A Case of Cerebrovascular Accident
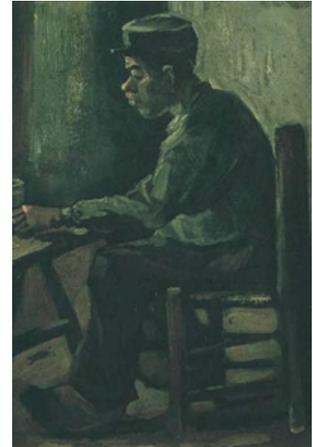
by

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Case Presentation

Samuel Dexter is a 52-year-old African-American man who is both a husband and father. He is moderately obese (BMI of 32), and has smoked two packs of cigarettes a day for the past 38 years. He awakes one morning with weakness on his right side. He is a bit confused, sees double, and his speech is slurred. When he attempts to walk to the bathroom, he stumbles a few times and falls once. His wife suspects that he has suffered a stroke and calls 911. Emergency personnel arrive within minutes of her call and transport Samuel to the emergency room of the nearest hospital.

Upon examination by the emergency room physician, Samuel is found to have right hemiparesis and diminished pinprick and two-point discrimination on the right side of his head and arm. His deep tendon reflexes are brisk on the right and there is a positive Babinski reflex on the right. He has difficulty articulating answers to the questions he is asked, speaking only a few words and frequently responding with just a verb or a noun. His ability to respond to complicated verbal commands, whether spoken or written, is not impaired. In addition, his systemic blood pressure was found to be 160/100. A serum lipid profile was performed and the results are shown in the table below.

Table 1. Serum Lipid Profile Results	
Triglycerides	220 mg/dl
Total Cholesterol	280 mg/dl
LDL	210 mg/dl
HDL	30 mg/dl

Questions

1. Define the terms *ischemia* and *infarction*.
2. What is a stroke? Describe the mechanism(s) by which strokes occur.
3. Define the term *collateral blood flow,* and describe how this and other factors affect the development of stroke.
4. List the risk factors that predispose an individual to suffer a stroke. What are the five warning signs that indicate an individual is having a stroke? Which of the risk factors and warning signs did Mr. Dexter possess based on the clinical history?
5. What are *Brodman areas* and how do they relate to the neurological deficits that occur as the result of stroke?
6. What is the functional relationship between *Broca's area* and *Wernicke's area?*

7. Define the terms *ipsilateral* and *contralateral* as they apply to the functionality of the central nervous system.

8. Explain the significance of the findings of brisk deep tendon reflexes and Babinski sign on the affected side of Samuel's body.

9. Based upon the historical and physical exam findings, what specific area(s) of Samuel's brain have been damaged as the result of his stroke?

10. Describe the means by which individuals who survive a stroke regain at least part of their lost abilities.