

# Delusions, hypersexuality, and a steep cognitive decline

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Ms. P, age 56, is acting bizarre. When her symptoms appeared 10 years ago, she was a senior accountant, but was fired when her work deteriorated. What could account for her decline?



## How would you handle this case?

Answer the **challenge questions** throughout this article

### CASE Inconsistent stories

Ms. P, age 56, is an Asian American woman who was brought in by police after being found standing by her car in the middle of a busy road displaying bizarre behavior. She provides an inconsistent story about why she was brought to the hospital, saying that the police did so because she wasn't driving fast enough and because her English is weak. At another point, she says that she had stopped her car to pick up a penny from the road and the police brought her to the hospital "to experience life, to rest, to meet people."

Upon further questioning, Ms. P reveals that she is experiencing racing thoughts, feels full of energy, has pressured speech, and does not need much sleep. She also is sexually preoccupied, talks about having extra-marital affairs, and expresses her infatuation with TV news anchors. She says she is sexually active but is unable to offer any further details, and—while giggling—asks the treatment team not to reveal this information to her husband. Ms. P also reports hearing angels singing from the sky.

Chart review reveals that Ms. P had been admitted to same hospital 5 years earlier, at which time she was given diagnoses of late-onset schizophrenia (LOS) and mild cognitive impairment. Ms. P also had 3 psychiatric inpatient admissions in the past 2 years at a different hospital, but her records are inac-

cessible because she refuses to allow her chart to be released.

Ms. P has not taken the psychiatric medications prescribed for her for several months; she says, "I don't need medication. I am self-healing." She denies using illicit substances, including marijuana, smoking, and current alcohol use, but reports occasional social drinking in the past. Her urine drug screen is negative.

The most striking revelation in Ms. P's social history is her high premorbid functional status. She has 2 master's degrees and had been working as a senior accountant at a major hospital system until 7 years ago. In contrast, when interviewed at the hospital, Ms. P reports that she is working at a child care center.

On mental status exam, Ms. P is half-draped in a hospital gown, casual, overly friendly, smiling, and twirling her hair. Her mood is elevated with inappropriate affect. Her thought process is bizarre and illogical. She is alert, fully oriented, and her sensorium is clear. She has persistent ambivalence and contradictory thoughts regarding suicidal

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## Clinical Point

DSM authors comment that it is not yet clear whether LOS is the same condition as schizophrenia diagnosed earlier in life



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**Table 1**

### Ms. P's differential diagnosis

Bipolar disorder, current manic episode
Schizophrenia
Schizoaffective disorder, bipolar type
Major neurocognitive disorder, due to Alzheimer's disease
Major neurocognitive disorder, due to frontotemporal lobar degeneration
Major neurocognitive disorder, unspecified

ideation. Recent and remote memory are largely intact. She does not express homicidal ideation.

#### What could be causing Ms. P's psychosis and functional decline?

- major neurocognitive disorder
- schizophrenia
- schizoaffective disorder
- bipolar disorder, current manic episode

### HISTORY Fired from her job

According to Ms. P's chart from her admission 5 years earlier, police brought her to the hospital because she was causing a disturbance at a restaurant. When interviewed, Ms. P reported a false story that she fought with her husband, kicked him, and spat on his face. She said that her husband then punched her in the face, she ran out of the house, and a bystander called the police. At the time, her husband was contacted and denied the incident. He said that Ms. P had gone to the store and not returned, and he did not know what happened to her.

Her husband reported a steady and progressive decline in function and behavior dating back to 8 years ago with no known prior behavioral disturbances. In the chart from 5 years ago, her husband reported that Ms. P had been a high-functioning senior executive accountant at a major hospital system 7 years before the current admission, at which time she was fired from her job. He

said that, just before being fired, Ms. P had been reading the mystery novel *The Da Vinci Code* and believed that events in the book specifically applied to her. Ms. P would stay up all night making clothes; when she would go to work, she was caught sleeping on the job and performing poorly, including submitting reports with incorrect information. She yelled at co-workers and was unable to take direction from her supervisors.

Ms. P's husband also reported that she believed people were trying to "look like her," by having plastic surgery. He reported unusual behavior at home, including eating food off the countertop that had been out for hours and was not fit for consumption.

Ms. P's husband could not be contacted during this admission because he was out of country and they were separated. Collateral information is obtained from Ms. P's mother, who lives apart from her but in the same city and speaks no English. She confirms Ms. P's high premorbid functioning, and reports that her daughter's change in behavior went back as far as 10 years. She reports that Ms. P had problems controlling anger and had frequent altercations with her husband and mother, including threatening her with a knife. Self-care and hygiene then declined strikingly. She began to have odd religious beliefs (eg, she was the daughter of Jesus Christ) and insisted on dressing in peculiar ways.

No family history of psychiatric disorders, such as schizophrenia, bipolar disorder, or dementia, was reported (**Table 1**).

### The authors' observations

The existence of LOS as a distinct subtype of schizophrenia has been the subject of discussion and controversy as far back as Manfred Bleuler in 1943 who coined the term "late-onset schizophrenia."<sup>1</sup> In 2000, a consensus statement by the International Late-Onset Schizophrenia Group standardized the nomenclature, defining LOS as onset between age 40 and 60, and very-late-onset schizophrenia-like psychosis (VLOS)

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**Table 2****Cognition in late-onset schizophrenia**

There are global deficits in LOS, as well as specific deficits in executive functions, visuospatial constructional abilities, verbal fluency, psychomotor speech, memory, attention, and working memory

LOS generally is associated with relatively milder cognitive deficits and deficits in attention, fluency, global cognition, IQ, and visuospatial construction

Premorbid cognitive functioning is less impaired in LOS compared with onset before age 40

Studies with follow-up of 3 to 5 years have reported increased risk of dementia with LOS, usually unspecified or of Alzheimer's type

Neuropsychological tests can help differentiate patients with LOS and patients with Alzheimer's and frontotemporal dementia

LOS: late-onset schizophrenia

**Clinical Point**

**Premorbid educational, occupational, and psychosocial functioning are less impaired in LOS**

as onset after age 60.<sup>2</sup> Although there is no diagnostic subcategory for LOS in DSM, DSM-5 notes that (1) women are overrepresented in late-onset cases and (2) the course generally is characterized by a predominance of psychotic symptoms with preservation of affect and social functioning.<sup>3</sup> DSM authors comment that it is not yet clear whether LOS is the same condition as schizophrenia diagnosed earlier in life. Approximately 23% of schizophrenia cases have onset after age 40.<sup>4</sup>

**Cognitive symptoms in LOS**

The presence of cognitive deficits in schizophrenia is common and well-recognized. The intellectual impairment is generalized and global, and there also is specific impairment in a range of cognitive functions, such as executive functions, memory, psychomotor speed, attention, and social cognition.<sup>5</sup> Typically these cognitive impairments are present before onset of psychotic symptoms. Although cognitive symptoms are not part of the formal diagnostic criteria, DSM-5 acknowledges their presence.<sup>3</sup> In a systematic review on nature and course of cognitive function in LOS, Rajji and Mulsant<sup>6</sup> report that global deficits and specific deficits in executive functions, visuospatial constructional abilities, verbal fluency, and psychomotor speech have been found consistently in studies of LOS, although the presence of deficits in memory, attention, and working memory has been less consistent.

The presence of cognitive symptoms in LOS is less well-studied and understood (**Table 2**). The International Consensus Statement reported that no difference in type of cognitive deficit has been found in early-onset cases (onset before age 40) compared with late-onset cases, although LOS is associated with relatively milder cognitive deficits. Additionally, premorbid educational, occupational, and psychosocial functioning are less impaired in LOS than they are in early-onset schizophrenia.<sup>2</sup>

Rajji et al<sup>7</sup> performed a meta-analysis comparison of patients with youth-onset schizophrenia, adults with first-episode schizophrenia, and those with LOS on their cognitive profiles. They reported that patients with youth-onset schizophrenia have globally severe cognitive deficits, whereas those with LOS demonstrate minimal deficits on arithmetic, digit symbol coding, and vocabulary but larger deficits on attention, fluency, global cognition, IQ, and visuospatial construction.<sup>7</sup>

There are conflicting views in the literature with regards to the course of cognitive deficits in schizophrenia. One group of researchers believes that there is progressive deterioration in cognitive functioning over time, while another maintains that cognitive impairment in schizophrenia is largely "a static encephalopathy" with no significant progression of symptoms.<sup>8</sup> A number of studies referenced by Rajji and Mulsant<sup>6</sup> in

their systematic review report that cognitive deficits seen in patients with LOS largely are stable on follow-up with an average duration of up to 3 years. However, 2 studies with longer follow-up report evidence of cognitive decline.<sup>9,10</sup>

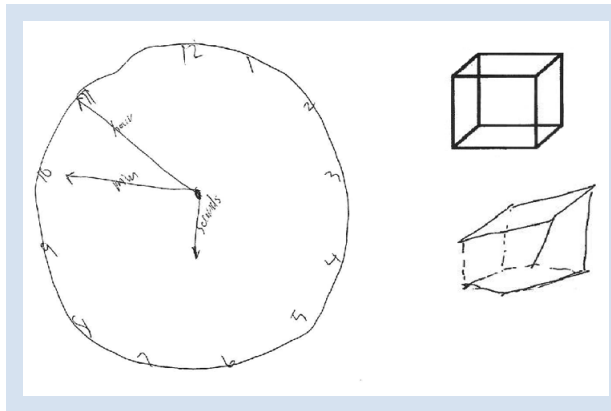
**Relevant findings from the literature.** Brodaty et al<sup>9</sup> followed 27 patients with LOS without dementia and 34 otherwise healthy participants at baseline, 1 year, and 5 years. They reported that 9 patients with LOS and none of the control group were found to have dementia (5 Alzheimer type, 1 vascular, and 3 dementia of unknown type) at 5-year follow-up. Some patients had no clinical signs of dementia at baseline or at 1-year follow-up, but were found to have dementia at 5-year follow-up. The authors speculated that LOS might be a prodrome of Alzheimer-type dementia.

Kørner et al<sup>10</sup> studied 12,600 patients with LOS and 7,700 with VLOS, selected from the Danish nationwide registry; follow-up was 3 to 4.58 years. They concluded that patients with LOS and VLOS were at 2 to 3 times greater risk of developing dementia than patients with osteoarthritis or the general population. The most common diagnosis among patients with schizophrenia was unspecified dementia, with Alzheimer's dementia (AD) being the most common diagnosis in control groups. The findings suggest that dementia in LOS and VLOS has a different basis than AD.

Zakzanis et al<sup>11</sup> investigated which neuropsychological tests best differentiate patients with LOS and those with AD or frontotemporal dementia. They reported that Wechsler Adult Intelligence Scale-Revised (WAIS-R) Similarities subtest and the California Verbal Learning Test (both short- and long-delay free recall) can differentiate LOS from AD, and a test battery comprising the WAIS-R

**Figure**

**Ms. P's visuospatial executive dysfunction on clock drawing and cube copying tests**



Vocabulary, Information, Digit Span, and Comprehension subtests, and the Hooper Visual Organization test can differentiate LOS and frontotemporal dementia.<sup>12</sup>

**EVALUATION Significant impairment**

CT head and MRI brain scans without contrast suggest mild generalized atrophy that is more prominent in frontal and parietal areas, but the scans are otherwise unremarkable overall. A PET scan is significant for hypoactivity in the temporal and parietal lobes but, again, the images are interpreted as unremarkable overall.

Ms. P scores 21 on the Montreal Cognitive Assessment (MoCA), indicative of significant cognitive impairment (normal score,  $\geq 26$ ). This is a 3-point decline on a MoCA performed during her admission 5 years earlier.

Ms. P scores 8 on the Middlesex Elderly Assessment of Mental State, the lowest score in the borderline range of cognitive function for geriatric patients. She scores 13 on the Kohlman Evaluation of Living Skills, indicating that she needs maximal supervision, structure, and support to live in the community. Particularly notable is that Ms. P failed 5 out of 6 subtests in money management—a marked decline for someone who had worked as a senior accountant.

**Clinical Point**

Findings from the literature suggest that dementia in LOS and VLOS is of different basis than Alzheimer's dementia

continued

## Clinical Point

Late-onset schizoaffective disorder might represent a variant of LOS but with additional mood symptoms

**Table 3**

### DSM-5 diagnostic criteria for major neurocognitive disorder

A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on: <ol style="list-style-type: none"> <li>1. Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and</li> <li>2. A substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment</li> </ol>
B. The cognitive deficits interfere with independence in everyday activities (ie, at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications)
C. The cognitive deficits do not occur exclusively in the context of a delirium
D. The cognitive deficits are not better explained by another mental disorder (eg, major depressive disorder, schizophrenia)

Source: Reference 3

Given Ms. P's significant cognitive decline from premorbid functioning, verified by collateral information, and current cognitive deficits established on standardized tests, we determine that, in addition to a diagnosis of schizoaffective disorder, she might meet DSM-5 criteria for unspecified major neurocognitive disorder if her functioning does not improve with treatment.

#### The authors' observations

There is scant literature on late-onset schizoaffective disorder. Webster and Grossberg<sup>13</sup> conducted a retrospective chart review of 1,730 patients age >65 who were admitted to a geriatric psychiatry unit from 1988 to 1995. Of these patients, 166 (approximately 10%) were found to have late life-onset psychosis. The psychosis was attributed to various causes, such as dementia, depression, bipolar disorder, medical causes, delirium, medication toxicity. Two patients were diagnosed with schizophrenia and 2 were diagnosed with schizoaffective disorder (the authors did not provide additional information about the patients with schizoaffective disorder). Brenner et al<sup>14</sup> reports a case of late-onset schizoaffective disorder in a 70-year-old female patient. Evans et al<sup>15</sup> compared outpatients age 45 to 77 with a diagnosis of schizoaffective disorder (n = 29), schizophrenia (n = 154), or nonpsychotic mood disorder (n = 27) and concluded that late-onset schizoaffective disorder might represent a variant of LOS in clinical symptom profiles and cognitive impairment but with additional mood symptoms.<sup>16</sup>

How would you begin treating Ms. P?

- a) start a mood stabilizer
- b) start an atypical antipsychotic
- c) obtain more history and collateral information
- d) recommend outpatient treatment

#### The authors' observations

Given Ms. P's manic symptoms, thought disorder, and history of psychotic symptoms with diagnosis of LOS, we assigned her a presumptive diagnosis of schizoaffective disorder, bipolar type. From the patient report, collateral information from her mother, earlier documented collateral from her husband, and chart review, it was apparent to us that Ms. P's psychiatric history went back only 10 years—therefore meeting temporal criteria for LOS.

#### The authors' observations

Clinical assessment (*Figure, page 49*) and standardized tests revealed the presence of neurocognitive deficits sufficient to meet criteria for major neurocognitive disorder

(Table 3<sup>3</sup>). The pattern of neurocognitive deficits is consistent with an AD-like amnesic picture, although no clear-cut diagnosis was present, and the neurocognitive disorder was better classified as unspecified rather than of a particular type. It remains uncertain whether cognitive deficits of severity that meet criteria for major neurocognitive disorder are sufficiently accounted for by the diagnosis of LOS alone. Unless diagnostic criteria for schizophrenia are expanded to include cognitive deficits, a separate diagnosis of major neurocognitive disorder is warranted at present.

### TREATMENT Pharmacotherapy

On the unit, Ms. P is observed by nursing staff wandering, with some pressured speech but no behavioral agitation. Her clothing had been bizarre, with multiple layers, and, at one point, she walks with her gown open and without undergarments. She also reports to the nurses that she has a lot of sexual thoughts. When the interview team enters her room, they find her masturbating.

Ms. P is started on aripiprazole, 10 mg/d, titrated to 20 mg/d, and divalproex sodium, 500 mg/d. The decision to initiate a cognitive enhancer, such as an acetylcholinesterase inhibitor or memantine, is deferred to outpatient care to allow for the possibility that her cognitive features will improve after the psychosis is treated.

By the end of first week, Ms. P's manic features are no longer prominent but her thought process continues to be bizarre, with

### Related Resources

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### Drug Brand Names

Aripiprazole • Abilify                      Memantine • Namenda  
Divalproex sodium • Depakote

poor insight and judgment. She demonstrates severe ambivalence in all matters, consistently gives inconsistent accounts of the past, and makes dramatic false statements.

For example, when asked about her children, Ms. P tells us that she has 6 children—the youngest 3 months old, at home by himself and “probably dead by now.” In reality, she has only a 20-year-old son who is studying abroad. Talking about her marriage, Ms. P says she and her husband are not divorced on paper but that, because they haven't had sex for 8 years, the law has provided them with an automatic divorce.

### OUTCOME Significant improvement

Ms. P shows significant response to aripiprazole and divalproex, which are well tolerated without significant adverse effects. Her limitations in executive functioning and rational thought process lead the treatment team to consider nursing home placement under guardianship. Days before discharge, however, reexamination of her neuropsychiatric state suggests significant improvement in thought process, with improvement in cogni-

### Clinical Point

**It was apparent to us that Ms. P's psychiatric history went back only 10 years—therefore meeting temporal criteria for LOS**

## Bottom Line

Global as well as specific cognitive deficits are associated with late-onset schizophrenia. Studies have reported increased risk of dementia in these patients over the course of 3 to 5 years, usually unspecified or Alzheimer's type. It is imperative to assess patients with schizophrenia, especially those age  $\geq 40$ , for presence of neurocognitive disorder by means of neurocognitive testing.

### Clinical Point

Unless criteria for schizophrenia are expanded to include cognitive deficits, a separate diagnosis of major neurocognitive disorder is warranted

tive features. Ms. P also becomes cooperative with treatment planning.

The treatment team has meetings with Ms. P's mother to discuss monitoring and plans for discharge. Ms. P is discharged with follow-up arranged at community mental health services.

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