An 81-year-old woman with nocturnal hallucinations due to Charles Bonnet syndrome

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ABSTRACT

The presence of nocturnal hallucinations can be indicative of several underlying causes, one of which is represented by Charles Bonnet syndrome (CBS), a pathology characterized by the occurrence of nighttime hallucinations in the absence of visual stimuli. This condition predominantly affects elderly patients, with an average age range between 75 and 85 years old. However, this pathology is often underdiagnosed due to the lack of interdisciplinary cooperation and knowledge regarding this syndrome. The present article aims to highlight a case study of a patient who has been experiencing distressing nocturnal hallucinations for approximately 2 years. The patient was eventually diagnosed with visual impairments as the underlying cause of the hallucinations.

Keywords: Charles Bonnet syndrome, nocturnal visual hallucinations, visual impairment

INTRODUCTION

Sleep-related hallucinations are a type of parasomnia that encompass hypnagogic, hypnopompic, and complex nocturnal visual hallucinations (CNVHs). CNVHs are vivid, detailed, complex, relatively stereotyped, colorful images of animals and people that occur after a sudden awakening from sleep and typically disappear when there is an increase in illumination [1]. These hallucinations can occur in various conditions, such as Parkinson’s disease (PD), dementia with Lewy bodies, Charles Bonnet syndrome (which is associated with reduced vision - CBS), medications (lipophilic beta-blockers and dopaminergic agents), and peduncular hallucinosis (lesions in the pons, midbrain, or thalamus) [2].

CBS is a condition characterized by benign complex visual hallucinations in individuals with visual impairment. It was named after Swiss Charles Bonnet, who first described the condition in the 1760s [3]. Bonnet initially observed this syndrome in his grandfather who was 89 years old and almost completely blind due to cataracts in both eyes. Despite his impaired vision, the grandfather reported seeing a diverse array of apparitions, such as people, birds, animals, or carriages. Similar to Bonnet’s grandfather, the majority of patients diagnosed with CBS are elderly individuals, with several large case studies demonstrating that the average age ranges from 70 to 85 years [4].

The prevalence of CBS can vary significantly, with studies reporting a range of 0.4% to 30%. [5] According to Khan et al., individuals with more severe visual impairment have a statistically higher incidence of CBS, indicating that worse vision is associated with an increased risk of experiencing visual hallucinations to some degree [6].

Despite the relatively high prevalence of CBS, the condition often goes undiagnosed due to several factors. One reason is the lack of awareness of the syndrome among healthcare providers. Additionally, patients may be hesitant to report their visual hallucinations due to the fear of being labeled mentally unstable. This reluctance to seek help further compounds the problem of underdiagnosis [7].

Individuals with CBS typically experience recurrent, vivid, and complex hallucinations, which can be described as “fictive visual percepts.” These hallucinations are a product of the patient’s mind creating fictionalized objects and people in their environment [8]. A common feature of CBS is that the visualized persons or objects are perceived as smaller than their
actual size, a phenomenon referred to as Lilliputian hallucinations, drawing on the fictional little people in Jonathan Swift’s novel Gulliver’s Travels [4]. The visual hallucinations experienced by CBS patients are usually limited to faces or cartoons and have no effect on other sensory modalities, such as hearing, smell, or taste. This phenomenon is considered a hallmark feature of CBS [4].

The duration of visual hallucination episodes in CBS typically lasts from seconds to a few hours, with recurring episodes lasting from days to years. While the majority of visual hallucinations are characterized as strange or bizarre by patients, they are often not distressing. Patients generally maintain a neutral affect in response to the experience of visual hallucinations [9].

**CASE PRESENTATION**

We report the case of an 81-year-old woman, with depressive disorder for approximately 2 years as well as somatic comorbidities such as hypertension, who was brought to our psychiatric hospital by her daughter with complaints of marked generalized anxiety in the context of nighttime hallucinations present for about 2 years, and worsened in the last month. The symptoms were observed while the patient was on treatment with Tianeptine 37.5 mg/day and Cinolazepam 40 mg/day.

At the time of arrival at the clinic, at the present state examination, the patient was inappropriately dressed in black street clothing, consistent with her age and sex. She presented with a tense posture and anxious facial expression, along with psychomotor restlessness and generalized anxiety exacerbated by the idea of hospitalization. During the interview, the patient displayed a cooperative attitude, clear consciousness, and was correctly oriented to time and space, and she maintained psycho-visual contact without difficulty.

At the time of examination, the patient did not present with any auditory hallucinations. However, she did report experiencing visual hallucinations for the past two years, which appeared two months after her husband’s death, with an exacerbation of symptoms in the last two months. The hallucinations were described as episodic and unpredictable, they occurred during the night and persisted until the patient fell asleep, disappearing within 1-2 minutes after turning on the light. The patient reported clear and vivid hallucinations, seeing men sitting on the dresser, numerous animals walking on the bed or walls, and an abundance of other hallucinations. She stated that if she did not fall asleep, the hallucinations would persist until morning.

Memory and attention were difficult to assess in the context of low educational level, but no significant impairments were found. The patient displays spontaneous and coherent speech that is predominantly characterized by anxiety and a theme of incurability. The patient expresses concern about their ability to cope with hallucinations, stating “What am I going to do with these hallucinations? My brain has aged, and it does not want to help me anymore!”. There was no evidence of any content disorder of thought process.

She displayed a sad mood accompanied by marked basal anxiety, decreased energy, and reduced productivity, but her social contact was maintained. The patient had insight into her condition, acknowledging that her hallucinations were not real, but they still frightened her. There was no history of drug or alcohol abuse.

We note that the patient completed only four years of education and worked as a cobbler. She is retired on medical grounds and is currently widowed (her husband passed away two years ago). Additionally, she has a daughter. Regarding the patient’s medical history, it is worth noting that she underwent cholecystectomy surgery in 2021, received lumbar spine intervention in 2016, and she did not have any psychiatric history in her family.

On physical examination, she appeared well and in no acute distress. She was oriented to person, place and time. Her vital signs were: blood pressure 116/81 mmHg, pulse rate 79 beats/minute and regular, respirations 20 breaths/minute, temperature of 36.2°C and oxygen saturation of 98% on room air. There were no complaints of any hallucinations at the time of the exam. Neurologic examination showed no focal findings. A mental status examination reveals mild cognitive deficits, she scored 23/30 points on her Mini Mental Status Exam (MMSE), which adjusting for her educational background would most likely not represent a neurocognitive disorder. After that, the patient underwent routine laboratory tests, MRI, and ophthalmological examination.

The routine laboratory tests revealed impaired renal function with a serum creatinine clearance of 35.20 ml/min (reference range 60-90 ml/min), serum creatinine level of 1.66 mg/dL (reference range 0.5-0.9 mg/dL), and serum urea level of 61.50 mg/dL (reference range 16.6-48.6 mg/dL). Additionally, the patient exhibited mild anemia with hypochromic, normocytic red blood cells with a hemoglobin level of 10.90 g/dL (reference range 11.7-15.9 g/dL) and a red blood cell count of 4.02*10^6/µL (reference range 4.2-5.6*10^6/µL).

At the ophthalmologic examination, the following diagnoses were made:
- Progressive cortical nuclear cataract
- Stage 1 retinal arteriosclerosis
- Age-related macular degeneration
- And degenerative vitreous disorders.
After the MRI test, the following results were obtained:

- Isolated and confluent chronic vascular-degenerative demyelinizations in bilateral periventricular, frontoparietal, and pontine subcortical white matter.
- Without expansive processes or recently formed lesions at the level of the supra or infratentorial cerebral parenchyma visible native MRI.
- Moderate loss of cerebral and cerebellar volume with secondary dilation of the pericerebral and pericerebellar fluid spaces.

The obtained MRI result did not reveal any lesions that could potentially cause visual hallucinations, and given the association of symptoms with visual impairment, we concluded that our patient meets the criteria for Charles Bonnet syndrome.

As Charles Bonnet syndrome does not have a curative treatment, we aimed to achieve with our patient the relief of diurnal anticipatory anxiety and improvement of sleep, so that the patient would have medicinally induced sleep and no longer experience hallucinations due to insomnia. We maintain the treatment with Tianeptine 37.5 mg because of the patient’s history of depressive disorder. Lorazepam 0.5 mg is being administered in the morning to reduce anxiety during the day, and 1 mg in the evening for his hypnotic profile. Additionally, due to the patient’s advanced age, we are considering augmenting the treatment with 10 mg of melatonin. Melatonin is an endogenous hormone that is essential for inducing sleep, but its secretion tends to decline in elderly individuals. [10] After a week of treatment, generalized anxiety was alleviated, and sleep quality improved rapidly. The patient achieved a sleep interval from 10 PM to 6 AM.

DISCUSSION

Despite an increase in the medical literature’s attention to Charles Bonnet Syndrome in recent decades, there is still a lack of information about this condition. Until 2021, CBS was considered a diagnosis of exclusion, lacking official diagnostic criteria. Prior to January 1, 2022, the World Health Organization (WHO) included Charles Bonnet Syndrome under the umbrella term of “visual disturbances” in the ICD-10 [11], failing to recognize CBS as a distinct clinical condition. However, with the introduction of ICD-11, CBS was recognized as a standalone diagnosis and received its own unique code (9D56) along with the following criteria: “Visual release hallucinations, also called Charles Bonnet syndrome, refer to the experience of complex visual hallucinations in a person who has experienced a partial or a complete loss of vision. Hallucinations are exclusively visual, usually temporary, and unrelated to mental and behavioral disorders” [12].

Our patient displayed the typical characteristics associated with her age and history of vision loss, and exhibited complete awareness of the fictional nature of her hallucinations, meeting the diagnostic criteria for Charles Bonnet syndrome as discussed previously. However, she also presented with impaired renal function, of which she was unaware. Consequently, the patient was referred to a nephrologist upon discharge. In this case, it is possible that the renal impairment precipitated or exacerbated the ophthalmologic lesion in this patient, as the medical literature often describes a link between renal insufficiency and the development of conditions such as retinopathy and optic neuropathy [13]. However, there is currently no specific information available regarding the degree of renal impairment and its association with the risk of developing Charles Bonnet syndrome. Additionally, the medical literature highlights that renal disease can contribute to the development of anemia through various mechanisms, one of which may be a decrease in erythropoietin levels. Erythropoietin is a protein produced by the kidneys that stimulate red blood cell production, and a low level of this protein can result in insufficient red blood cell production, leading to anemia [14].

At present, there is no universally recognized treatment for Charles Bonnet syndrome. Visual hallucinations frequently subside once the underlying cause of vision loss is addressed. Unfortunately, in some cases, these hallucinations can persist for several years [15]. In such situations, patients can learn to manage and decrease the frequency of hallucinations, thus improving their quality of life. Clinicians can encourage patients to increase visual stimulation through heightened arousal via social interaction or activity, or through rapid eye movements, both of which have been shown to reduce the frequency of hallucinations [16,17].

When addressing patients with Charles Bonnet Syndrome (CBS), pharmacological treatments should only be considered for those who are genuinely distressed by their visual hallucinations despite receiving reassurance and non-pharmacological interventions, as well as those who experience concurrent behavioral issues or depression. In such cases, the administration of anticonvulsants, antianxiety agents, and antipsychotics can be considered [4]. Anticonvulsants such as valproic acid, carbamazepine, and gabapentin have been demonstrated to mitigate hallucinations in some patients, [18] while antianxiety agents such as selective serotonin reuptake inhibitors (e.g., citalopram, paroxetine, fluoxetine, and sertraline) can be utilized to alleviate the distress caused by the hallucinations. In cases where the hallucinations significantly impact the patient’s quality of life,
antipsychotics such as risperidone and olanzapine may be employed; however, these agents should be prescribed at lower doses to elicit an anxiolytic effect rather than an antipsychotic one [19]. Regardless of which pharmacological treatment is administered, the effects on suppressing visual hallucinations are modest at best and primarily serve to alleviate the emotional burden of the hallucinations [20].

CONCLUSION

Nocturnal hallucinations can signal various underlying causes, including Charles Bonnet syndrome (CBS), which is characterized by nighttime hallucinations in the absence of visual stimuli and is prevalent among elderly patients. Unfortunately, CBS is often underdiagnosed. The purpose of this article was to emphasize the significance of interdisciplinary communication and collaboration among medical professionals, as well as the importance of accurate documentation of patient symptoms. This is necessary in order to consider less well-known pathologies even when the clinical presentation appears to be indicative of a more commonly treated condition.

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REFERENCES