoke PPV attacks. This was usually achieved in two to three sessions. We did not subject the patients to long-term psychotherapy. We attempted to guide them by suggestion, assuring him or her during the discussion that the nature of the disease is known and that self-controlled therapy is possible. We advised the patient against dwelling on the illness too much (decoupling of catastrophic thoughts), provided the obsessional symptoms were not too severe. We recommended a self-controlled "desensitization" – within the context of behavioural therapy – by repeated exposure to situations that evoke the patient's vertigo. We advocated regular but not overly strenuous physical activity in order to improve the patient's sense of diminished fitness. If after weeks to months no improvement was observed, we recommended behavioural therapy with or without concomitant medical treatment, e.g., with selective serotonin reuptake inhibitors (SSRI) or tri/tetracyclic antidepressants.

For data evaluation a correlation analysis was performed using the set of analytical functions provided by the software Excel 2000 Pro. Statistically, the covariance of the compared sets of data was determined and divided by the product of their standard deviations.

## Results

In none of the 106 patients did the follow-up require a revision of the initial diagnosis of PPV. During the symptomatic phase 35 patients (34%) felt highly restricted and unfit for work, 50 (49%) felt only slightly restricted, and 18 (17%) felt fit for work and social activities (3 patients failed to respond to this question).

Twenty-nine (27%) patients became symptom-free, 51 (48%) were improved, 23 (22%) reported no improvement, and 3 (3%) claimed that the condition had worsened within the average follow-up period of 8.5 years (range 5 to 15.9) (Fig. 2). Age and sex did not influence the prognosis. There was a negative correlation (correlation coefficient:  $r = -0.82$ ) between the duration of the condition before assessment of the diagnosis and the improvement/regression rate (Fig. 3). Improvement, however, was even seen in a few patients with disease duration of more than 5 years. Most of the improvements or regressions (52%) occurred within the first year after assessment of the diagnosis and the recommended treatment described above. Fifteen patients (19%) improved in the second year, 11 (14%) even after 2 years; 12 patients (15%) could not reliably remember the interval between assessment of diagnosis and improvement or regression of the distressing symptoms.

Thirty-eight (47%) of the 80 patients who had improved or had a remission suffered from one ( $n = 18$ ) or several relapses ( $n = 20$ ), whereas 42 (53%) had remained in a stable condition (Fig. 4). The patients esti-

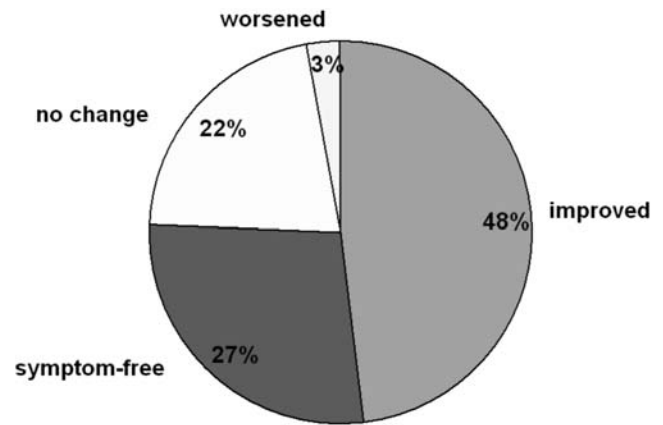


Fig. 2 Course of PPV in 106 patients after assessment of diagnosis (5 to 15.9 years)

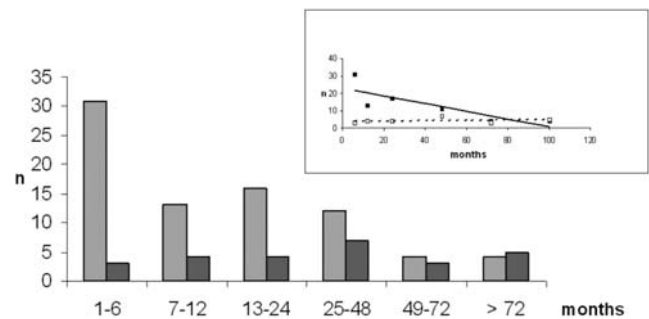


Fig. 3 Course of PPV (improvement/symptom-free: gray columns; no change/worsened: dark columns) in relation to the duration of the condition prior to assessment of the diagnosis of PPV. The earlier the diagnosis is made, the more patients benefit. However, even after disease for more than 5 years, patients can recover. The inserted diagram shows the correlation between the duration of the condition and the course of the disease: negative correlation for patients with improvement/regression ( $r = -0.82$ , filled squares), no correlation for patients with no improvement/worsening ( $r = 0.28$ , hollow squares)

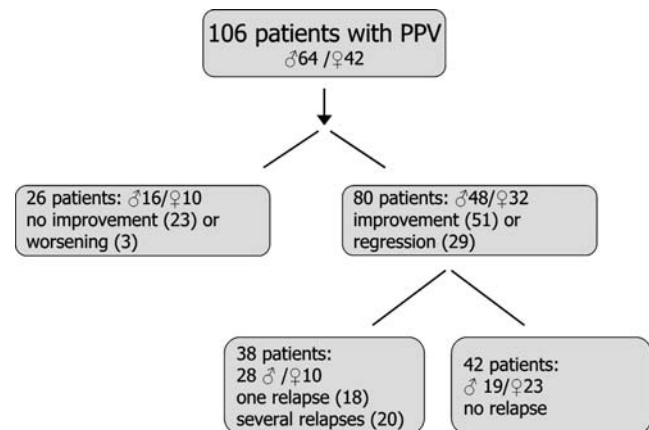


Fig. 4 Long-term follow-up of 106 patients with PPV: Frequency and gender distribution for single and several relapses

mated retrospectively that their relapses had lasted for days to weeks. The probability of developing a relapse remained constant throughout the entire follow-up period. As distinct from the gender-independent improvement/regression rate, males had a higher susceptibility to relapses than females (male/female: 28/10; Fig. 4). Age and duration of the condition prior to diagnosis had no influence on the occurrence of relapses. Surprisingly, only a minority of the patients with relapses required medical ( $n = 8$ ) or psychotherapeutic treatment ( $n = 2$ ).

A prior vestibular organic disorder had occurred in 33 (31%) of the patients. Benign paroxysmal positioning vertigo ( $n = 10$ ) and vestibular neuritis ( $n = 11$ ) were the most frequent diagnoses. In 18 (17%) an organic disorder unrelated to the vestibular system preceded the manifestation of PPV. The improvement/regression rate of patients with prior organic disorders (79%) did not differ from that of the total group.

Of the total 106 patients, 50 (47%) received medication, mostly antidepressants (SSRI or tri/tetracyclic antidepressants) or tranquilizers; 31 (29%) underwent various forms of psychotherapy (mostly behavioural therapy); 23 (22%) had physiotherapy and 18 (17%) received various other therapies such as acupuncture, homeopathic measures, or yoga. Individual patients received various combinations of these therapies. A higher percentage of those who received one or several treatments felt more impaired by the disease and considered their condition to be strongly restrictive or to make them unfit for work (40 to 53%). The long-term improvement/regression rate, however, and the rate of relapses were not different from those of the total group.

The 95 patients who did not reply showed no significant differences in demographics as to age and sex (Table 1). The symptomatology of PPV at the time of assessment of the diagnosis and the percentage of patients with preceding vestibular disorders (24%) were not different from the group of patients in the study. Only the duration of symptoms before assessment of diagnosis was longer in the non-respondents (44.8 versus 31.8 months). The group of patients who could not be contacted was slightly younger (Table 1).

## Discussion

### ■ Prognosis of somatoform PPV in comparison to anxiety disorders

The major findings of this long-term follow-up study on patients with PPV over a period of 5 to 15.9 years were very similar to those of the first follow-up study 10 years previously on 78 patients over a period of 6 months to 5.5 years [4]. The improvement/regression rate was 75%, independently of gender, age, and preceding vestibular or non-vestibular organic disorders. A new observation was the prognostic factor of the duration of the condition prior to assessment of the diagnosis: the longer the duration, the lower the improvement/regression rate. Transient relapses, single or several, occurred in about 50% of the improved patients. The probability of reoccurrence remained constant throughout the long-term follow-up. In contrast to other forms of phobias or panic disorders, which predominate in females [16, 21], PPV has a fairly balanced distribution between the sexes. The male/female ratio of the patients enrolled in this study was 64/42.

With respect to psychiatric nosology, PPV and its course must be compared with the anxiety disorders, which include panic disorders, generalized anxiety disorders, social phobia, and specific phobic disorders. Common features in the course of these anxiety disorders are chronicity, relevant associated psychiatric comorbidity, and severe psychosocial deficits. Important predictors of the outcome of panic disorders are panic subtypes and comorbidity [20]. In a prospective longitudinal study of patients with panic disorders with or without agoraphobia, Keller et al. [17] found remission rates of 39% for panic disorders and 17% for panic disorders with agoraphobia at the one-year follow-up. The various treatment strategies did not have statistically significant differences in efficacy [17].

With respect to chronicity and remission even after specific therapeutic interventions, generalized anxiety disorders show a less favourable course. Remission of generalized anxiety is rare (15% after one year, 25% after two years), the probability of becoming asymptomatic of all psychiatric symptoms was 8% [29].

Social phobias show a high chronicity with fluctuations in symptomatic intensity. Therapeutic interven-

**Table 1** Demographic data of patients who completed the questionnaire and of those lost to follow-up

	respondents ( $n = 106$ )	non-respondents no reply ( $n = 95$ )	non-respondents no contact ( $n = 95$ )
mean age	44 years	42.3 years	38.5 years
sex			
females	$n = 42$ (40%)	$n = 44$ (46%)	$n = 38$ (40%)
males	$n = 64$ (60%)	$n = 51$ (54%)	$n = 57$ (60%)
mean duration of symptoms	31.8 months	44.8 months	33.2 months

tions often lead only to a mild reduction of the socio-phobic symptomatology [9]. The outcome seems to depend on the age at onset of the illness: late onset has a favourable course and less extensive psychiatric comorbidity. Specific phobic disorders have a great variability in onset and symptomatology. In particular, the phobic disorders in childhood are often episodic, only a few persist into adulthood without specific treatment. Specific late-onset phobic disorders, however, are often therapeutically resistant [22]. In comparison with the course of these disorders, PPV seems to have a more favourable outcome as regards the core symptomatology. Further investigation, however, should focus on intercurrent or chronic psychiatric comorbidity in PPV and consider the suggested deficits in psychosocial adaptation and adjustment.

### ■ Presumed mechanism of PPV

We have tried to explain the disorder of illusory perception of postural instability by hypothesizing that there is a disturbance of space constancy, which results from a decoupling of the efference-copy signal [13] for active head and body movements [2]. Decoupling of efference and efference-copy may lead to a mismatch between anticipated and actual motion. Healthy persons can experience similar mild sensations of vertigo without simultaneous anxiety during a state of total exhaustion, when the difference between voluntary head movements and involuntary sway becomes blurred. In phobic patients this partial decoupling may be caused by their constant preoccupation with anxious monitoring and checking of balance. This leads to the perception of sensorimotor adjustments that would otherwise occur unconsciously by means of learned (and reflex-like) muscle activation programs called up to maintain upright posture. Precise posturographic analyses show that these patients rely more on proprioceptive than visual cues to regulate stance [12, 24]. They increase their postural sway during normal stance by co-contracting the flexor and extensor

muscles of the foot, evidently an expression of an unnecessary, fearful strategy for maintaining stance. Healthy subjects use this strategy only when in real danger of falling. During difficult balancing tasks, such as tandem stance with eyes closed, the posturographic data of these patients do not differ from those of healthy subjects, i. e., the more difficult the demands of balance, all the more “healthy” is the balance performance of patients with phobic postural vertigo [25]. Obviously the fearful strategy, stance with unnecessary co-contraction of muscles, is reversible, although this has not yet been experimentally proven in a follow-up study using quantitative posturography.

### ■ Study limitations

A retrospective questionnaire 5 to 15 years after assessment of the diagnosis clearly has limitations. These include the substantial number of patients traced but who failed to return the questionnaire, the lack of actual neurological and psychiatric evaluations at follow-up, and uncertainties about various therapies during the follow-up period.

However, having studied and treated PPV for 20 years, we find the definition of this syndrome as a distinct clinical entity justified, because of its typical features, the reliability of the diagnosis, and the relatively favourable course brought on by short-term suggestive and behavioural therapy. This long-term follow-up supports the view that PPV is a distinct clinical entity, since no transitions could be observed to other diseases, especially vestibular disorders. The desire of patients with PPV to learn about the somatoform mechanism and their willingness to engage actively in treatment are an encouraging experience, and the improvement in 75% of the patients justifies the engagement in managing PPV.

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