"Is my mother insane?"

DALHOUSIE UNIVERSITY Inspiring Minds

Mathew Grandy, BSc (Hons); and Sam G. Campbell, MB, BCh, CCFP(EM)

Mary's case

Mary, 76, is brought to the ED by her daughter after a week-long history of bizarre, paranoid behaviour and visual hallucinations. Specifically, she:

- has accused her daughter of theft,
- has started undressing in the local pharmacy and
- keeps talking to an "annoying little man" that no one else can see.

Medical history

Mary's medical history includes:

- hypertension,
- non-insulin dependent diabetes,
- a 55 pack a year smoking history and
- alcoholism (although she has been "dry" for 5 years).

Her medications are:

- Hydrochlorthiazide: 12.5 mg q.d.
- Metformin: 500 mg b.i.d.
- Glyburide: 5 mg t.i.d.
- Budesonide and salbutamol inhalers

She denies taking any OTC medications.

Examination

Mary's vital signs are as follows:

- Temperature: 37.6°C
- BP: 130/90 mmHg
- Heart rate: 110 bpm
- Respiratory rate: 22 breaths per minute
- Oxygen saturation: 91% or room air
- Point-of-care blood glucose: 13 mmol/L

On examination, Mary is cooperative, alert, aware and oriented to place and person, although she believes it is 1988. She appears to be cyanotic (which her daughter claims is usual for her). Auscultation of her lungs reveals a soft wheeze. The physical exam is otherwise unremarkable. Her mini-mental status exam (MMSE) score is 16/30.

See page 5 for the conclusion to Mary's case.

Questions & Answers

1. Is Mary psychotic?

The general term "psychosis" is used to describe a dysfunctional mental state regarding both behaviour and thought process. This manifests in disorganized thought and grossly distorted mental capacity, which can affect a patient's ability to recognize reality and relate to others around them. Typically, psychosis is divided into two categories: functional and organic. Organic psychosis is a mental dysfunction that results from an abnormality of the anatomy, physiology, or biochemistry of the brain. Functional psychosis is mental dysfunction without an associated anatomic, physiologic, or chemical abnormality.

The presentation of psychosis in the ED can be the result of a number of underlying clinical situations. The patient may be presenting due to an acute exacerbation of an underlying chronic psychiatric condition, such as schizophrenia, affective disorder, or bipolar disorder. Alternatively, the patient's psychosis may be the result of a tangible etiology, such as a structural lesion, acute infection, or due to a pharmacological agent.

It is of vital importance that the emergency physician determines whether the psychosis is of a functional or organic origin.

2. What is the differential diagnosis of acute psychosis?

The differential diagnosis of acute psychosis can be broken down into eight primary categories:

- Trauma
- Drugs
- Toxins
- Infection
- Organ failure
- Structural
- Psychiatric illness
- Substrate deficiency

When attempting to determine the cause of the psychosis, each of these broad categories can be applied to the history, physical examination and investigations to narrow down the differential diagnosis.

It is of vital importance that the emergency physician determines whether the psychosis is of a functional or organic origin.

3. How should I approach this clinical scenario?

The general approach to the acutely psychotic patient hinges on a complete and thorough history. Although this may be difficult to obtain directly from the patient due to his or her mental state, information from emergency medical personnel, family, friends, neighbours and previous hospital records can be indispensable in eliciting the correct history. The patient's age, onset of symptoms, previous history of psychiatric disease/organic brain disease and medication/drug and alcohol use are all vital to determining the cause of the psychosis. Specifically, the possibility of non-compliance with psychiatric medications should be elucidated, as should the use of recreational or OTC drugs.

A vigilant physical examination should be performed, specifically the following should be noted:

- Orientation
- Appearance
- Behaviour
- Delusions
- Mood and affect
- Judgment
- Attention/concentration
- Disturbance of perception
- Short and long-term memory
- Suicidal or homicidal ideations

A formal mental status exam is easy and relatively quick to perform and should be administered in all cases where dysfunctional mental state is a possibility. A mini-mental status examination template form can be found at www.chcr.brown.edu/MMSE.pdf.

Basic features more typical of organic and functional psychoses are listed in Table 1. As with most medical conditions, diseases do not frequently follow typical patterns, so keep an open mind when making a diagnosis. Organic psychosis (especially in older patients) is generally an acute medical emergency, so if in any doubt as to the diagnosis, it is wise to avoid making a diagnosis of functional disease before you are sure you are not postponing life-saving medical treatment.

Laboratory tests that may be helpful include:

- Complete blood count
- Glucose
- Magnesium and calcium
- Liver function tests
- Arterial blood gases
- Serum electrolytes
- Blood urea nitrogen
- Creatinine
- ECG
- Urinalysis

Mr. Grandy is a Second Year Medical Student completing an Emergency Medicine Elective, Dalhousie University, Halifax, Nova Scotia.

Dr. Campbell is an Associate Professor of Emergency Medicine, Dalhousie University, Halifax, Nova Scotia.

Publication Mail Agreement No.: 40063348
Return undeliverable Canadian addresses to:
STA Communications Inc.
955 boulevard St-Jean, Suite 306
Pointe-Claire, QC, H9R 5K3

Table 1

Broad rules for discerning functional from organic psychosis

	Organic	Functional
General findings	Age: > 40 years Rapid onset Abnormal physical/laboratory findings Abnormal vital signs Social immodesty Aphasia Impaired consciousness	Age: < 40 years* Insidious onset Normal physical/laboratory findings Normal vital signs Social modesty Normal speech No conscious impairment
Memory deficits	Recently impaired	Remotely impaired
Activity	Psychomotor retardation Tremor Ataxia	Repetitive activity Posturing Rocking
Hallucinations	Visual	Auditory
Affect	Labile	Flat
Orientation	Poor	Good
Cognition	Islands of lucidity Attention and perception intermittently normal	Continuous scattered thoughts Unfiltered perceptions Non-attentive

* Remember that recreational drug-induced psychosis is far more likely in the < 40-year-old age group.

- Chest x-ray
- Acetylsalicylic acid levels

In specific situations, further tests are indicated. An electroencephalogram may be considered on the first occurrence of psychosis, or when there is evidence of delirium or a new onset of seizures. If there is evidence of a seizure disorder, or if there is evidence of increased intracranial pressure, consider referral for a CT or MRI scan. A lumbar puncture is indicated if there is evidence of multiple sclerosis, an unexplained fever, or a new onset of seizures. A toxicology screen for heavy metals and drugs, along with medication abuse, may be indicated following the history and physical exam. Finally, a venereal disease research laboratory test of serum and cerebrospinal fluid and other tests to identify infectious agents are indicated depending on the history, physical examination or blood results.

4. *What is the initial management/ treatment of acute psychosis?*

In psychosis resulting from an organic illness, the underlying cause should be addressed as soon as possible. The initial management of the psychotic symptoms depends greatly on the level of agitation, anxiety, aggressiveness, discomfort and the degree of psychosis the patient is experiencing. ED management focuses on decreasing the aforementioned symptoms, in particular, the

discomfort, anxiety and disruptive behaviour of the patient. In mild cases, calm reassurance or mild anxiolysis may be all that is needed.

In severe cases where the patient may pose a threat to themselves or to the medical personnel, physical restraints or medical sedation may be necessary to ensure safety during the treatment period. When sedation is necessary, it is recommended that benzodiazepines (*e.g.*, lorazepam), buterophenones (*e.g.*, haloperidol), or a combination of each (in the same syringe) are used. IV administration is ideal; however, establishing an IV can be difficult and, at times, dangerous (to staff) in a case of severe psychosis. At these times, an intramuscular (IM) route (if necessary through the patient's clothing) may be all that is possible. If some patient cooperation is achievable, IM medication can be avoided by the use of oral olanzapine in the form of a wafer. If necessary for maintenance therapy, an IV line can be established once an adequate level of sedation is reached.

Older patients can be very sensitive to antipsychotic medication, so use low doses initially in this group.

In cases where agitation is minimal, the psychosis can be managed with the following oral antipsychotics, which cause less sedation than do benzodiazepines:

- haloperidol,
- droperidol, or
- olanzapine.

Mary's case cont'd...

Mary is not agitated or aggressive upon arrival at the ED, so sedation is not required. A chest x-ray is ordered and reveals early signs of hyperinflation and right lower lobe pneumonia.

Treatment

Mary is admitted to hospital and treated with oral doxycycline and prednisone. Her psychotic symptoms resolve within a few days.

Serial MMSEs show an improvement in mental function following the antibiotic therapy and Mary is discharged to the care of her family after one week, with an arrangement to follow-up in a chronic obstructive pulmonary clinic.

At Mary's six week follow-up appointment, her chest x-ray has almost completely cleared and she is back to her pre-morbid level of function (although she had cut down to half a pack of cigarettes a day).

Remember to watch for side-effects like:

- acute dystonic reactions,
- akathesia and hypotension, or, in rare cases
- neuroleptic malignant syndrome,
- cardiac dysrhythmias and
- seizures.

Older patients can be very sensitive to antipsychotic medication, so use low doses initially in this group. Dx

Resources

1. Dilsaver SC: Differentiating Organic from Functional Psychosis. Am Fam Physician 1992; 45(3):1173-80.
2. Frame DS, Kercher EE: Acute Psychosis. Functional Versus Organic. Emerg Med Clin North Am 1991; 9(1):123-36.
3. Richards CF, Gurr DE: Psychosis. Emerg Med Clin North Am 2000; 18(2):253-62, ix.
4. Tueth MJ: Management of Behavioral Emergencies. Am J Emerg Med 1995; 13(3):344-50.