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Case Reports

The Recognition and Treatment of Rabies: A Case Report and Discussion

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Introduction

Although rabies is rare in the United States, infection with the virus must be considered and treated soon after viral transmission; failure to diagnose and to intervene will usually result in disease progression and death. Typically transmitted often through an unrecognized bite of an infected animal (e.g., dog or bat), the clinical course is characterized by 5 phases (the incubation period, the prodrome, an acute neurologic phase, coma, and death).

We present the case of a man with rapidly progressive and seemingly disparate somatic symptoms (including muscles aches, difficulty swallowing, and apprehension) and discuss the differential diagnosis, the evaluation, and the treatment approaches.

Case Vignette (Part 1)

Mr. A, a 63-year-old man, with a history of hypertension and prostate cancer (status-post transurethral resection of the prostate), presented to the emergency department with muscle aches, difficulty swallowing, and apprehension. He was in his usual state of health until 2 weeks earlier when a pruritic rash developed on his left shoulder. After 10 days, his left elbow began to ache (although his discomfort was alleviated by use of ibuprofen). The following day, his appetite decreased and right-elbow pain arose. Moreover, 10 days before his arrival in the emergency department, he felt lightheaded and noted recurrent pain in both elbows, as well as word-finding difficulties. In addition, he started to have difficulty breathing and began to gag. Looking at liquids filled him with a fear of choking; therefore, he stopped taking showers and discontinued his oral medications. On the day before his arrival at the hospital, he became less fluent. Nevertheless, Mr. A said to staff wryly, "I'll bet you've never seen anything like this before."

In the emergency department, his laboratory tests (e.g., complete metabolic panel, cardiac enzymes, complete blood count, and imaging [e.g., computed tomography of the head without contrast, chest x-ray]) were essentially unremarkable (except that his white blood cell count was elevated at 13,200 per mm^3 [reference range: 4500–11,000 per mm^3] and his neutrophil count was 76% [reference range: 40%–70%]). His vital signs were normal. He denied having chest pain or shortness of breath. An electrocardiogram showed sinus rhythm (at 87 beats per min), a QRS complex duration of 134 milliseconds, and left ventricular hypertrophy without evidence of acute ischemia.

Emergency department staff requested consultations from both psychiatry and neurology to assess Mr. A for conversion disorder. On interview, Mr. A was fully oriented, yet he had poor short-term memory (0 of 3 objects were recalled after 3 min) and variable

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attention (although he was able to name the months backward, he was distractible and easily agitated by ambient noises, e.g., hospital monitor alarms). His verbal output was intermittently pressured, and on occasion, he struggled to find the right words. His description of his symptoms and their time course was inaccurate; it differed from the reports of his wife (who described that Mr. A had no recent stressors).

Discussion (Part 1)

Clinicians might wonder whether co-occurring aches, apprehension, and mental status changes could herald a serious or life-threatening condition, whether a vigorous workup should be pursued, or whether (and how) to proceed with treatment.

Given that the differential diagnosis for altered mental status is broad (reflecting impairment of affect, behavior, or cognition),[1] the workup should start with reversible and life-threatening causes as recalled by use of the mnemonic "rule-out the WHIMPS." Each letter of this acronym signifies 1 or more of the following conditions: Wernicke encephalopathy and withdrawal; hypoglycemia, hypoxia, hypoperfusion of the central nervous system, and hypertensive encephalopathy (e.g., posterior reversible encephalopathy syndrome[2]); infections and intracranial processes; metabolic derangements (such as hyponatremia/hypernatremia, hypocalcemia/hypercalcemia, and hyperammonemia); poisons (e.g., leading to anticholinergic excess); and seizures.

The workup should start with taking a history, looking for clues to etiology and to temporal relationships with symptoms, and then proceed to a thorough physical examination and laboratory testing (e.g., an electrocardiogram, a complete blood count, a comprehensive metabolic panel, a toxicology screen, as well as measurement of levels of B_{12}, ammonia, and thyroid-stimulating hormone, and a radiologic examination for intracranial lesions via computerized tomography or magnetic resonance imaging, a chest x-ray, and a urinalysis).[3] Further diagnostic tests (such as electroencephalography and lumbar puncture) may also be considered. In the appropriate setting (i.e., fever, flulike symptoms, or cerebrospinal fluid [CSF] inflammation), microbiologic assays (e.g., spirochetes) would be recommended. In patients with a longer duration of altered mental status symptoms, neuropsychologic testing and functional imaging may be ordered.

In addition to pursuing potential medical and neurologic etiologies, psychologic ones also need to be investigated. Conversion disorders (also known as functional neurologic symptom disorder in Diagnostic and Statistical Manual of Mental Disorders [Fifth Edition])[4] are characterized by a sudden loss or change in physical function (in the absence of an underlying medical etiology) as a consequence of psychologic distress and conflict.[5] Presenting symptoms frequently appear to be neurologic and may involve paralysis, aphonia, ataxia, convulsions, or a loss of vision or another sensory modality. Fear of choking may indicate an anxiety disorder,[6,7] but in the case of Mr. A, the sensation of impending choking arose solely at the sight of liquids.

Patients with conversion disorder, like Mr. A, typically present with a sudden loss of function and with somatic complaints.[5] The medical and neurologic signs and symptoms of these patients make presentation to an emergency department or primary care physician much more likely than a psychiatric evaluation. Among adults, these disorders are 2–5 times more likely to occur in women. Conversion disorders translate psychologic distress into physical symptoms. There is typically a relationship between a stressor and the particular symptom or set of symptoms expressed by the patient, and symptoms are often connected to a medical condition that previously affected the patient. A patient may gain the attention and support of loved ones and require removal of situations.[8]

Symptoms initially diagnosed as conversion disorder are ultimately ascribed to an underlying medical etiology in as many as 30% of cases.[9] However, elements of the physical examination can strongly suggest a psychiatric etiology; for example, a clinician may observe a patient who presents with weakness or paralysis but who has full strength when distracted.[10]

Several somatic symptom and related disorders (formerly known as somatoform disorders in Diagnostic and Statistical Manual of Mental Disorders [Fourth Edition])[11] exist, including conversion disorder (characterized by bodily symptoms suggestive of a physical disorder but inconsistent with demonstrable organic causes).[12] With the exception of factitious disorders (which had their own diagnostic category in the Diagnostic and Statistical Manual of Mental