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Palinopsia Posing as a Psychotic Depression

The experience of visual images appearing as well-described persons and objects, either familiar or unfamiliar to the patient, has frequently prompted psychiatric evaluation for apparent psychotic or schizophrenic disorders. A case of apparent psychotic depression is reported, in which the symptoms were due to the patient's experience of palinoptic images. Answers to particular questions in the initial interview can obviate the need for psychiatric consultation, as various consistencies have been reported in the non-psychiatric symptom of palinopsia.

Palinopsia is the persistence or recurrence of visual images after the stimulus object has been removed, as defined by Bender *et al* (1968). The visual hallucination in palinopsia is experienced as no less real than those in psychiatric disorders. However, to see is not necessarily to believe for one who is of sound mind and afflicted by palinopsia. Severe paranoia or anxiety may develop in a patient with no psychiatric abnormalities if an understanding of the condition is not provided.

In a general-hospital setting, complex hallucinations often occur in delirious states that follow metabolic abnormalities such as those resulting from hepatic or renal failure, anoxia, infection, drug intoxication, or drug withdrawal (Wolff & Curran, 1935). However, hallucinations that occur in clear consciousness are found also in dementia, schizophrenia, and manic–depressive disorders (Peroutka *et al*, 1982). Peroutka *et al* (1982) reported a case study of palinopsia presenting as schizophrenia. We report a case of palinopsia posing as major depression with agitation and psychotic features.

Case report

A 71-year-old white man presented with primary symptoms of progressive malaise and fatigue. One month before admission, he began receiving prednisone (80 mg daily) for treatment of an idiopathic haemolytic anaemia. He had received folate supplementation and transfusion of two units of packed red blood cells as adjunctive therapy. His medical and surgical history included gastric surgery 7 years earlier and a polypectomy performed via colonoscopy within the previous 6 months. The patient otherwise enjoyed good health and maintained a very active lifestyle. In each of three prior hospital admissions within a 1-month period, he had been entirely normal on physical examination.

Thorough laboratory investigations, including bone-marrow studies, failed to reveal the nature of the haemolytic condition. No clear understanding was obtained as to why progressive symptoms of malaise and fatigue had persisted throughout each of his three brief hospital stays. Eventually, a psychiatric consultation was ordered to evaluate for depression and the "acute development of visual hallucinations".

In the initial psychiatric interview, the patient described various vegetative symptoms consistent with a major depression. His energy level had declined over the preceding 3 months, his appetite was impaired, and he had lost 9 kg. He had noted sleep disturbance, but without a clear picture of its onset. In the preceding 5 days, he began to lose interest in routine pleasurable activities. Additional information revealed that his wife had died 6 years earlier, and two of his brothers had died within the 6 months before his admission.

Review of past psychiatric illness uncovered treatment for an acute anxiety reaction precipitated by a job demotion 15 years earlier. Family members described him as a "nervous individual" most of the time. No other psychiatric illness was identified in the patient or family histories. It was particularly noted that the recent death of one brother had been due to a cerebral malignancy.

Mental-status examination revealed a dysphoric, agitated, frightened man who appeared tearful and emotionally labile. He was preoccupied with his current mental health. Initially, he answered questions in a guarded hypervigilant fashion until the interviewer established a rapport with him. Further questioning clarified the existence of ongoing visual hallucinations as the primary source of the patient's anxiety. These were distinct and appeared in vivid "technicolor". He described them as resembling arcade video-game characters, similar to "Pac Man" figures; they recurred uncontrollably, consistently reappeared in the centre of his visual field, and always moved toward the right. The phenomenon was enhanced every time the patient attempted to watch a program on the television screen located near the ceiling in his room. With the television off, the images continued to recur, but not as frequently. The "Pac Man" images were the only visual hallucination and appeared in a solitary repetitive fashion. No additional illusions, delusions, or psychotic features were evident. The rest of the mental-status examination was unremarkable. Neurological and ophthalmological evaluations were subsequently performed.

The most impressive finding on neurological examination was a bilateral right visual-field deficit. Coarse resting tremors in both upper extremities, unsustained bilateral ankle clonus, and bilateral hyperreflexivity of both lower extremities were also present.

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Visual-field assessment showed a large right homonymous hemianopsia.

Computed tomography of the brain revealed a recent, large, left occipital-lobe infarction. This finding seemed to account for the acute right hemianopsia with the concurrent palinopsia within the visual-field deficit.

The paranoia, agitation, and psychotic depression immediately resolved in our patient when he was provided with an explanation for his condition.

Discussion

Particular hallucinations often direct one toward the investigation of a specific metabolic, neurological, or psychiatric aetiology. The tactile hallucination of formication can suggest metabolic causes, including hyperbilirubinaemia or drug-withdrawal syndromes. Auditory hallucinations tend to suggest a psychiatric cause, such as schizophrenia, manic–depressive illness, or acute reactive psychotic episodes. Visual hallucinations strongly suggest not only a toxic or metabolic origin, but also neurological pathologies within the central nervous system. The literature suggests that certain features that can facilitate the diagnosis of palinopsia secondary to cortical lesions may be noted early. Particular answers to key questions can immediately suggest probable cerebral hemispheric pathology. Various consistencies were noted in this case report that are worthy of further discussion.

Kolmel (1985) reports on 120 patients with homonymous hemianopsia and notes that visual hallucinations appearing in the hemianoptic field are not rare in neurological practice. His 16 cases of palinopsia all involved brain lesions within, but not limited to, the occipital cortex. Meadows & Munro (1977) emphasised the importance of localisation of the lesion and reported specific right occipito-temporal lesions in all three of their cases. Weinberger & Grant (1940) concluded that visual hallucinations have no localising value and may be provoked by lesions at any level of the neuroptic apparatus. Bender *et al* (1968) described palinopsia as usually associated with a parieto-occipital lesion, most commonly right-sided with a defect in the left half-fields.

Palinopsia is usually a transient, intermittent event that typically resolves in several days to several months, although some exceptions have been cited. Cummings *et al* (1982) report an individual with recurrent daily images for 6 years. Russell & Whitty (1955) describe a patient with a coloured-light visual perseveration within the blind field that persisted for 9 years. Palinopsia in our patient initially manifested with clearly formed images in vivid 'technicolor' that gradually regressed into black-and-white formless images over 8 days.

Palinopsia has also been observed as an ictal phenomenon in epileptic patients. Brust & Behrens (1977) further elaborate the understanding of palinopsia in epilepsy as part of not only ictal, but also aural and post-ictal phenomena, as determined by EEG investigations. Jacobs *et al* (1972) observed that, in some instances, ictal palinopsia could be suppressed by treatment with anticonvulsant drugs. Swash (1979) refuted the idea that palinopsia occurred in temporal-lobe epilepsy. He contended that ictal visual perseveration is usually of an image in the external world, unlike the hallucination experienced in palinopsia, which is derived from other causes. Kolmel (1985) discerned between the separate entities; different behaviour after saccadic eye movement differentiated between complex visual hallucinations in the hamianopic field and visual auras of epileptic origin.

Cleland *et al* (1981) summarise palinopsia and visual hallucinations as the result of parieto-occipital lesions caused by infarction, tumour, migraine, trauma, and as a part of an epileptic aura.

Michel & Troost (1980) raised the question of whether palinopsia involves hallucinations. They reported three cases of occipital lesions, including infarction similar to that in our report, in which palinopsia occurred in corresponding visual-field deficits only shortly after objects were removed from view. Although Dorland (Friel, 1974) defined visual hallucinations as sensations of seeing that are not stimulated by actual objects seen, they concluded that their subjects' visual perseverations were elicited by recent visual cues.

Our patient was in many ways similar to Michel & Troost's subjects, with one conspicuous difference: he was extremely agitated by his palinoptic hallucinations, since they were clearly not elicited by video games or pictures of "Pac Man". Identification of his images as "Pac Man" figures was only possible through a process of visual memory of a remote past experience. His experience was more consistent with Cogan's (1973) description of palinoptic visual hallucinations not as the result of temporal distortion of a recently viewed object, but instead as a release phenomenon of visual memory. It is likely that different mechanisms responsible for immediate and remote visual memories account for the differences between the subjects of Michel & Troost (1980) and our patient. No object was present at the moment of the visual experience, following the definition of a visual hallucination, in either recent or remote memories. Kinsbourne & Warrington (1963) discussed the

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possibility that release hallucinations may represent pathological overactivity of the cerebral neural system subserving visual perception, perhaps owing to its release from inhibitory influences.

Brust & Behrens (1977) observed, in one patient, that watching a television screen seemed to trigger the recurrence of palinoptic images in his left upper visual-field deficit. Coincidentally, our subject had a right upper visual-field deficit and recurrent "Pac Man" images triggered by watching the television screen located in his right visual field next to the ceiling. We developed several hypotheses to account for this. The television screen may have served as a closely associated visual cue that may have elicited the "Pac Man" image, which usually appear on video screens. A second possibility may be that the presence of any object in the patient's visual-field deficit may have drawn his attention to that portion of visual deficit in which the hallucinations usually seem to occur. A final explanation may be simply that the presence of light from the screen provoked visual memories in the form of palinopsia. We witnessed his greater frequency of recurrent images while the television was on.

When reconsidering the similarity in pathologies, lesion locations, and descriptions of the repetitive visual hallucinations in patients with either palinopsia or release hallucinations, a recent excitatory stimulus does not seem to be necessary. The definition of palinopsia by Bender *et al* (1968), the persistence or recurrence of visual images after the exciting stimulus object has been removed, has been frequently cited. Although useful, this definition does not state whether the object must have been viewed recently or may remain as a visual memory of the distant past. We propose describing palinopsia as the persistence or recurrence of visual images that may or may not be the result of excitation by a stimulus object that has been removed. In case reports by Lance (1976), several patients described palinoptic images that were original and not previously witnessed; they were recurrent and not attributable to any past visual experience.

From a psychiatric perspective, explaining that the visual perseverations are elicited by recently viewed objects does seem to offer some reassurance to the patient, who is more likely to view the problem as a visual rather than a mental disorder. In our case, the patient had suffered from great doubts about his sanity. Lance (1976) noted that several of his 13 patients also experienced this fear of insanity with the emergence of palinoptic images.

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