



Case Report *Neuropathology*

## Phantom vision or psychotic malady? A case report of Charles Bonnet syndrome plus

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### ABSTRACT

Charles Bonnet syndrome (CBS) is commonly experienced by elderly individuals after acute or gradual loss of vision. It is characterized by complex and vivid visual release hallucinations with insight into the unreality of visual experiences, which cannot be explained by any other psychiatric or neurodegenerative disorder. Most often these hallucinations are visual only without hallucinations in other sensory modalities. Here, we report an atypical case of CBS in an 80-year-old male who presented with complex visual scenic, auditory, and olfactory hallucinations after visual loss secondary to glaucoma with no insight and no cognitive decline. He further showed improvement in the low-dose antipsychotic and mood stabilizer combination.

**Keywords:** Schizophrenia, Psychosis, Phantom vision, Charles Bonnet syndrome plus, Charles Bonnet syndrome

### INTRODUCTION

Hallucinations are sensory experiences without an accompanying outside stimulus. Hallucination can occur in any sensory modality. The most common hallucinations are in the auditory modality and usually occur in a single modality. Hallucinations in multiple modalities are rare. The etiology of hallucinations varies from organic causes to non-organic causes. Hallucinations in visually deprived old age patients could be due to various conditions, and they present an interesting and challenging case. Charles Bonnet Syndrome (CBS) was first described in 1760 and is experienced by elderly individuals after acute or gradual loss of vision. It is characterized by complex and vivid visual “release hallucinations” with insight into the nature of visual experiences.<sup>[1]</sup> The predominant hallucinations are usually visual in CBS, and hallucinations in other modalities are comparatively rare or absent according to the most commonly used criteria.<sup>[1]</sup> The modality of hallucinations also points to various differential diagnoses. Here, we report an atypical case of a visually deprived old individual with hallucinations in multiple sensory modalities with symptom overlap and the possibility of diagnostic overshadowing.

### CASE REPORT

An 80-year-old male presented to the outpatient department with complaints that he was seeing multiple people, who according to him were strangers, wearing either black clothes or military uniform, and who were talking ill about him and were torturing him physically. He also used to feel some insects crawling over his body and attributed that might be done by those strangers

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who were conspiring against him. He also claimed that those people were releasing poisonous gases with the intent to harm him, which he could recognize by the stringent odor of the smell. The complaints according to his wife were altered behavior where he would get fearful and aggressive, and shout while alone as if talking to someone without anyone seen around. The patient was brought to the hospital for the above complaints after 1 year of onset of symptoms.

He was a known hypertensive on antihypertensive medication, and he had a history of bilateral loss of vision secondary to glaucoma 10 years back. History of substance abuse, seizure, fever, and head injury were not present. There was no history of any sleep-related disorders or past or family history of psychiatric illness. His mental status examination revealed hallucinatory behavior, increased speech output, delusions of persecution, and complex visual, auditory, tactile, and olfactory hallucinations with a lack of insight into the nature of hallucinations. The cognitive examination revealed intact immediate, recent, and remote memory with reduced attention and concentration. The other domains of cognitive function, that is, orientation, reading, writing, and naming could not be commented on as the person was blind. All the routine blood investigations were done and were found to be within normal limits for the age except for the magnetic resonance imaging brain that revealed diffuse cerebral atrophy with small vessel ischemic changes. He was started on olanzapine 2.5 mg, gradually increasing the dose to 5 mg. As he started to develop excessive sedation with still higher doses of olanzapine, he was maintained on the same dose, and divalproex sodium 500 mg was added in divided doses. With this, his auditory hallucinations, tactile hallucinations, olfactory hallucinations, and delusions decreased in 3 weeks. His behavior improved, and he started conversing with family members. However, he continued to mention seeing strangers who were now not hostile. In most cases of CBS, visual hallucinations improve with correction of vision but as the vision loss in this patient was irreversible, surgery was not indicated by the ophthalmology team. On further follow-ups, the patient was manageable on the above medication with continuing visual hallucinations.

## DISCUSSION

Complex visual hallucinations have been known to occur in a range of 11–15% in people with visual impairment,<sup>[2]</sup> and various mechanisms for the genesis of visual hallucinations have been explained. The most commonly explained mechanism for visual hallucinations in CBS is deafferentation theory with increased visual cortical firing in the visual association cortex or disinhibition of the visual association area secondary to lack of input from the primary visual area.<sup>[3,4]</sup>

The above case presents a diagnostic and therapeutic challenge due to the atypical presentation, associated

comorbidity, and age. Various differential diagnoses can be considered for visual hallucinations.<sup>[5]</sup>

Although the diagnosis of late-onset schizophrenia was considered, as it fulfills the diagnostic criteria of schizophrenia according to the International Classification of Diseases-10 with onset after the age of 45 years suggesting late onset. However, the persistence of visual hallucinations in the completely blind person with complete resolution of the other modalities of hallucinations and psychotic symptoms on low-dose antipsychotic medication does not dismiss the possibility of CBS. The presence of visual hallucinations was not uncommon in schizophrenia patients, though it was often underestimated. According to Mueser *et al.*, the prevalence of visual hallucinations in schizophrenia was 16% and in a series of 101 late paraphrenic patients, Howard and Levy found that 18 patients experienced complex and prolonged visual hallucinations which resemble that of CBS.<sup>[6,7]</sup> Although as per the strict definition by Gold and Rabins,<sup>[1]</sup> other modalities of hallucinations should not be present in CBS, the association of auditory hallucinations was not uncommon and was accompanied by visual hallucinations in 50% of the late paraphrenia patients.<sup>[6,8]</sup> Although memory impairment was not seen in this patient, the possibility of dementia with psychosis could not be ruled out due to the older age of presentation, radiological findings of cerebral atrophy, and predominant visual hallucinations as certain types of dementia (Frontotemporal dementia and Lewy body dementia) can present with behavioral problems and psychosis before the manifestation of overt cognitive symptoms. Some authors had used the term “Charles Bonnet Syndrome Plus” to describe such conditions with visual hallucinations either in the presence of a neuropsychiatric disorder or without insight into the nature of hallucinations.<sup>[6]</sup> Hence, our case appeared to be a case of CBS plus due to its similarities to CBS consisting of visual hallucinations as seen in visually deprived individuals but atypical to CBS seen as multimodal hallucinations, lack of insight, and probable association with the neuropsychiatric disorder.<sup>[9]</sup> A few similar cases of CBS Plus with multisensory hallucinations and lack of insight had been reported in the literature that suggests the occurrence of the above constellation of symptoms more than by chance.<sup>[10,11]</sup>

## CONCLUSION

The entity of CBS plus or atypical CBS is often unreported or underreported due to symptom overlap, diagnostic overshadowing, and lack of multidisciplinary approach to the management of suspected CBS alike. The occurrence of atypical features more commonly in elderly patients with vision loss warrants the need for further studies on its prevalence, symptom characteristics, and possible biological underpinnings that would pave the way toward either

redefining the CBS definition or adding a stricter operational definition for CBS plus.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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#### Conflicts of interest

There are no conflicts of interest.

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