CASE REPORT

Visual hallucinations in photographs in Parkinson's disease

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SUMMARY

Visual hallucinations are reported in 16–37% of drug-treated patients with Parkinson's disease (PD) and are the most common hallucinations in PD. We report two patients with PD with symptoms that uniquely integrate visual hallucinations and delusions. We report two cases of patients with PD with visual hallucinations who saw the persistence of these hallucinations in photographs. These pictures were taken to prove the absence of these hallucinations. We believe this is the first description of this peculiar phenomenon, in which hallucinations or illusions could be replicated in photographs. Both patients had delusions associated with the images and we speculate that the images they saw in the photographs represent a further delusion, hence a 'delusional hallucination' or 'delusional illusion.' We believe that delusions fostering hallucinations are rare.

BACKGROUND

Visual hallucinations are reported in 16–37% of drug-treated patients with Parkinson's disease (PD) and are the most common hallucinations in PD.¹ Hallucinations are perceptions that are not based on any relevant stimulus. Delusions are false, irrational beliefs that are not based on real data and occur in 1–14% of drug-treated patients with PD.² A different study found a prevalence of hallucinations on antiparkinsonian medication in patients with PD of 46.3% and illusions of 16%.¹ Two recent meta-analyses have demonstrated that hallucinations are more frequent among patients with early PD randomised to dopaminergic treatment compared with placebo.³ The most common delusions in patients with PD are paranoid. They accuse their spouse of infidelity, think people are stealing from them or want to harm them or believe that their house is not theirs.¹ Delusions of grandeur, broadcasting, religiosity or transference are not seen in patients with PD.¹ Very commonly, hallucinations and delusions coexist in these patients. In general these are distinct phenomena although both may occur in PD psychosis.² We report two patients with PD with symptoms that uniquely integrate the two phenomena. To our knowledge this is the first description of this observation reported in the literature.

CASE PRESENTATION

Patient 1 was first evaluated at age 66, having been diagnosed with PD at age 58. She had a Hoehn-Yahr stage 2 and was taking carbidopa/levodopa 25/100, 10 tablets daily, and ropinirole

XL 12 mg daily. Her Mini Mental Status Examination score (MMSE) was 29. She complained of daytime and night-time visual hallucinations for the past one year. Most of the time she did not have insight about them. She described seeing three children playing in her neighbour's yard and a brunette woman sleeping under the covers in one of the beds in her house. She also saw images of different people sitting quietly in her living room. Most of her visual hallucinations subsided in open and brightly lit spaces but were, nevertheless, troublesome. In one instance, she saw a man covered in blood, holding a child and called 911. Her husband, in an attempt to prove to her that these were hallucinations, took pictures of the neighbour's yard and the bed in their house. Surprisingly, when shown these photos, the patient continued to identify the same children playing in the yard and the same brunette woman sleeping under the covers. This perception was present every time the patient looked at these photos. Within 6 months of stopping ropinirole and titrating quetiapine to 75 mg every night at bedtime the hallucinations were less severe and shorter in duration, but the patient continued to see them in the photos.

Patient 2 is a 67-year-old man who was diagnosed with PD at the age of 62. He was on pramipexole 4.5 mg daily; carbidopa-levodopa 25/100 three tablets a day, rare doses of amphetamine salts 10 mg for sleepiness and darifenacin extended release 15 mg, and reported seeing people outside his house. He was not clinically demented and his MMSE was 29. Although quetiapine 25 mg before bedtime was started the hallucinations worsened.

He lived in a rural setting, his house surrounded by forest and brush. He saw groups of people, wearing camouflaged clothing outdoors, taking measurements for engineering changes to provide better drainage for his property, a process that had, in fact, been discussed by the town administrators the year before. He pointed them out repeatedly to his wife who assured him there was no one there. To prove his point he took photos and brought them to the office. The photos showed the trees near his home. He identified people standing near the trees in the photo. The patient and his spouse mentioned that when he was in his beachside summer home, he had no hallucinations. After his quetiapine dose was increased to 75 mg every night at bedtime the hallucinations in the fields resolved, but he continued to see the people in the photos.

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DISCUSSION

The correct terminology for these patients' experiences is unclear. On the one hand, patient 2 saw the people only in a setting of trees or brush, suggesting illusion rather than hallucination, but he also saw them quite clearly, and could describe their attire. Furthermore, he had a fixed delusion about their intentions. The lack of hallucinations outside his beach house supports the notion of a delusion rather than hallucination, since there were no trees or bushes to create an illusion. He identified these images in photos of the trees, again suggesting an illusion. Similarly, patient 1 saw three children in the setting of the neighbour's yard with a fence and bushes which could trigger an illusion. However, the image of a brunette woman lying under the covers of the patient's bed, seems to have no visual stimulus which could be misinterpreted so as to be perceived as an illusion. Therefore, this suggests a delusion. However, patient 1 did not have any delusions about the children playing in the neighbour's yard. Given the absence of dementia, we believe that both patients' symptoms could be attributed to dopaminergic treatment such as dopamine agonists and carbidopa-levodopa.

To our knowledge, there are no similar cases published in the literature. We believe this is the first description of this peculiar phenomenon, in which hallucinations or illusions could be replicated in photographs. Both patients had delusions associated with the images and we speculate that the images they saw in the photographs represent a further delusion, hence a 'delusional hallucination' or 'delusional illusion.' We believe that delusions fostering hallucinations are rare.

Learning points

- ▶ Visual hallucinations are reported in 16–37% of drug-treated patients with Parkinson's disease (PD).
- ▶ Hallucinations and delusions commonly coexist in patients with PD.
- ▶ Hallucinations and delusions are most commonly seen in patients with PD treated with dopaminergic medication.
- ▶ Hallucinations or delusions/illusions can be replicated in photographs.
- ▶ This may represent a 'delusional hallucination' or 'delusional illusion'.
- ▶ Delusions fostering hallucinations are rare.

Contributors All authors are responsible for the reported research. All authors participated in the concept and design, analysis and interpretation of data, and drafting or revising of the manuscript; and have approved the manuscript as submitted.

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REFERENCES

- 1 Fenelon G, Alves G. Epidemiology of psychosis in Parkinson's disease. *J Neurol Sci* 2010;289:12–17.
- 2 Ravina B, Marder K, Fernandez HH, *et al.* Diagnostic criteria for psychosis in Parkinson's disease: a report of an NINDS, NIMH work group. *Mov Disord* 2007;8:1061–8.
- 3 Stowe RL, Ives NJ, Clarke C, *et al.* Dopamine agonist therapy in early Parkinson's disease (review). *Cochrane Database Syst Rev* 2008;2:CD006564. doi: 10.1002/14651858.CD006564.pub2.

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