•> CASE 40

A 19-year-old man comes to a psychiatrist with a chief complaint of "I think I am going crazy." He states that for the past year, at irregular intervals, he had episodes of seeing flashes of color and halos around lights. In the past year, he experienced such events approximately 10 times. The last time was the day before his appointment with the psychiatrist, while he was commuting to his job but stuck in traffic. Each episode lasts only a few minutes, but the patient finds them extremely frightening. He states that he knows that "normal people" do not have such experiences. He claims he never had episodes like these before, except when he became intoxicated on "mushrooms" with his friends while he was in high school. He has not used such drugs since he was 18 years old. The patient has no medical problems, and the results of a recent complete physical examination by his primary care physician were normal.

- **What is the most likely diagnosis?**

- **What medical disorders should be considered in the differential diagnosis?**

ANSWERS TO CASE 40: Hallucinogen Persisting Perception Disorder

Summary: In the past year, a 19-year-old man experienced approximately 10 episodes of visual hallucinations, including flashes of color and halos around lights. Each episode lasts only a few minutes, and the patient has insight into the pathologic nature of the symptoms. The patient admits to the use of "mushrooms" with his friends while in high school, although he has not used these drugs since he was 18 years old. He has no medical problems, and the results of a recent physical examination were normal.

^ **Most likely diagnosis:** Hallucinogen persisting perception disorder (see diagnostic criteria. Table 40-1).

• **Most common medical disorders in the differential diagnosis:** Migraines, seizures, and visual system abnormalities.

Analysis

Objectives

1. Recognize hallucinogen persisting perception disorder in a patient.
2. Understand the medical problems that must be ruled out in patients presenting with symptoms of this disorder.

Considerations

This patient, a previous user of hallucinogens, has been experiencing episodes of visual hallucinations lasting several minutes in duration, which appear frequently and were triggered at least once by sensory deprivation (monotonous driving). He knows that the symptoms are not normal and thus has insight into his perceptual disturbances. Episodes that linger only for a few seconds are

Table 40-1
DIAGNOSTIC CRITERIA FOR HALLUCINOGEN PERSISTING PERCEPTION DISORDER (FLASHBACKS)

- The reexperiencing of perceptual disturbances following cessation of the use of a hallucinogen.
- The symptoms cause significant distress or impairment in functioning.
- The symptoms are not caused by a general medical condition or another mental disorder.

typically called flashbacks. These longer episodes are more properly considered hallucinogen persisting perception disorder. Prolonged visual disturbances have been described up to 40 years after lysergic acid diethylamide (LSD) usage. Approximately half of the patients with this disorder have a complete remission of episodes within 5 years. This disorder can arise from a single dose of hallucinogen.

APPROACH TO HALLUCINOGEN PERSISTING PERCEPTION DISORDER

Definitions

Flashbacks: Visual symptoms that occur sporadically after hallucinogen use and last only for a second or two.
Macropsia: A scale misperception in which surroundings seem very large.
Micropsia: A scale misperception in which surroundings seem very small.

Clinical Approach

Differential Diagnosis

It is essential to rule out other mental disorders that cause hallucinations, such as schizophrenia or posttraumatic stress disorder (PTSD). Whereas in schizophrenia and other primary psychotic illnesses the hallucinations are more commonly auditory in nature, in hallucinogen persisting perception disorder, they are almost always visual. Examples include geometric shapes, perceptions of movement in the peripheral fields, color flashes, trails left by moving objects, and halos. Patients can report that the entire visual field is reticulated, grainy, or filled with vibrating dots to the point that they believe they can see air (aeropsia). Although patients can become extremely anxious about these experiences, the associated symptoms seen in psychotic disorders are not present, such as loose associations, delusions, disorganized behavior, and a flat affect. Another distinguishing feature is that patients with these episodes retain their insight, even in severe cases. Their reality testing remains intact. In PTSD, the perceptual disturbances revolve around a traumatic experience. Although hallucinogen abuse is not uncommon in patients with schizophrenia or PTSD, it is a *necessary* criterion for hallucinogen persisting perception disorder.

After hallucinogen use, episodes of hallucinogen persisting perception disorder can be triggered by use of amphetamines, cocaine, pseudoephedrine. methamphetamine, and exposure or even second-hand exposure to marijuana smoke.

If a patient presents with psychotic symptoms with impaired reality testing *after* ingesting a hallucinogen, then hallucinogen induced psychotic disorder should be considered.

In the differential diagnosis, it is also important to consider medical illnesses that can cause visual changes similar to those described. These include migraine headaches, seizures, and visual problems. A detailed history (especially prior hallucinogen use) and a physical examination usually illuminate the correct diagnosis. In individuals with hallucinogen persisting perception disorder, it is common to find consistent triggers for the flashbacks, such as emotional stress, sensory deprivation (such as driving a car as in the above case), or use of alcohol or marijuana.

Treatment

Although the symptoms of this disorder are usually transient, **treatment with a long-lasting benzodiazepine such as clonazepam or an anticonvulsant such as valproic acid or carbamazepine can be beneficial in reducing symptoms.** Antipsychotics should be avoided as they can actually worsen the psychotic symptoms within 72 hours of administration. As mentioned earlier, minimizing emotional stress and abstaining from alcohol and drugs are helpful in reducing the triggering of the flashbacks.

Comprehension Questions

[40.1] Which of the following characteristics most distinguishes hallucinogen persisting perception disorder from schizophrenia?

A. Impairment in functioning
B. Presence of hallucinations
C. Retention of insight
D. Significant distress

140.2] Which of the following modalities is most often affected in hallucinogen persisting perception disorder?

A. Auditory
B. Olfactory
C. Tactile
D. Visual

[40.3] Which of the following situations is most likely to trigger a flashback?

A. Alcohol use
B. A brightly lit room
C. Loud music
D. A relaxed state

[40.4] A 21-year-old woman presents to the emergency department with a complaint of "seeing trails" around objects. In relating further history, she reluctantly admits to recent use of LSD but has not used it for several weeks. She denies having any medical problems, and the results of her physical and laboratory examinations (including urine toxicology screenings) are normal. She appears quite upset and finds her symptoms extremely bothersome. What is the least appropriate pharmacologic treatment?

A. Clonazepam
B. Valproic acid
C. Risperidone
D. Carbamazepine

Answers

[40.11 C. Both hallucinogen persisting perception disorder and schizophrenia can be manifested by hallucinations, although with flashbacks, they tend to be visual, and with schizophrenia, they tend to be auditory. In both disorders, there is an associated impairment in functioning as well as significant distress. Patients with hallucinogen persisting perception disorder retain their insight, whereas patients with schizophrenia (and other primary psychotic disorders) have impaired reality testing.

[40.2] D. Flashbacks are visual phenomena, whereas hallucinations in schizophrenia and other primary psychotic illnesses are more commonly auditory. Olfactory hallucinations are common in temporal lobe epilepsy, whereas tactile hallucinations are consistent with drug-induced states such as in formication (the feeling of insects crawling on the skin seen in cocaine withdrawal).

[40.3] A. Alcohol and marijuana use commonly triggers flashbacks. Other triggers include emotional stress and sensory deprivation (such as sitting in a quiet, darkened room).

[40.4] C. Antianxiety medications can be helpful in treating the distress associated with the flashbacks. Antidepressants are appropriate if there is a comorbid depressive illness. Antipsychotics are not indicated in the treatment of flashbacks, as they can paradoxically worsen the symptoms. Mood stabilizers many be beneficial.

CLINICAL PEARLS

- In hallucinogen persisting perception disorder, the flashbacks are usually visual and include geometric objects, perceptions of movement, flashes of color, trails of moving objects, halos, and micropsia/macropsia.
- Medical disorders causing visual changes, such as migraines, epilepsy, and visual pathway disturbances should be ruled out.
- Triggers for flashbacks include emotional stress, sensory deprivation. and the use of alcohol and marijuana.
- Treatment with benzodiazepines can be useful in reducing anxiety, but antipsychotics can worsen the symptoms.

REFERENCES

Abraham HD. Hallucinogen-related disorders. In: Sadock BJ, Sadock VA, eds. Kaplan and Sadoek's comprehensive textbook of psychiatry, 7th ed. Philadelphia: Lippincott Williams & Wilkins. 2000:1015-1025.