

# Mini Cases in Movement Disorders

by

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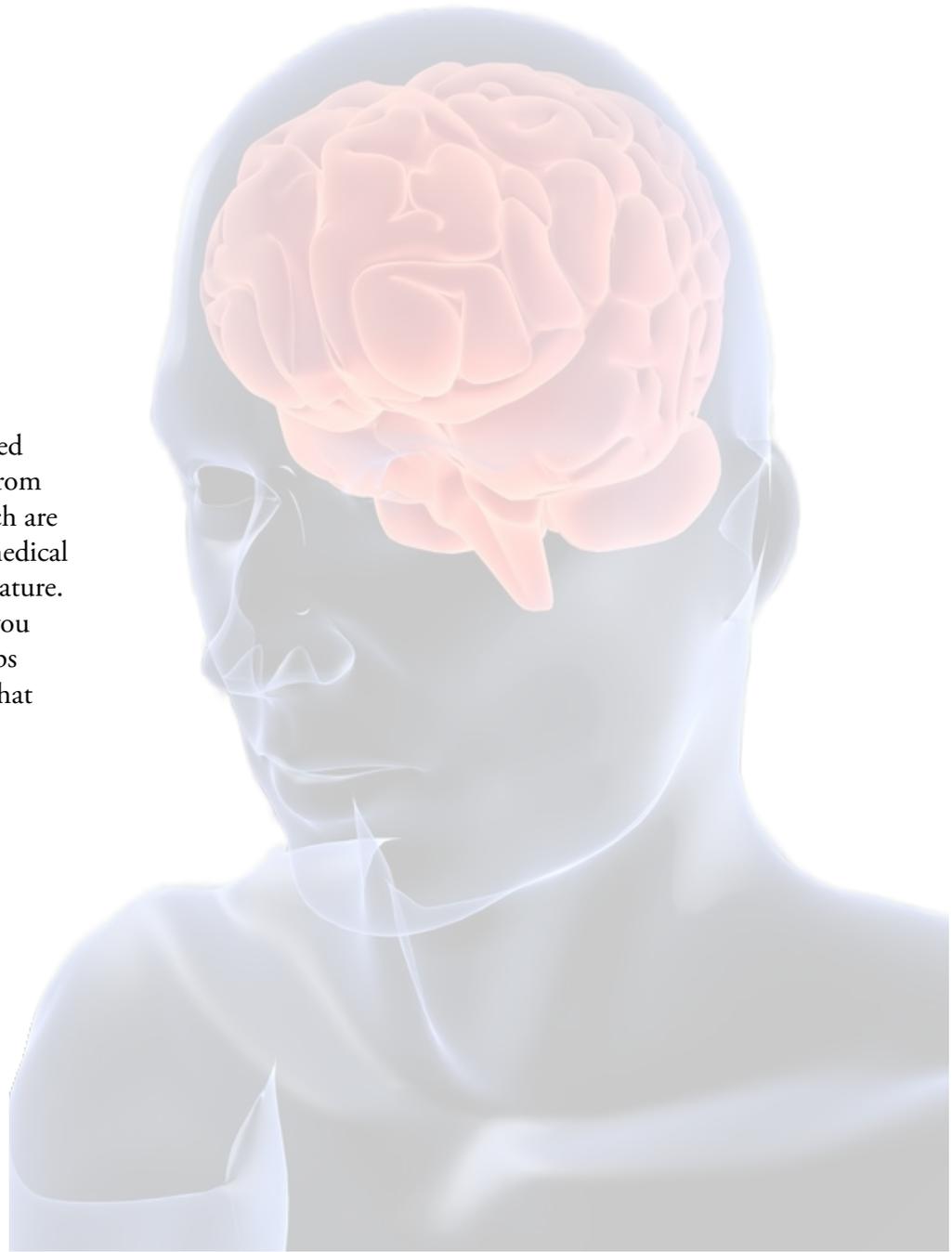
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## Introduction

Your group will be assigned one of the patient cases from the following pages, which are based in part on actual medical cases reported in the literature. After reading your case, you are to work in your groups to answer the questions that follow the case write-up.



## Case 1—Kenny

Kenny is a seemingly normal teenager, except for one thing: he experiences uncontrollable bodily and facial movements. At a young age, he started having “fits” of facial grimacing, frequent blinking, and lip puckering. By the third grade, these were accompanied by various vocalizations; he would growl, snort, and grunt at odd times, or hum tunelessly for up to an hour. This was distracting both to his teacher and his class mates, and fairly distressing for both Kenny and his parents.

Kenny exhibited other odd behaviors. He would spin himself around and around (beginning slowly and then increasing in speed) until he was so dizzy he couldn't stand. Often, he could not sit still for very long; at unexpected times he would throw himself out of his chair or off a bench for no apparent reason. He also had overriding compulsions to touch objects, including parts of his own body, over and over again. Along with these impulses, Kenny also continuously wrung and washed his hands. As he aged, he learned to resist these desires for a brief period of time, but often he just couldn't help himself. Oddly enough, these desires seemed to increase whenever he was under stress, which, unfortunately, was frequently.

Not only did Kenny like to spin himself, he also was strangely attracted to spinning things. On more than one occasion he had run straight into a revolving door as he was trying to dodge in and out of it. He was musically talented, and was known in his high school jazz band for his strangely (and wildly) creative improvisations on the drums.

Much to Kenny's and his parents' relief, the movements, including the spinning, began to decrease in both severity and frequency when he entered adolescence. He would still jerk occasionally and shout at unexpected times, but things had improved. However, his compulsions to touch items and wash his hands remained unchecked.

At several points during his childhood, Kenny's doctors tried various pharmacological interventions. Clonidine, haldol, and pimozide had all been tried with varying success, but had side effects that worried both Kenny's parents and his doctors. Buspirone seemed to help with the hand wringing and hand washing, but not with the twitches and vocalizations. His doctors had also tried exposure therapy, which seemed to be the most effective in further reducing at least some of his strange movements.

### Questions

1. What condition or conditions (there may be more than one possibility) are being described in this case? Does this involve brain damage, a specific disease or disorder, or some other condition that may be affecting the patient's ability to move?
2. What brain area or area(s) may be involved? How should they function normally? What could be causing this dysfunction?
3. How would the treatments recommended affect the brain? How might those effects relate to the symptoms?
4. How can you explain all of the symptoms exhibited by this case? Can you relate each symptom to a specific brain area or neurotransmitter?
5. What other interventions may be possible, besides those noted here?

*Remember to document your sources!*

## Case 2—Harry

Harry is in his mid-40s. He has come to his doctor reporting general weakness, particularly in his lower extremities. When he enters the doctor's office, he is obviously clumsy ("Gee, I guess I shouldn't have that third martini at lunch," he jokes). However, the physician's assistant (PA) who takes him back to the examination room notices that his speech is slurred.

In taking his medical history, the PA notes that Harry has had a six-month-long problem with extreme fatigue and he has lost significant weight. In fact, his upper body appears to have nearly wasted away. When asked why he came in, Harry tells the PA that he has had difficulty in combing his hair, writing, climbing stairs, and climbing up and down out of his truck. His arms have become increasingly weak, and he has also experienced increasing trouble getting dressed (zipping and buttoning his jeans is beyond him).

As the PA speaks with Harry, he notices that Harry's tongue is moving strangely; it keeps writhing and twitching. During the physical examination, Harry gags on the tongue depressor (when it is only touching his lips!) and he has difficulty swallowing. He also shows an abnormal Babinski reflex: his toes fan out when the bottom of his foot is stroked. While the remainder of his reflexes is normal, Harry shows pronounced muscle weakness and abnormal spasticity—mostly in his legs, but also in his arms, though to a lesser degree.

Based on the report from his PA, the doctor decides to order a series of tests, including an MRI and EMG. While the MRI comes back normal, the EMG is quite abnormal; it indicates denervation. A blood test indicates an abnormally high level of glutamate.

In discussing treatment options, the doctor admits that the prognosis is not good. However, he does recommend the following: (1) a prescription for Baclofen and Riluzole to alleviate symptoms; and (2) physical therapy, and potentially speech and occupational therapy later on.

### Questions

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## Case 3—Alice

Alice is an 18-year-old girl with a problem: she has been “huffing” for quite a while. After a long history of drug abuse (since the age of 13 she has tried everything from amphetamines to heroin to cocaine to LSD), she found that she much preferred the “high” she received from inhaling the fumes from certain brands of paint. She admits to spending most of her waking hours deeply inhaling from a paint-soaked rag. While she claims she has never “passed out,” she does recall falling asleep at various points during these huffing sessions.

Alice walks with a broad ataxic gait, she is unable to complete the standard sobriety tests, and she is slow and uncoordinated. Her hands tremble when she begins to reach for something, but stops when she is in the process of reaching.

Her mental status and language seem normal. Her eye movements, however, show abnormalities: her saccades are mildly slowed, and her upgaze slightly restricted. She shows no facial drooping, and there is a lack of overall body rigidity. Her deep tendon reflexes have tested normal, but she is unable to run the heel of her foot up and down her opposite shin.

Three months later, after being prevented from huffing at all, her symptoms have improved. Her gait is smoother, and she is able to complete the standard sobriety test, though with some difficulty.

Examination of her “favorite” brands of paint reveals that they contain toluene.

### Questions

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3. How would the treatments recommended affect the brain? How might those effects relate to the symptoms?
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## Case 4—Vic

Vic is a karate instructor, approximately 40 years old. While sparring with one of his students, he found himself in a tight neck grasp. As he tried to free himself, he realized that his right arm and leg suddenly went limp and weak, and he was unable to speak.

After being rushed to the ER, Vic underwent a series of tests, including routine bloodwork, an electrocardiogram, a CAT scan, and an MRI. The CAT scan came back normal, but his bloodwork showed elevated cholesterol.

The MRI showed evidence of cerebral ischemia in the middle cerebral artery. There was no evidence of a cardiac embolism on a subsequent echocardiogram, although further testing showed a plaque in his carotid artery.

Once the doctors removed the plaque from his carotid, both his hemiplegia and his aphasia improved.

Vic was placed on a regimen of clopidogrel and Crestor and referred for speech therapy. He was also cautioned to avoid neck holds in the near future.

### Questions

1. What condition or conditions (there may be more than one possibility) are being described in this case? Does this involve brain damage, a specific disease or disorder, or some other condition that may be affecting the patient's ability to move?
2. What brain area or area(s) may be involved? Be specific, especially with regard to the hemisphere that would be most directly affected. How should they function normally? What could be causing this dysfunction?
3. How would the treatments recommended affect the brain? How might those effects relate to the symptoms?
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## Case 5—Keith

Keith is a 35-year-old male Caucasian. While he had had a seemingly normal childhood and graduated high school with a 3.9 GPA, things began to slide downhill after that. His grades began slipping in college and he barely graduated with a 2.0 GPA. It was at that time that he began to experience strange finger twitchings, facial contortions, and random jerks of his arms. His doctors tried various treatments. Surprisingly enough, antipsychotics seemed to help with the odd movements for a while.

After graduation, Keith's personality changed completely. He became nearly a hermit, had significant difficulty making eye contact, and barely answered when spoken to. He started working at McDonald's at the age of 24. During that year his coworkers noticed that he became steadily more and more uncoordinated. He began dropping things with regularity, and seemed to have difficulty walking smoothly. He eventually was fired from his job, apparently for failing to appear at work as needed and being totally ineffective when he did appear.

By the age of 28, he was in a doctor's steady care, exhibiting a host of symptoms including dysarthria, stiffness, and ataxic gait. By the age of 30 he had developed dementia of a type typically expected in much older men. Regrettably, this required that he be placed in a nursing home.

A wide battery of tests yielded the following results:

- No indications of cancer, tumor, or other such conditions.
- He scored quite low on a mini-mental status exam.
- He continued to show dysarthria, combined with an increased muscle tone in all extremities and a wide-based ataxic gait.
- A DNA test yielded a positive result for an inheritable disease, although his one sister was found to be negative on the same test.
- Antipsychotics seem to control some of his dementia symptoms while botulinum toxin helps with some of Keith's dystonia.

### Questions

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## Case 6—Jim

Jim is 70 years old and still working as a university professor. A few years ago, he started to notice uncontrollable hand and arm shaking after taking a new antihypertensive drug called Serpalan®. His physician put him on another regimen to control his hypertension, but he continued to have subtle movement problems. While his hands and arms no longer shook, he did notice an odd twitch in his shoulder, which eventually progressed to a noticeable tremor in his right arm and leg. Jim's doctor diagnosed this as being due to the stress of his job, and advised that he take a vacation. Luckily, it was the end of spring term and Jim had no commitments for the summer.

Jim took a long, relaxing summer off, but after returning to work both he and his students noticed that his handwriting had become nearly illegible. He also began having problems cutting his food at dinner, and getting his morning cup of coffee to his lips was a trial. However, he insisted that this was due to stress and that "shakiness has always run in my family."

His doctor insisted on a neurological exam, which yielded the following results:

- Normal gait
- Mild voice tremor and mild bradykinesia
- Mild intention tremor of the arm
- Rigidity of his limbs and trunk (intermittent)
- Normal MRI and EEG

In discussing treatment options, his doctor listed the following: (1) prescription for Parlodel and/or Deprenyl; (2) deep brain stimulation might also be an option if symptoms continued to progress with pharmacological treatment.

### Questions

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2. What brain area or area(s) may be involved? How should they function normally? What could be causing this dysfunction?
3. How would the treatments recommended affect the brain? How might those effects relate to the symptoms? If deep brain stimulation were pursued, what area of the brain would be stimulated?
4. How can you explain all of the symptoms exhibited by this case? Can you relate each symptom to a specific brain area or neurotransmitter?
5. What other interventions may be possible, besides those noted here?

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