He's been making new 'friends'

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How would you handle this case?

Answer the **challenge questions** throughout this article

Mr. B, age 91, describes seeing "friends" who talk to him and sing and dance. He knows these friends aren't real and he has no other psychiatric symptoms. How would you treat Mr. B?

CASE Seeing friends

Mr. B, age 91, presents to the emergency room (ER) for hip pain. As he is being evaluated, he asks a nurse to tell the "other people" around her to leave so that he can have privacy. As clarification, Mr. B reports visual hallucinations, which prompts the ER physician to request a psychiatry consult.

Mr. B is alert and oriented to time, place, and person when he is evaluated by the on-call psychiatry resident. He reports that he has been seeing several unusual things for the last 4 to 5 months. Asked to elaborate, Mr. B admits seeing colorful and vivid images of people around him. These people come and go as they like; rarely, they talk to him. He describes the conversations as "a constant chatter" in the background and adds that it is difficult to understand what they are talking about.

Mr. B states that he has been "seeing" a couple of people on a regular basis, and they are "sort of like my friends." He endorses that these people often sing songs or dance for him. He states that, sometimes, these "friends" bring 3 or 4 friends and, although he could not make out their faces clearly, "they all are around me." He describes the people he sees as "nice people" and does not report being scared or frightened by them.

Mr. B does not report paranoia, and denies command-type hallucinations. He and his family report no unusual changes in behavior in recent months. The medical history is remarkable for atrial fibrillation, coronary artery disease, chronic obstructive pulmonary disease, age-related macular degeneration, and glaucoma.

Mr. B denies having any ongoing mood or anxiety symptoms. He states that he knows these people are "probably not real," and they do not bother him and just keep him company.

What could be causing Mr. B's hallucinations?

a) a stroke
b) late-onset schizophrenia
c) dementia
d) Charles Bonnet syndrome

The authors' observations

Visual hallucinations among geriatric patients are a common and confusing presentation. In addition to several medical causes for this presentation (***Table 1***), consider Charles Bonnet syndrome in patients with visual loss, presenting as visual hallucinations with intact insight and absence

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of a mental illness. Other conditions to consider in the differential diagnosis include Parkinson's disease, dementia with Lewy bodies, schizophrenia, seizures, migraine, and stroke, including lesions of the thalamus or brain stem.

Charles Bonnet syndrome was first described by Swiss philosopher Charles Bonnet in the 18th century. He reported vivid visual hallucinations in his visually impaired grandfather (bilateral cataracts).[1]

It is important to recognize this syndrome because patients can present across different specialties, including psychiatry, ophthalmology, neurology, geriatric medicine, and family medicine.[2] As life expectancy increases, this condition might be seen more often. It is prudent to identify, intervene, and refer as appropriate, in addition to educating patients and caregivers about the nature and course of the condition.

Table 1

Common causes of visual hallucinations in geriatric patients

Delirium secondary to medical illness (infection), medication, or substance abuse
Dementia, such as Alzheimer's disease and dementia with Lewy bodies
Stroke, especially one involving the thalamus and brain stem
Seizure disorder, such as one involving the occipital lobe
Tumor, such as a temporal lobe lesion
Migraine
Sleep disturbance
Charles Bonnet syndrome (less common)
Anton's syndrome (cortical blindness with denial of impaired vision) (less common)
Other psychiatric illness, such as schizophrenia and bipolar disorder; however, these rarely present with visual hallucination in this age group

EVALUATION Not psychotic

Mr. B reports good sleep and appetite. He denies using alcohol or illicit drugs. He states he slipped in the bathroom the day before coming to the ER, but denies other recent falls or injuries. Other than hip pain, he has no other physical complaints. His medication regimen includes aspirin, lisinopril, lovastatin, and metoprolol.

The ER team diagnoses a hip fracture. Mr. B is transferred to the orthopedic service; the psychiatry consult team continues to follow him. Mental status examination is unremarkable other than the visual hallucinations. His speech is clear, non-pressured, with goal-directed thought processing. Mini-Mental State Examination score is 23/30 with Mr. B having difficulty with object drawing and 3-object recall. Brief cognitive examination in the ER is unremarkable.

The orthopedic team decides on conservative management of the hip fracture. There is no evidence of infection. Mr. B is afebrile with clear sensorium; complete blood cell count and normal liver function tests are normal; urinalysis and urine drug screen are negative; and chest radiography is unremarkable. CT and MRI of the head are unremarkable.

After 1 week in the hospital, Mr. B continues to experience vivid visual imagery. No signs of active infection are found. An ophthalmologist is consulted, who confirms Mr. B's earlier diagnosis of glaucoma and age-related macular degeneration but does not recommend further treatment. Visual field test by confrontation is normal, with normal visual reflexes.

The authors' observations

The reported prevalence of Charles Bonnet syndrome among visually impaired people varies from study to study—from as low as 0.4% to as high as 63%.[3-6] The reason for such variation can be attributed to several variables:

- underdiagnosis
- misdiagnosis
- underreporting by patients because of the benign nature of the hallucinations

Clinical Point

The reported prevalence of Charles Bonnet syndrome among visually impaired people varies from 0.4% to 63%

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Clinical Point

Hallucinations in Charles Bonnet syndrome mostly are pleasant and rarely have any emotional impact or meaning

Table 2

A concise guide to diagnosing Charles Bonnet syndrome

Generally limited to the geriatric population
Diagnosis of exclusion
Commonly associated with other visual impairment, such as glaucoma, macular degeneration, and cataracts
Nature of hallucinations (eg, simple or complex, usually non-bizzare, colorful, etc.)
Intact insight (patient is aware that he is hallucinating)
Cognition often intact or minimally affected
Other psychiatric or psychotic symptoms, such as delusions, paranoia, and auditory hallucinations, usually absent
History of mental illness does not appear related to this presentation

- patients' reluctance to report visual hallucinations because of fear of being labeled "mentally ill."[7,8]

Symptoms

There are no specific diagnostic criteria for Charles Bonnet syndrome (***Table 2***). However, the following are generally accepted for diagnosis[9]:

- grossly intact cognition, although mild cognitive impairment may be present in some cases[10]
- underlying visual disorder, usually acquired, such as glaucoma, age-related macular degeneration, diabetic retinopathy, central retinal artery occlusion, and optic neuritis[3,4,11]
- no hallucinations or perceptive difficulties in other sensory modalities
- generally intact insight
- absence of delusions
- absence of other neurologic, psychiatric, toxic, or metabolic conditions; medical causes of delirium must be ruled out.

Hallucinations might not be disturbing to the patient. Hallucinations could be simple (light flashes, lines, or geometric shapes) or complex (faces, figures, or scenes),[12] and perceived as in color or in black and white. Hallucinations mostly are pleasant and rarely have any emotional impact or meaning. Although hallucinations are almost exclusively visual, they can be accompanied by noise or auditory hallucinations.[13,14]

Other characteristics of Charles Bonnet syndrome include:

- typical age of onset is approximately 72 years (range, 70 to 92 years)
- no sex distinction has been identified
- episodes can last from a few seconds to few hours; the syndrome may last a few days or a few years[5]
- it is not uncommon for episodes to occur in clusters, followed by symptom-free intervals and recurrences
- symptoms tend to fade away as patients progress to complete loss of sight.[15]

The course of Charles Bonnet syndrome is uncertain and unpredictable and the episodic nature can be frustrating for both patient and clinician. The syndrome could be misdiagnosed as a psychiatric condition.

Pathophysiology

The precise mechanism behind simple or complex vivid hallucinations in persons with Charles Bonnet syndrome is unclear. Several theories have been proposed.

Release theory proposes a loss of input to the primary visual areas, which decreases cortical inhibition and further causes disinhibition of visual association areas, thereby "releasing" visual hallucinations.[16] Research suggests that this might be an attempt by surviving neurons to recover vision. Loss of input somehow causes surviving neurons to adapt by increased sensitivity to residual visual stimuli.

Deafferentation theory. This relatively new theory proposes deafferentation of the visual sensory pathway, which, in

turn, causes disinhibition of neurons in the visual cortical regions, thereby causing them to fire spontaneously. This could cause a sensation analogous to phantom limb pain, which would be called "phantom vision presence of brain activity in the absence of an actual visual input." Further, biochemical and molecular changes have been proposed to explain the deafferentation theory.[17]

Neurobiological evidence. Limited data are available for a neurobiological basis to visual hallucinations in Charles Bonnet syndrome. A few studies have used functional MRI and single-photon emission CT and reported possible association of visual hallucinations to specific visual areas.[18,19]

Risk factors

Social or physical isolation, loneliness, low extraversion, and shyness are risk factors for Charles Bonnet syndrome in visually impaired people.[20] Sensory deprivation and low level of arousal favor the occurrence of hallucinations.[5] Rate of vision loss—not the nature of pathology or severity of visual impairment—has been suggested to increase the risk of developing Charles Bonnet syndrome.[21]

What are the treatment options for Charles Bonnet syndrome?

a) begin an antipsychotic
b) do nothing; there is no cure
c) educate the patient about the nature of the hallucinations
d) refer the patient to an ophthalmologist for evaluation of vision loss

Treatment

There are several modalities to manage visual hallucinations in a patient with Charles Bonnet syndrome (***Table 3***). After ruling out medical and other psychiatric causes of visual hallucinations, treatment might not be indicated if the patient is not disturbed by the hallucinations. In most cases, reassurance and educating the patient and family about the benign nature of the visual hallucinations is all that is needed.

Table 3

Treatment approaches to Charles Bonnet syndrome

After ruling out other medical and psychiatric causes:
Obtain ophthalmology and neurology consults as indicated
Consider that psychiatric treatment might be unnecessary
Give precedence to the patient's choice of treatment
Consider prescribing a psychotropic, which might help in a severe case

For patients who are disturbed by these visions or for whom there is a treatable cause, treatment could include cataract removal, medical therapy to reduce intraocular pressure in glaucoma, treatment of diabetic retinopathy, or laser photocoagulation. These treatments are associated with a reduction in hallucinations.[22] In some cases, hallucinations disappear as visual acuity deteriorates. Psychotropics have been used to treat Charles Bonnet syndrome, including:

- antipsychotics, including haloperidol, risperidone, and olanzapine
- anticonvulsants, including valproic acid, gabapentin, and carbamazepine
- antidepressants, including mirtazapine and venlafaxine.[23-30]

Some experts recommend a conservative approach, which might be justified because some cases of Charles Bonnet syndrome are episodic and remit spontaneously.[31] Again, however, consider pharmacotherapy if a patient is disturbed by hallucinations or if hallucinations impair overall functioning.

continued

Clinical Point

Social or physical isolation, loneliness, low extraversion, and shyness are risk factors for Charles Bonnet syndrome in visually impaired people

Related Resources

- Nguyen ND, Osterweil D, Hoffman J. Charles Bonnet syndrome: treating nonpsychiatric hallucinations. Consult Pharm. 2013;28(3):184-188.
- Lapid MI, Burton MC, Chang MT, et al. Clinical phenomenology and mortality in Charles Bonnet syndrome. J Geriatr Psychiatry Neurol. 2013;26(1):3-9.

Drug Brand Names

Carbamazepine • Tegretol
Gabapentin • Neurontin
Haloperidol • Haldol
Lisinopril • Prinivil, Zestril
Lovastatin • Mevacor
Metoprolol • Lopressor
Mirtazapine • Remeron
Olanzapine • Zyprexa
Risperidone • Risperdal
Valproic acid • Depakene
Venlafaxine • Effexor

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Clinical Point

Consider pharmacotherapy if a patient is disturbed by hallucinations or if hallucinations impair overall functioning

TREATMENT Education

After discussion with Mr. B and his family, he is started on risperidone, 1 mg at bedtime, and the psychiatric team provides information about the nature of Charles Bonnet syndrome. Mr. B reportedly takes this medication for a few days and then stops because he does not want the visual hallucinations to go away.

The psychiatry team sees Mr. B before discharge. He and his family are educated about the benign nature of the syndrome, the need for continued family support, and the fact that hallucinations will have minimal or no implications for his life.

The authors' observations

It is important to remember that a visual description of hallucinations in Charles Bonnet syndrome can be quite vivid, and that the patient might not identify his hallucinations as such or consider them as a problem. Be careful not to dismiss the patient's complaints as a primary psychiatric condition. It also is important to be mindful of the patient's concerns with a psychiatric diagnosis; detailed discussion with the patient is helpful in most cases. A more comprehensive and empathetic approach to care could go a long way to sustain quality of life for these patients.

References

1. Bonnet C. Essai analytique sur les facultes de l'ame. Copenhagen, Denmark: Chez le Ferres CI. & Ant. Philibert; 1760:426-429.
2. Plummer C, Kleinitz A, Vroomen P, et al. Of Roman chariots and goats in overcoats: the syndrome of Charles Bonnet. J Clin Neurosci. 2007;14(8):709-714.
3. Holroyd S, Rabins PV, Finkelstein D, et al. Visual hallucinations in patients with macular degeneration. Am J Psychiatry. 1992;149(12):1701-1706.
4. Tan CS, Lim VS, Ho DY, et al. Charles Bonnet syndrome in Asian patients in a tertiary ophthalmic centre. Br J Ophthalmol. 2004;88(10):1325-1329.
5. Teunisse RJ, Cruysberg JR, Hoefnagels WH, et al. Visual hallucinations in psychologically normal people: Charles Bonnet's syndrome. Lancet. 1996;347(9004):794-797.
6. Menon GJ. Complex visual hallucinations in the visually impaired: a structured history-taking approach. Arch Ophthalmol. 2005;123(3):349-355.
7. Hart CT. Formed visual hallucinations: a symptom of cranial arteritis. Br Med J. 1967;3(5566):643-644.
8. Norton-Wilson L, Munir M. Visual perceptual disorders resembling the Charles Bonnet syndrome. A study of 434 consecutive patients referred to a psychogeriatric unit. Fam Pract. 1987;4(1):27-35.
9. Eperjesi F, Akbarali N. Rehabilitation in Charles Bonnet syndrome: a review of treatment options. Clin Exp Optom. 2004;87(3):149-152.
10. Holroyd S, Rabins PV, Finkelstein D, et al. Visual hallucinations in patients from an ophthalmology clinic and medical clinic population. J Nerv Ment Dis. 1994;182(5):273-276.
11. Manford M, Andermann F. Complex visual hallucinations. Clinical and neurobiological insights. Brain. 1998;121(pt 10):1819-1840.
12. Kester EM. Charles Bonnet syndrome: case presentation and literature review. Optometry. 2009;80(7):360-366.

Bottom Line

Charles Bonnet syndrome is characterized by visual hallucinations in patients with visual impairment who have intact insight and an absence of mental illness. Taking a thorough history can help rule out medical and psychiatric causes of visual hallucinations. Educate patients and family about the nature of the hallucinations. In some cases, a psychotropic may be indicated.

13. Hori H, Terao T, Nakamura JL. Charles Bonnet syndrome with auditory hallucinations: a diagnostic dilemma. Psychopathology. 2001;34(3):164-166.
14. Menon GJ, Rahman I, Menon SJ, et al. Complex visual hallucinations in the visually impaired: the Charles Bonnet Syndrome. Surv Ophthalmol. 2003;48(1):58-72.
15. Fernandez A, Lichtshein G, Vieweg WV. The Charles Bonnet syndrome: a review. J Nerv Ment Dis. 1997;185(3):195-200.
16. Cogan DG. Visual hallucinations as release phenomena. Albrecht Von Graefes Arch Klin Exp Ophthalmol. 1973;188(2):139-150.
17. Burke W. The neural basis of Charles Bonnet hallucinations: a hypothesis. J Neurol Neurosurg Psychiatry. 2002;73(5):535-541.
18. Ffytche DH, Howard RJ, Brammer MJ, et al. The anatomy of conscious vision: an fMRI study of visual hallucinations. Nat Neurosci. 1998;1(8):738-742.
19. Adachi N, Watanabe T, Matsuda H, et al. Hyperperfusion in the lateral temporal cortex, the striatum and the thalamus during complex visual hallucinations: single photon emission computed tomography findings in patients with Charles Bonnet syndrome. Psychiatry Clin Neurosci. 2000;54(2):157-162.
20. Teunisse RJ, Cruysberg JR, Hoefnagels WH, et al. Social and psychological characteristics of elderly visually handicapped patients with the Charles Bonnet Syndrome. Compr Psychiatry. 1999;40(4):315-319.
21. Shiraishi Y, Terao T, Ibi K, et al. Charles Bonnet syndrome and visual acuity—the involvement of dynamic or acute sensory deprivation. Eur Arch Psychiatry Clin Neurosci. 2004;254(6):362-364.
22. Tueth MJ, Cheong JA, Samander J. The Charles Bonnet syndrome: a type of organic visual hallucinosis. J Geriatr Psychiatry Neurol. 1995;8(1):1-3.
23. Nguyen H, Le C, Nguyen H. Charles Bonnet syndrome in an elderly patient concurrent with acute cerebellar infarction treated successfully with haloperidol. J Am Geriatr Soc. 2011;59(4):761-762.
24. Campbell JJ, Ngo G. Risperidone treatment of complex hallucinations in a patient with posterior cortical atrophy. J Neuropsychiatry Clin Neurosci. 2008;20(3):378-379.
25. Colletti Moja M, Milano E, Gasverde S, et al. Olanzapine therapy in hallucinatory visions related to Bonnet syndrome. Neurol Sci. 2005;26(3):168-170.
26. Jang JW, Youn YC, Seok JW, et al. Hypermetabolism in the left thalamus and right inferior temporal area on positron emission tomography-statistical parametric mapping (PET-SPM) in a patient with Charles Bonnet syndrome resolving after treatment with valproic acid. J Clin Neurosci. 2011;18(8):1130-1132.
27. Paulig M, Mentrup H. Charles Bonnet's syndrome; Complete remission of complex visual hallucinations treated by gabapentin. J Neurol Neurosurg Psychiatry. 2001;70(6):813-814.
28. Terao T. Effect of carbamazepine and clonazepam combination on Charles Bonnet syndrome: a case report. Hum Psychopharmacol. 1998;13(6):451-453.
29. Siddiqui Z, Ramaswmay S, Petty F. Mirtazapine for Charles Bonnet syndrome. Can J Psychiatry. 2004;49(11):787-788.
30. Lang UE, Stogowski D, Schulze D, et al. Charles Bonnet Syndrome: successful treatment of visual hallucinations due to vision loss with selective serotonin reuptake inhibitors. J Psychopharmacol. 2007;21(5):553-555.
31. Hartney KE, Catalano G, Catalano MC. Charles Bonnet syndrome: are medications necessary? J Psychiatr Pract. 2011;17(2):137-141.

Clinical Point

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