Current PSYCHIATRY

CASES THAT TEST YOUR SKILLS

For 3 months, vivid and sometimes horrifying visual hallucinations have tormented Ms. K, although she does not appear to be psychotic. How can we explain these symptoms and help her find relief?

Birds, butterflies and bullfrogs: When patients 'see things'

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HISTORY A sudden vision

Ms. K, 73, was in reasonably good health when one day she suddenly noticed red, green, and yellow birds and butterflies covering her wall.

Ms. K, who lives alone, was frightened at first, but she did not immediately alert anyone because she thought she "was just seeing things, and they'll go away."

Instead, she saw more visions over the next 3 months. She once "watched" as two doctors and a nun carried a middle-aged burn victim into her apartment. She remembers seeing the doctors put a "patch" over the woman's body. To Ms. K, this experience seemed so shockingly real that she called 911, reporting, "That woman should have been in the hospital!"

She reports that a pack of butterflies once "followed" her to the market. She vividly recalls how they crawled about her shoes and legs as she entered the store. When asked if anyone noticed her insect-covered extremities, she replied matter-of-factly, "Maybe it's not for them to see, maybe it's just for me," as if her hallucinations were a divine gift.

Ms. K's hallucinations usually occur at home, where she spends most of her time. She says that the images are fleeting, lasting from a few seconds to several minutes, and that the creatures fly silently around her room.

Ms. K's daughter grew concerned that the hallucinations were increasingly diminishing her mother's ability to care for herself. She brought Ms. K into our emergency department, from which the patient was admitted.

On admission, Ms. K said she had lost 20 lbs within 6 months, and that "concentrating on those things in the house" was impairing her sleep. She denied recent illness, trauma, loss of conscious-

ness, changes in medications, seizures, drug or alcohol use, suicidal or homicidal ideation, or specific stress in her life. She added that she often cooks for herself—only to lose her appetite after seeing bugs and other creatures crawl into her food.

Her medical history includes hypertension, type 2 diabetes mellitus, peripheral vascular disease, urinary incontinence, gastroesophageal reflux, glaucoma in her left eye, and bilateral cataracts. She denies any psychiatric history and adds that she had never experienced hallucinations until about 3 months before hospitalization. She also denies any history of auditory, tactile, or olfactory hallucinations.

Would you suspect a primary psychotic illness? What clinical tests might help us understand Ms. K's progressively debilitating visual hallucinations?

The authors' observations

Ms. K's case places us at the crossroads of psychiatric disturbances and medical conditions that can present as or precipitate apparent psychiatric symptoms. Delirium, dementia, psychosis, endocrinopathies, encephalitis, electrolyte disturbances, drug abuse/withdrawal, and occipital or temporal lobe seizures are all possible differential diagnoses (*Table 1*).

A cognitive function screening and a battery of laboratory tests, imaging scans, and neurologic and vision exams are needed to uncover the cause of her hallucinations.

EVALUATION Looking for clues

Ms. K's left pupil was fixed at 6 mm and did not respond to light, while the right pupil was regular and reactive to light at 3 mm. Using a Snellen eye chart, her visual acuity was poor: 20/100 to 20/200 in her right eye and less than 20/200 in the left eye. She scored a 29 out of 30 on the Folstein Mini-Mental State Examination (MMSE), indicating her cognition was intact. The remainder of the neurologic exam was unremarkable.

At admission, Ms. K's medications included metoprolol, 100 mg qd, for hypertension; lansoprazole, 30 mg qd, for gastroesophageal reflux; tolterodine, 2 mg bid, and oxybutynin, 10 mg qd, for urinary incontinence; repaglinide, 2 mg bid, for type 2 diabetes; and three ophthalmic agents: brimonidine, prednisolone, and dorzolamide/timolol. The patient had been maintained on these medications for more than 2 years with no recent changes in dosing.

Results of Ms. K's lab studies were normal, including a basic metabolic panel, CBC, liver function tests, urinalysis, B12, thyroid panel, rapid plasma reagin test, and urine drug screen.

A head CT without contrast revealed chronic small-vessel ischemic white matter disease and a chronic infarct of the left cerebellar hemisphere. No acute intracranial hemorrhages, masses, or other abnormalities were noted. No seizures were seen on EEG.

Table 1
Common causes of visual hallucinations

- Schizophrenia
- Delirium
- Dementias
- Substance-induced psychosis
- Electrolyte disturbances
- Occipital and temporal lobe epilepsy
- Charles Bonnet syndrome

What do the laboratory and imaging tests reveal about Ms. K's hallucinations? Is her diagnosis delirium? Alzheimer's or other type of dementia? Schizophrenia?

The authors' observations

Visual hallucinations—often of deceased parents or siblings, unknown intruders, and animals—can occur in up to 25% of patients with Alzheimer's-type dementia.[1] Also, patients with Lewy body dementia often present with well-formed visual hallucinations, which are thought to result from temporal lobe involvement by the characteristic Lewy bodies.

To diagnose dementia, DSM-IV requires the presence of multiple cognitive deficits manifested by memory impairment and one or more of the following:

- aphasia
- apraxia
- agnosia
- disturbance of executive functioning.[2]

Ms. K exhibited none of these characteristics, and she retained full executive function—she could balance her checkbook, buy groceries, and cook for herself. Also, her MMSE score was high.

Ms. K showed no consciousness fluctuations or attention deficits, two features commonly seen in delirium. She was alert and oriented throughout the interview, and her flow of thought, speech, language, and attention were appropriate. Therefore, delirium can be reasonably excluded.

The hallucinations probably do not signal onset of schizophrenia because of Ms. K's age at presentation, lack of family history of psychotic disorder, and paucity of negative symptoms. Auditory hallucinations are much more common in psychosis, and isolated visual hallucinations rarely occur in schizophrenia.

Finally, Ms. K's electrophysiologic, laboratory, and imaging studies revealed isolated systolic hypertension, low visual acuity, and a mild gait disturbance. Severe left lens opacification accounted for the patient's discordant pupillary light reflex. None of these findings explained her visual hallucinations, however.

Is a non-psychiatric disorder causing Ms. K's hallucinations? What type of medication might alleviate her symptoms?

The authors' observations

Given Ms. K's strong cognitive function and poor visual acuity, we concluded that her hallucinations may fit the criteria for Charles Bonnet syndrome (CBS), a poorly understood medical phenomenon.

CBS is characterized by complex visual hallucinations in visually impaired elderly patients without cognitive deficits (*Table 2*).[3,4] Swiss philosopher Charles Bonnet first described the disorder in 1760 to explain the vivid visual hallucinations of his 89-year-old grandfather, who had severe cataracts but no cognitive deficits.[3] Bonnet's grandfather claimed to have visions of men, women, birds, buildings, and tapestries.[3]

CBS is increasingly recognized and reported, but the medical community has never formed a

Table 2

Charles Bonnet syndrome: fast facts

- **Visual hallucinations** in older, visually impaired persons
- **Gross cognitive deficits** not present
- **Prevalence** of up to 14% of visually handicapped patients.
- **Images** disappear upon eye closure
- **Social isolation** may be a risk factor
- **Treatment** includes support and reassurance, typical and atypical antipsychotics, anticonvulsants, and 5-HT3 receptor antagonists

universally accepted definition for this phenomenon. Persons with CBS react positively or negatively to their hallucinations, and the images may stimulate anxiety, anger, or mild paranoia. Research has focused on prevalence, risk indicators, and treatment.

Teunisse et al determined that visual hallucinations plague up to 14% of sight-impaired persons.[4,5] The hallucinations vary widely: people, animals, flowers, vehicles, buildings, and sometimes complete scenes.[4,5] Significant risk factors for CBS include advanced age and low visual acuity.[4,5] Loneliness, introversion, and shyness are additional risk indicators in older, visually handicapped persons.[6] Therefore, social isolation may be a predisposing factor.

Drug treatment of visual hallucinations in CBS currently includes antipsychotics, such as quetiapine (25 to 100 mg/d) and risperidone (0.25 to 1.0 mg/d).[7] However, mixed results have been reported after use of antipsychotics in CBS; one patient's visual hallucinations were exacerbated after risperidone was initiated.[8] Case reports have also described the use of valproate, carbamazepine, and ondansetron in CBS.[9-11]

Empathy and patient education are the cornerstones of CBS treatment.[3] Patients need to be reassured that their visions are benign. For many, simply increasing the amount of ambient light in the home can reduce hallucinations.

TREATMENT A frog in the toilet

Ms. K was started on quetiapine, 25 mg bid, to try to promote restorative sleep and resolve her hallucinations. Up to 18% of persons treated with quetiapine report somnolence as an adverse effect, vs. 3 to 8% of those treated with risperidone.[12]

During her hospital stay, Ms. K experienced no visual hallucinations during the day but reported seeing a grayish-brown bullfrog in the toilet at night. This hallucination did not frighten her; she would simply close the bathroom door and wait until the bullfrog "disappeared."

Her sleep improved, as did her appetite. She participated in daily group sessions and socialized with other patients.

After 12 days, Ms. K was discharged. To decrease her social isolation, we encouraged her to participate in a day program for seniors. We also continued her on quetiapine, 25 mg bid.

Five months later, her primary care physician reports that Ms. K remains symptom free while maintaining her quetiapine dosage.

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continued

Visual hallucinations, particularly in older patients, do not necessarily indicate a psychiatric disorder. A thorough physical, visual and neurologic examination, cognitive screening, and complete patient history are crucial to uncovering a cause and planning treatment.

Bottom Line

Related resources

- Royal National Institute of the Blind: Fact sheet for Charles Bonnet syndrome. Available at: http://www.rnib.org.uk/info/cbsfin.htm
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DRUG BRAND NAMES

Brimonidine Ophthalmic • Alphagan
Carbamazepine • Tegretol
Dorzolamide/Timolol • Cosopt
Lansoprazole • Prevacid
Metoprolol • Toprol XL
Ondansetron • Zofran
Oxybutynin • Ditropan XL
Quetiapine • Seroquel
Repaglinide • Prandin
Risperidone • Risperdal
Tolterodine • Detrol
Valproate • Depakote

DISCLOSURE

The authors report no financial relationship with any company whose products are mentioned in this article or with competing manufacturers.

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