

# Course of illness in phobic postural vertigo

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Forty-two patients with phobic postural vertigo took part in a neurological and psychiatric follow-up study. During the follow-up time of about 2.5 years the neurological diagnosis remained stable (41 of 42 patients). PPV can be assigned to various psychiatric categories according to DSM-III-R. Although an association of PPV with anxiety disorders is evident, not all patients present with symptoms of anxiety or panic during attacks of vertigo. However most patients develop a disabling “phobic-avoidance pattern” with recurrent attacks. Important psychosocial stressors can be identified at the onset of the condition. Motives of secondary gain have also to be taken into consideration. The course of illness varies depending on the neurological syndrome of vertigo, on the one hand, and concomitant psychopathological syndromes, on the other. Despite a considerable rate of improvement in vertigo complaints (79%), the group of patients with phobic postural vertigo as a whole presented with significant psychological problems at follow-up term (74%), requiring specific psychiatric and/or psychotherapeutic interventions. Dependent or avoidant personality, and hypochondria were prognostic of a more negative course of illness.

Key words: phobic postural vertigo; anxiety disorders; panic disorder; follow-up; psychiatric comorbidity

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Vertigo refers to a disturbed relation of the body and space. It can be defined as an illusionary sensation of movement, which is mostly accompanied by great discomfort and distressing vegetative reactions. As a symptom, vertigo characterizes several organic diseases of the peripheral and central vestibular systems. As a subjective complaint, it may be an integral part of several psychiatric syndromes.

The close connection between vertigo and anxiety was first emphasized by S. Freud (1) in one of his early papers on anxiety neurosis. In recent years Brandt and co-workers (2–5) have repeatedly pointed to a subgroup of patients admitted to their dizziness unit. Such patients can be positively identified by diagnostic signs combining non-rotational vertigo, subjective postural and gait instability, normal neuro-otological tests, phobic avoidance behavior, and obsessive-compulsive personality. The frequently monosymptomatic disturbance of balance manifests with superimposed attacks which occur with or without definite causes. Vertigo may be experienced with or without concomitant anxiety, misleading both patient and physician to wrongly assume an organic disease. Brandt typified this neurological syndrome as “phobic postural vertigo”

(PPV). In the meantime PPV has become the second most cause of vertigo in the dizziness unit.

A first follow-up study, which compared patients with PPV and patients with psychogenic disorders of stance and gait found a far more favorable course of illness in the first group of patients: the neurological syndrome of vertigo improved in 72% of the patients and 22% became free of any vertigo symptoms for the duration of the illness (4).

The aim of the present follow-up study was twofold: (1) to specify the diagnostic nature of the neurological syndrome of “phobic postural vertigo” from the perspective of DSM III-R, and (2) to trace the course of illness with respect to the leading neuro-otological syndrome and other concomitant psychopathological syndromes.

## Methods

### Patients

Forty-two patients with a neurological pre-diagnosis of PPV gave their informed consent to participate in a neurological and psychiatric follow-up study. All patients had had a neurological diagnosis about 2.5 years before in the dizziness unit of the

Department of Neurology at the University of Munich. A cluster of complaints and features regarded as diagnostically typical of PPV was the precondition for inclusion in this study (Table 1).

The patients were considered a representative sampling of all persons with PPV admitted to the dizziness unit during recent years. Whereas the entire group showed a fairly balanced distribution of both sexes, more men ( $n = 29$ ; average age: 43.2 years) were included in the follow-up study than women ( $n = 13$ ; average age: 50.3 years). The condition had lasted an average of 6.5 years before the definite diagnosis was established. This often meant that the patients had had many contacts to doctors of various specialties, had undergone several detailed and invasive diagnostic procedures, and had received different diagnoses such as "cervical vertigo" or "vertebrobasilar insufficiency". The socio-economic status of most patients was "married" or "living in stable long-term relationships". Both women and men were typically free-lancers or employed.

When first admitted all patients had been informed about PPV, and had been given a detailed explanation of the mechanism causing and provoking attacks. Our therapeutic aim was first to relieve the patients of their fear of an occult organic cause for their complaints by giving them a rational model of symptom causation. We then recommended repeated exposure to situations they otherwise avoided, and advocated regular but not exaggerated physical activity to improve the patients' sense of impaired vitality.

#### Procedure

In the first part of the study all patients underwent a complete neurological re-evaluation including neurological and medical history, neurological status, neuro-ophthalmological and neuro-otological investigations, orthoptic tests, electronystagmography, posturography and auditory evoked potentials.

In the second part, an extensive psychiatric assessment was made using Structural Clinical Interview (SCID) for DSM-III-R diagnosis (6). SCID covered previous psychiatrically relevant episodes, the evaluation of PPV according to DSM-III-R during first admission to the dizziness unit, and the assessment of the present psychopathological status at follow-up. Information on family history of neuropsychiatric disorders was collected. The patients' personalities were assessed according to the outline in DSM-III-R. A careful psychosocial history was taken to detect distressing influences in the major areas of personal life either previous to or present at the time PPV developed. Global Assessment Scale (GAS) determined the level of general disability

Table 1. Diagnostic criteria of phobic postural vertigo (PPV)

The diagnosis of PPV is based mainly on the following six characteristic features:

1. Dizziness and subjective disturbance in the upright posture and during gait, despite normal clinical balance tests such as Romberg test, tandem walking, balancing on one foot and routine posturography.
2. Postural vertigo described as fluctuating unsteadiness, often in form of attacks (seconds to minutes) or sometimes the perception of illusionary body perturbation for mere fractions of seconds.
3. Vertigo attacks that can occur spontaneously but upon specific questioning are found to be almost invariably associated with particular constellations of perceptual stimuli (bridges, staircases, empty rooms, streets) or social situations (department stores, restaurants, concerts, meetings, receptions) from which the patients have difficulty withdrawing and which they recognize as provoking factors. There is a tendency for rapid conditioning, generalization, and avoidance behavior to develop.
4. Anxiety and distressing vegetative symptoms accompanying and subsequent to the vertigo elicited by direct questioning, although most patients experience vertigo both with and without excess anxiety.
5. Typically, an obsessive-compulsive type personality in patients is often found to have affective liability and mild reactive (to the subjective vertigo) depression.
6. Frequently, onset of the condition following periods of particular stress or after the patient has experienced an illness usually a vestibular disorder.

due to vertigo and/or psychopathological symptoms for the current status.

Statistical analysis was carried out by Fisher's exact test.  $P$ -values  $< 0.05$  (two-tailed) were considered significant.

#### Results

Initial case history and neurological examination revealed that 17 patients (40%) had had a somatic illness preceding the first manifestation of PPV. In 29%, vestibular disorders had been detected, among them benign paroxysmal positioning vertigo and vestibular neuritis being most frequent, followed by Meniere's disease. Examples of other illnesses were influenza, by-pass operations, and an esophageal tumor. However, at the time of first admission all neuro-ophthalmological and neuro-otological findings were normal except for signs of centrally compensated unilateral vestibular hypo-function in few cases. One of the most important findings of our study was that this initial diagnosis of PPV had not been revised in the course of illness. A careful re-evaluation was not possible in only one patient, who in the meantime had developed Alzheimer's dementia. At follow-up term all neurological tests did not show any significant difference from the initial evaluation results.

The psychiatric diagnostic assessment according to SCID (DSM-III-R) revealed that the neurological syndrome of PPV on first admission to the dizziness unit had to be classified as a depressive disorder in 4 (major depressive episode:  $n = 2$ , dysthymia:  $n = 2$ ), as a generalized anxiety disorder

in 6, as a panic disorder in 14 (with agoraphobia in  $n=12$ ). Eighteen patients suffered from recurrent monosymptomatic attacks of vertigo. Without exception, these sensations of vertigo were experienced with feelings of great discomfort and distress during the acute manifestation, were cognitively evaluated as signs of a serious illness, and were accompanied by nausea in rare cases but not by other physical symptoms, which occur in panic states. None of these patients complained of subjective feelings of anxiety or even panic during the attacks. With recurring attacks of vertigo, however, 15 patients developed a phobic avoidance-pattern which could finally be classified as agoraphobia, in one case an acrophobic behavior was additionally recorded (Table 2).

The great majority of patients ( $n=20$ ) showed features of an obsessive-compulsive personality type. In some patients, however, also other personality traits (narcissistic, histrionic, dependent, avoidant, passive-aggressive) were prevailing (Table 2).

A positive psychiatric history according to SCID was found in three women, who had suffered from previous episodes of major depressive disorder. Six men reported previous psychiatric disorders (major depressive disorder:  $n=3$ , alcohol abuse:  $n=1$ , social phobia:  $n=1$ , undifferentiated somatoform disorder:  $n=1$ ).

A positive psychiatric family history was recorded in three women (alcohol abuse and major depressive disorder, schizophrenic disorder, suicide) and in three men (alcohol abuse:  $n=2$ , alcohol abuse and major depressive disorder).

Distressing psychosocial influences were identified during the first manifestation of vertigo symptoms in all but three patients. Above all stressors in personal relationships ( $n=22$ ), family ( $n=16$ ) and professional surroundings ( $n=21$ ) had to be evaluated as factors either directly releasing or mediating the onset of PPV. The majority of patients ( $n=30$ ) had to deal with serious midlife problems under duress. Both women and men had been living in partnerships characterized by emotional closeness, family centeredness, and social stability when either negative life events or normative developmental tasks of the life phase disrupted the previous life-style. This included, e.g., death of a beloved parent, separation from a partner, loss of a highly valued job, professional opportunities necessitating the loss of familiar social surroundings. This meant, e.g., re-evaluation of the professional career in the light of attained aims and important personal ambitions neglected so far, or the need to reshape the relationship to a spouse and the family life when children were leaving home. For the great majority of patients these

Table 2. Diagnostic classification of the syndrome of PPV according to SCID at onset of condition and prevailing personality features (DSM-III-R)

DSM-III-R diagnoses (axis I)	<i>n</i>	Personality features (axis II)	<i>n</i>
Major depressive episode	2	– compulsive	20
Dysthymic disorder:	2	– narcissistic	7
		– dependent	3
Generalized anxiety disorder	6	– histrionic	2
Panic disorder	14	– avoidant	6
with agoraphobia (complete)	8	– passive-aggressive	4
with agoraphobia (partial)	4		
PPV (monosymptomatic)	18		
with agoraphobia	15		

events induced a severe psychosocial crisis with strong feelings of an existential threat.

A considerable secondary gain resulting from the symptomatic status seemed to play an important role in some patients maintaining PPV. Motives of seeking permission and care predominated ( $n=24$ ). In some patients ( $n=11$ ) repressed affects of anger and hostility, which were originally directed at close family members or partners, obviously played a major role during the course of symptoms. In a minor subgroup of men ( $n=3$ ), striving for financial compensation was involved. Few patients ( $n=3$ ) had identified with the "sick role" to such a degree that it had an important stabilizing effect on them, i.e., the "sick role" seemed to mediate their primary psychosocial identity.

The course of illness of the leading neurological syndrome of PPV at follow-up term could be described as follows (categories I to IV):

I: 5 patients (12%) were completely free of any symptoms.

II: 12 patients (29%) showed at least symptom-free intervals in the meantime but complained of some recurring vertigo upon second admission.

III: 16 patients (38%) indicated a moderate improvement of their vertigo. They seemed to have somehow gradually adapted to their condition. The majority, however, was convinced of the organic harmlessness of their symptoms and resumed their usual social activities more or less, but reported on continuing symptoms of vertigo. The main change in their neuropsychiatric status was the successful mastering of the initially generalized phobic avoidance behavior.

IV: 9 patients (21%) complained of a chronic-persisting or even deteriorating condition of PPV which negatively interfered with almost all professional, social, and private activities. This subgroup could not be convinced of the non-organic cause. They soon ignored the therapeutic advice of self-controlled exposure and reduced their physical activities to a bare minimum. They continued to seek an explanatory organic cause, with the consequence

that they contacted many doctors of various specialties and underwent repeated and detailed invasive diagnostic procedures.

The psychiatric assessment of concomitant psychopathological syndromes requiring special psychiatric and/or psychotherapeutic treatment at follow-up term showed that only 11 patients were free of any coexistent psychiatric symptoms and were in a stable and balanced mood. Anxious ( $n=17$ ) and depressive syndromes ( $n=11$ ) were reported to be the main psychological problems. The majority of these affective complaints were presented in combination. Especially among group IV patients a pronounced phobic avoidance-pattern ( $n=7$ ) still prevailed, often connected with persistent hypochondriac ruminations ( $n=10$ ). Two female patients demonstrated typical signs of “belle indifference” with respect to their neurological status, both to be classified as category IV. Six patients had developed substance use disorders (alcohol abuse:  $n=4$ , benzodiazepine abuse:  $n=1$ , analgesics abuse:  $n=1$ ). One patient suffered from a dementia syndrome, presumably of the Alzheimer’s type. Table 3 gives a survey of the diagnostic classification of these concomitant psychopathological syndromes according to DSM-III-R and ordered by diagnostic categories derived from the initial diagnostic groups during the course of illness. The numbers in brackets reflect the descriptions of changes connected with the leading neurological syndrome of vertigo. Although lower numbers more frequently indicate non-existent or less of psychopathological comorbidity and higher numbers the opposite, the relation between vertigo and psychopathological symptoms at follow-up was by far not uniform.

Apart from the two patients who initially had major depressive episodes and were both completely free of any symptoms of vertigo and psychopathological constraints at follow-up, the various diagnostic subgroups set up on first admission had no predictive value. On an explorative level of analysis, patients with predominantly dependent or avoidant personality traits seemed to show a more negative course of illness than patients with obsessive-compulsive features ( $P=0.024$ ). Persisting physical symptoms such as tinnitus, neckache, serious illness (tumor of the esophagus), etc., which were not causally linked to PPV but reinforced constant self-observation and very often triggered hypochondriac ideas, significantly contributed to a negative course of illness ( $P=0.025$ ).

The high rate of psychopathological comorbidity of the patients at follow-up was also reflected in the average score of 60 in Global Assessment Scale. Ranging from 0: “extreme impairment” up to 90: “symptom-free”, GAS describes the general disability due to vertigo and/or psychic problems. Therefore, a score of 60 signified considerably reduced emotional well-being and social functioning. Women seemed to be more severely affected than men (female: average score = 55, men: average score = 65). But the difference was of no statistical significance ( $P=0.083$ ).

**Discussion**

Diagnostic classification of PPV

Brandt and co-workers (2, 3) demonstrated in several papers that the neurological syndrome of

Table 3. Classification of psychopathological disability according to DSM-III-R at follow-up with respect to the initial diagnostic group (category of course of illness as regards the syndrome of vertigo)

First admission		Follow up	n	(category I to IV)
Major depressive episode	→	no psychiatric disorder:	2	(I, I)
Dysthymic disorder	→	dysthymic disorder:	2	(III, IV)
Generalized anxiety disorder	→	generalized anxiety disorder	6	(II, II, III, III, III, IV)
Panic disorder	→	no psychiatric disorder	2	(II, III)
		dysthymic disorder	2	(III, IV)
		panic disorder +	4	(III, III, III, IV)
		dysthymic disorder		
		panic disorder (partial)	4	(II, II, III, III)
		agoraphobia	2	(II, III)
PPV (monosymptomatic)	→	no psychiatric disorder	7	(I, I, I, I, II, III, III, III)
		dementia	1	(III)
		adjustment disorder with	4	(II, II, II, II)
		anxiety (chronic type)		
		agoraphobia	7	(II, IV, IV, IV)
		agoraphobia +	2	(IV, IV)
		dysthymic disorder		

PPV can reliably be identified by a number of positive signs in clinical practice. A first follow-up study has shown that this diagnosis remains stable during the course of illness (4). Among our small group of 42 patients the diagnosis of only one patient had to be altered to dementia of the Alzheimer's type. Retrospectively it was not possible to decide whether the initial syndrome of vertigo should be considered a separate episode of illness or a prodromal period of the later dementia.

The diagnostic classification of DSM-III-R assigns PPV to various diagnostic groups. Although a strong association with anxiety disorders is evident, not all patients with PPV belong in the diagnostic subgroup "panic disorder" contrary to a recent proposal (7). Apart from the fact that vertigo may definitely belong to other diagnostic groups, such as "depressive disorder" or "generalized anxiety disorder", especially patients of the diagnostic category "monosymptomatic PPV" did not present any symptoms of subjective anxiety or even panic during attacks of vertigo. In our patient subgroup we can rule out the possibility of a "non-fearful type" of panic disorder comprising the whole list of somatic symptoms usually detectable in states of panic with the exception of the subjective fear of catastrophe or death (8). Some cases reported only nausea as an additional physical complaint. Attacks of PPV and panic attacks have in common that they trigger a phobic avoidance-pattern in most affected patients. While at first this avoidance behavior is directed to the situation or activity which initially elicited the attacks, it soon generalizes in both cases. This avoidance behavior can best be classified as "agoraphobia".

The clinical condition most similar to PPV was described by Marks (9) as "space phobia", "a fear of absent visuospatial support (open spaces) and of falling, unlike the fear of public places found in agoraphobia" (p. 387). "Space phobia" seems to affect older persons more readily and is often induced by cardiovascular and/or cerebrovascular events and consequent falls. It is characterized by a constant uncertainty of gait rather than by vertigo attacks. "Space phobia" could be considered as a chronic form of PPV in the elderly (3).

In contrast to other forms of phobia or panic disorder which predominate in females (10), PPV is fairly balanced in distribution among the sexes (11). As to psychiatric family history there could have been expected a much higher prevalence of anxiety disorders in first-degree relatives if PPV was more strongly connected with other main groups of anxiety disorders (12, 13). No other family member of our patients suffered from any type of anxiety disorder. There was only a loose association with depressive disorder and alcohol

abuse. An additional variable differentiating PPV from other groups of anxiety disorder is in the higher age at first manifestation.

### Pathogenetic factors in PPV

It is a well-known clinical fact that vestibular dysfunction in some predisposed persons may induce psychiatric syndromes, panic and depressive disorders being the most prevalent examples (14, 15, 16, 17). An association with various central and peripheral vestibular disorders such as benign paroxysmal vertigo or vestibular neuritis may also increase the risk of PPV. The vestibular disorder precedes the development of PPV either by interposing a phase of vestibular recovery or compensation or by immediately triggering it without a symptom-free interval. However, we must stress that in the majority of patients PPV is not induced by an organic vestibular disorder (11). Forty percent of patients in our sample reported that a proper somatic illness preceded the onset of PPV. In two-thirds of this subgroup various vestibular disorders were proven.

Brandt (3) hypothesized that an impairment of the space constancy mechanism in these patients leads to a partial uncoupling of the efference copy of active head movements. The severely incapacitating effect of derangement of the multimodal spatial orientation, movement perception, postural regulation, and controlled movement in the gravitational field almost inevitably leads to an experience of subjective distress, which triggers anxiety affects and phobic behavior. The aroused anxiety level may further exacerbate this sensitive, complex regulatory system of space constancy by positive feedback. Apart from these possible pathophysiological determinants, important psychological influences must be evaluated as additional pathogenetic factors in the manifestation of PPV.

The previous observation (2, 3) of a surprisingly high frequency of obsessive-compulsive personality features in patients with PPV was also confirmed in our study. An obsessive-compulsive personality structure seemed to be influential in at least two ways. First, it defined typical life circumstances as conditions of psychic vulnerability, when well-established but emotionally and cognitively restricted styles of coping required correcting either by allowing full expression of the emotions evoked by the life events or by decisive developmental tasks to learn to give up orderly ways of life. Secondly, it promoted the typical attempt to overcome the overwhelming emotionality by isolating affects and rationalizing them as pure physical dysfunctions whose only solution is via a somatic model of therapy. Thus, it was of no surprise that these

patients indeed profited most from the rational explanation of symptom causation and the clear therapeutic advice given to them during their first admission. However, not all patients showed compulsive personality traits and some used different ways of coping, with only a minor chance of returning to a well-adjusted life again.

Clinical implications

In a first follow-up study Brandt and co-workers (4) found an encouraging rate of improvement of PPV in the long run. Categories of improvement or change in the leading neurological syndrome of vertigo seem to show a fairly good correspondence with the results found in our study. This is only half the story about the course of illness, however. From a comprehensive neuropsychiatric perspective, the high rate of psychic disability at follow-up was significant. This was also reflected in the average score of GAS. A combined neurological and psychiatric-psychotherapeutic approach from the very first contact with patients with PPV seems to be more favorable for determining the most promising treatment for each individual patient. This is the subject of a planned prospective study.

The neurological diagnosis of PPV can be classified in various psychiatric diagnostic categories according to DSM-III-R. Nevertheless, "PPV" as a typology retains its great clinical utility, for it identifies patients presenting with this condition with high reliability. These patients first and foremost seek contact to neurologists and not psychiatrists or psychotherapists, since their prevailing complaint is distressing vertigo (18).

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