Neuroscience Small Group Exercise 3

Case 1
A 62-year-old woman has not been feeling well and lost 45 pounds in weight over the past five months. She is gradually having more trouble walking, feels off balance, and may stagger and fall. She has smoked a pack of cigarettes daily for the past 40 years. She has had no previous neurological problems.

On examination you note that she sways and staggers when standing up, and spreads her feet widely to keep her balance. This continues as she walks with difficulty. She cannot walk “in a straight line,” since she nearly falls in the attempt. Motor movements of both legs are uncoordinated, "broken-up" and "off target" in the heel-shin-knee maneuver, with accompanying tremor. Her left arm exhibits a tremor when reaching out for your hand and the finger-nose-finger maneuver on the left is uncoordinated. No resting tremor is seen. Strength appears intact, with symmetrical 2+ reflexes and normal sensation to pinprick (pain), cotton (touch) and proprioception. The cranial nerves and visual examination are normal.

1. What lesion could account for her trouble walking and the motor difficulties in her lower limbs?

2. What lesion could account for her uncoordinated left upper limb?

3. What diagnostic testing would you recommend here?

4. What is the likeliest pathology causing these lesions?
Case 2

Two years ago, a 72 year-old Polish man got up after a nap, promptly lost consciousness and fell to the floor, lacerating his forehead. He was given a pacemaker for presumed heart block, but more episodes ensued. He would feel "faint" even when seated, during which he could not talk or remember family members. At other times, he was seen lying in bed, aimlessly staring into space and unable to speak, later speaking "nonsense" for the next two hours. He would slowly return to normal thereafter. His previous health was normal.

On examination, he spoke "broken English" with a heavy accent, but had normal comprehension and mental status. Vision, cranial nerves, motor and sensory function and coordination and gait were all normal.

1. What could these episodes represent?

2. What diagnostic testing should be done?

3. What treatment should be given, and would the decision for treatment depend on the results of the tests ordered in (2)?

4. Six to seven months after his initial visit with you, the patient begins forgetting names of family members, and is often confused and repeats things. You note that he speaks slowly, is disoriented for the time and place, and cannot repeat phrases given to him. He makes errors in arithmetic and cannot remember three items given to him five minutes earlier. The rest of his neurological examination is normal. What could be the problem?

5. What do you think happened with this patient?
Case 3
A 36 year-old woman has had 5 or 6 “spells” over the previous 8 months. Her aunt notes that she stares straight ahead, drools without responding, and has quivering lips for a few seconds. Thereafter she is confused for several minutes, has no recall of what happened, and asks bizarre questions. A similar spell happened once while she was watching TV, and her right arm "drew up" to her abdomen and her right foot was tapping. One month ago while driving alone, she was told that she crossed the median strip and struck a fire hydrant, but had no recollection of what had happened.

Her neurological examination was entirely normal. She was alert, attentive and had normal mental status and language.

1. What might these "spells" represent?

2. What are the possible causes of these "spells"?

3. What diagnostic testing should be done?

4. What do you think happened to this patient?