A 21-year-old man is brought to the emergency department by the police after he was found sitting in the middle of a busy street. By way of explanation, the patient states, “The voices told me to do it.” The patient says that for the past year he has felt that “people are not who they say they are.” He began to isolate himself in his room and dropped out of school. He claims that he hears voices telling him to do “bad things.” There are often two or three voices talking, and they often comment to each other on his behavior. He denies that he currently uses drugs or alcohol, although he reports that he occasionally smoked marijuana in the past. He says that he has discontinued this practice over the past 6 months because “it makes the voices louder.” He denies any medical problems and is taking no medication.

On a mental status examination the patient is noted to be dirty and disheveled, with poor hygiene. He appears somewhat nervous in his surroundings and paces around the examination room, always with his back to a wall. He states that his mood is “OK.” His affect is congruent, although flat. His speech is of normal rate, rhythm, and tone. His thought processes are tangential, and loose associations are occasionally noted. His thought content is positive for delusions and auditory hallucinations. He denies any suicidal or homicidal ideation.

- What is the most likely diagnosis for this patient?
- What conditions are important to rule out before a diagnosis can be made?
- Should this patient be hospitalized?
ANSWERS TO CASE 2: Schizophrenia, Paranoid

Summary: A 21-year-old man is brought to the emergency department after exhibiting bizarre (and dangerous) behavior. For at least 1 year he has experienced delusions and auditory hallucinations. The hallucinations consist of several voices commenting on the patient’s behavior and giving him commands. He has become socially isolated and dysfunctional as a result of these symptoms. He denies current drug use or medical problems. A mental status examination shows several abnormalities. Disturbances in grooming, hygiene, and behavior (paranoia) are noted, and he has a flat affect. His thought processes are occasionally loose, and he reports auditory hallucinations and delusions.

Most likely diagnosis: Schizophrenia, probably of a paranoid type.

Important conditions to rule out: To make a diagnosis of schizophrenia, substance abuse and general medical conditions must be ruled out. In addition, schizoaffective disorders and mood disorders must also be excluded.

Should this patient be hospitalized? Yes. He clearly is unable to care for himself because he listens to voices and acts on their instructions in such a manner that makes him behave dangerously (i.e., sitting in the middle of a busy street).

Analysis

Objectives
1. Be able to diagnose schizophrenia in a patient.
2. Understand that other conditions must be ruled out before such a diagnosis can be made.
3. Understand admission criteria and know when a patient should be admitted.

Considerations
This patient demonstrates the two main diagnostic criteria for schizophrenia: delusions (thinks people are not who they say they are) and auditory hallucinations. (See Table 2-1 for diagnostic requirements.) The hallucinations have several characteristics seen in schizophrenic psychoses—several voices are speaking to each other about the patient and there are command hallucinations. On a mental status examination the patient shows loosening of thought associations as well. He meets the criterion for social and/or occupational dysfunction, as he has completely dropped out of school and socially isolated himself. He has had the disorder for at least 1 year. He denies mood symptoms, drug abuse, and medical problems, although of course these issues would need to be further investigated by obtaining a more complete history, performing a physical examination, and ordering the appropriate laboratory tests.
**Approach to Schizophrenia**

**Definitions**

- **Bizarre delusions**: Delusions that are totally implausible (e.g., having been captured by aliens).
- **Delusions**: Fixed, false beliefs that remain despite evidence to the contrary and are not culturally sanctioned.
- **Flat affect**: The absence of a noticeable emotional state (e.g., no facial expression).
- **Ideas of reference**: False beliefs that, for example, a television or radio performer, a song, or a newspaper article is referring to oneself.
- **Loose associations**: Thoughts that are not connected to one another or illogical answers to questions.
- **Negative symptoms of schizophrenia**: Anhedonia, poor attention, low motivation, and a flat affect.
- **Positive symptoms of schizophrenia**: Ideas of reference, paranoia, delusions, and hallucinations.
- **Tangentiality**: Thoughts may be connected to each other although the patient does not come back to the original point or answer the question.

**Clinical Approach**

Schizophrenia is defined as a disturbance that lasts at least 6 months and includes at least 1 month of active-phase symptoms (two or more of the following: delusions, hallucinations, disorganized speech, grossly disorganized behavior).
or catatonic behavior, negative symptoms). There is a 1% lifetime prevalence in the general population, but only about half of those affected ever obtain treatment. The average age of onset is 15 to 25 years in men and 25 to 35 years in women. Women tend to have better outcomes than men. Fifty percent of schizophrenics attempt suicide; those with depressive symptoms, a younger age of onset, and a higher level of premorbid functioning are at increased risk.

The etiology is not known. The course of schizophrenia is chronic, with exacerbations and remissions; 40% to 60% of patients have significant lifelong impairment.

There are five subtypes of schizophrenia:

1. **Paranoid:** Characterized by preoccupation with one or more delusions or frequent auditory hallucinations
2. **Disorganized:** Usually characterized by disorganized speech and behavior and a flat or inappropriate affect
3. **Catatonic:** Characterized by two or more of the following: motor immobility (catalepsy/stupor), extreme negativism (maintenance of rigid posture/mutism), peculiar voluntary movements/posturing/stereotyped movements/prominent mannerisms, and echolalia/echopraxia.
4. **Undifferentiated:** Manifested by two or more of the following: delusions, hallucinations, disorganized speech, grossly disorganized behavior, and negative symptoms; however, the patient does not meet the criteria for the other types of this disorder.
5. **Residual:** Characterized by the absence of prominent delusions, hallucinations, disorganized speech, or grossly disorganized/catatonic behavior. Continuing evidence of disturbance is indicated by the presence of negative symptoms or two or more criteria in an attenuated form.

**Differential Diagnosis**

Most important and immediate in the differential diagnosis are medical conditions characterized by psychotic symptoms such as deliria, dementias, severe hypothyroidism, and hypercalcemia. Clues are usually provided by the patient's history or the presentation (eg, no prior psychiatric history, a late age of onset, a positive review of systems). The physical examination, and/or results from laboratory studies (eg, thyroid function tests, determination of electrolyte levels, rapid plasma reagin) may suggest the diagnosis.

Alcohol and illicit drugs, either during intoxication (hallucinogens, cocaine) or withdrawal (alcohol, benzodiazepines), can produce psychotic symptoms. In fact, symptoms of phencyclidine intoxication can appear identical to those of schizophrenia. A thorough history of substance use, a physical examination including the measurement of vital signs, a determination of blood alcohol level, and a urine toxicology screening reveal substance use as a causal factor in most cases.

A careful examination of the medications a patient is taking, including over-the-counter and herbal supplements, is also important, as many medications (eg, steroids and anticholinergics) can cause psychotic states.
Distinguishing schizophrenia from both schizoaffective disorder and mood disorder with psychotic features (such as major depression or bipolar disorder) can be difficult. Patients are frequently poor historians given their psychotic symptoms, and so gathering information from other sources such as prior records, family members, or significant others is imperative because a complete history can help clarify the issue. Table 2-2 highlights these differences. The above distinctions are important not only for the diagnosis but also in determining the treatment and the prognosis. In general, mood disorder with psychotic features has a better prognosis than schizoaffective disorder, which has a better prognosis than schizophrenia.

**Treatment**

The cornerstone in the treatment of schizophrenia is the use of newer, “atypical” antipsychotic medications, including risperidone, olanzapine, quetiapine, ziprasidone, and aripiprazole. Although clozapine is beneficial, especially in treatment-resistant schizophrenia, the possibility that it may cause agranulocytosis prevents it from being a first-line drug. Atypical antipsychotics have several advantages over older “typical” antipsychotics such as chlorpromazine and haloperidol. Although typical medications adequately treat the positive symptoms of schizophrenia, they can worsen or actually cause negative symptoms. Atypical medications appear to treat the positive symptoms (at least as well as the older medications) and also treat the negative symptoms.

Older antipsychotics also have a higher likelihood of causing unwanted side effects, namely, extrapyramidal symptoms (dystonias, parkinsonian symptoms, and akathisia), hyperprolactinemia (leading to impotence, amenorrhea, or gynecomastia), and tardive dyskinesia. Acute symptoms such as dystonic reactions and parkinsonian symptoms can be managed by reducing the dose or adding an anticholinergic drug such as benztropine. In addi-

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**Table 2-2**

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th>PSYCHOTIC SYMPTOMS</th>
<th>MOOD DISORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>Present</td>
<td>Brief duration of mood symptoms</td>
</tr>
<tr>
<td>Schizoaffective disorder</td>
<td>Present along with and in the absence of mood disorder</td>
<td>Present only with psychotic symptoms</td>
</tr>
<tr>
<td>Mood disorder with psychotic features (eg, major depression with psychosis)</td>
<td>Present only during mood disorder</td>
<td>Present in the absence of psychotic symptoms</td>
</tr>
</tbody>
</table>
tion, akathisia may respond to benzodiazepines or a beta-blocker such as propranolol. Unfortunately, tardive dyskinesia is usually a permanent condition and can be both disfiguring and disabling. Neuroleptic malignant syndrome (NMS) can occur with any antipsychotic at any time during treatment. The treatment is intended to provide supportive management, although dantrolene and bromocriptine may also be beneficial.

Comprehension Questions

[2.1] Which of the following symptoms is most specific to a diagnosis of schizophrenia?
A. Auditory hallucinations
B. Belief that one has the power of an alien species
C. Catatonic symptoms
D. Depression
E. Inappropriate affect

Match the most likely diagnosis (A through D) with the following case scenarios (questions [2.2] through [2.4]):

A. Major depression with psychotic features
B. Schizoaffective disorder
C. Schizophrenia
D. Psychosis secondary to a general medical condition

[2.2] A 46-year-old man presents with a long-standing belief that his thoughts are being taken from his head and used to create a blockbuster movie. He is certain that the government is involved because they often communicate with him through a microchip they have implanted in his brain. Although he feels frustrated at being taken advantage of, he denies any significant depressive symptoms and is often able to enjoy playing cards with his peers at the group home.

[2.3] A 58-year-old man presents with 4 weeks of significant depression following the sudden, premature death of his wife of 35 years. He reports difficulty sleeping, a 10-lb weight loss, frequent crying spells, and profound guilt over surviving her. For the last several days, he has been convinced that his body is literally decaying. He admits to seeing his wife’s face during the day, as well as hearing her voice telling him to kill himself and join her.

[2.4] A 27-year-old woman states that for approximately 6 months she has believed that Michael Jackson is in love with her. She insists that he has professed his intentions to marry her through messages in his song lyrics. She has written numerous letters to him and loitered around his home, resulting in several arrests. She is irritated because, although he won’t meet with her in person, he often calls her name outside her window when no one else is around. For the past several weeks, she has slept
approximately only 2 hours a night but still has enough energy to con-
truously redecorate her apartment in preparation for her wedding to Mr.
Jackson. She admits to feeling “on top of the world” because Michael
Jackson has chosen her and that she “can’t stop talking about it.”

**Answers**

[2.1]  **B.** Although all these symptoms can be seen in various psychotic dis-
orders, the presence of a bizarre delusion is the most specific to schiz-
ophrenia. Only one psychotic symptom is needed to diagnose
schizophrenia if there are bizarre delusions, auditory hallucinations
commenting on the patient, or two or more voices speaking to each
other.

[2.2]  **C.** The most likely diagnosis for this man is schizophrenia. He has been
suffering from psychotic symptoms including delusions and auditory
hallucinations for more than 6 months. Although he may have brief
periods of depressed mood, he does not have a history of major mood
disorder.

[2.3]  **A.** The most likely diagnosis for this man is major depression with psy-
chotic features. Significant depression and neurovegetative symptoms
are present, as well as delusions and auditory and visual hallucinations.
Although he has mood symptoms and psychotic symptoms, his histo-
ry is consistent with major depression because his mood symptoms
preceded his psychotic symptoms.

[2.4]  **B.** The most likely diagnosis for this woman is schizoaffective disor-
der. She describes a 6-month history of ideas of reference, delusions,
and auditory hallucinations. In addition, she has had clear manic symp-
toms for the past month, including an elevated mood, a decreased need
for sleep, increased energy, increased goal-directed activities, and talk-
ativeness. Although she has symptoms consistent with schizophrenia,
she has had a significant episode of mood disorder during her psy-
chotic illness. Her psychotic symptoms, which preceded and occurred
in the absence of mood symptoms, make primary mood disorder
(mania) with psychotic features less likely.

**CLINICAL PEARLS**

Before diagnosing schizophrenia, remember to rule out any sub-
stance abuse, medications, or medical conditions that could be
causing the psychotic symptoms.

Schizophrenia is a chronic illness, the diagnosis requiring more than
6 months of psychotic symptoms.
Positive symptoms of schizophrenia include hallucinations, delusions, ideas of reference, paranoia, and loose associations.

Negative symptoms of schizophrenia include a flat affect, anhedonia, poor motivation, and poor attention.

Overall, major depression with psychotic features has a better prognosis than schizoaffective disorder, which has a better prognosis than schizophrenia.

Clozapine is beneficial, especially in treatment-resistant schizophrenia, but has a significant adverse effect in that it causes agranulocytosis.

Neuroleptic malignant syndrome can occur with any antipsychotic at any time during treatment. The treatment should be supportive, possibly including dantrolene or bromocriptine.

REFERENCES
