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Case Report

Misdiagnosed neurosyphilis associated with prolonged psychosis

Faden J, O'Reardon J. Misdiagnosed neurosyphilis associated with prolonged psychosis.

Objective: After the prevalence of syphilis had reached historic lows, the Center for Disease Control devised a plan to eradicate syphilis in the United States. Since that decree there has been a dramatic rise in new cases. Psychosis is an ominous symptom of neurosyphilis.
Methods: We report a case of neurosyphilis that was misdiagnosed and staged incorrectly.
Results: Failure to diagnose neurosyphilis was associated with prolonged psychosis that has been refractory to antipsychotic treatment.
Conclusion: Psychiatrists should renew their vigilance for neurosyphilis in the setting of a positive screening test and psychosis.

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Introduction

In 1999, rates of syphilis had reached an historic low and the Center for Disease Control and Prevention (CDC) published a plan to eliminate syphilis in the United States (1). Unfortunately, since that point in time there has been a resurgence in the diagnosis of syphilis, with an estimated 55 000 new cases in the United States in 2014 (2). Due to the reemergence of this long-time adversary, in 2004 the US Preventative Services Task Force recommended routine screening of syphilis for all at-risk populations, and it has been argued by some that screening should occur in all patients with psychiatric symptoms (3,4).

Syphilis is a sexually transmitted disease caused by the spirochaete *Treponema pallidum*, and can progress from primary to secondary to tertiary syphilis. Appropriate staging is vital to determine infectivity and correct treatment (2). Tertiary syphilis, which occurs if *T. pallidum* has infected the central nervous system, occurs in ~30% of untreated individuals and can present as neurosyphilis (5). Neurosyphilis can manifest years to decades after the initial infection, and encompasses a constellation of symptoms thereby giving it the nickname 'the great masquerader' (2). In a case series by Danielsen et al., the average age of diagnosis for neurosyphilis was 47 in men and 52 in women, and the initial symptoms were psychiatric in 17% of cases (6).

We report a case in which new onset psychosis in a 53-year-old man was misdiagnosed as latent syphilis rather than neurosyphilis, and thus treated incorrectly. He remained psychotic during this period of time, and his psychosis has persisted despite ultimately receiving the correct diagnosis and care.

Case

Mr. V was a 53-year-old divorced man who was initially brought to the emergency department by his family after they were unable to control his behaviour. He had been released from jail 2 days prior after serving a sentence of ~30 days for assaulting a police officer. Despite the lack of any history of substance abuse, past psychiatric history, or any family psychiatric history, Mr. V began to acutely exhibit persecutory and grandiose delusions

at age 53, ~1–2 months before his incarceration. He began responding to internal stimuli and videotaped himself to show others that God was talking to him. He also had delusions that the government put a chip in his head because they knew that he talks to God, and that he won billions of dollars in the lottery. After 2 months of delusions, he began to wander out at night screaming, which resulted in a neighbour calling the police, and the patient assaulting a police officer. Before this assault and incarceration, the patient had never been arrested, and had no legal history. He has a 30-year-old daughter, completed 11th grade of school before ultimately obtaining his General Educational Development, and had been employed doing manual labour.

During his time in jail, Mr. V was diagnosed with syphilis after having a positive rapid plasma regain (RPR). He was treated with weekly intramuscular injections of benzathine penicillin G 2.4 million units for a total of three doses, which is the correct treatment for latent syphilis. He was subsequently released from jail and returned home. His delusions persisted at home, resulting in Mr. V's family taking him to the emergency department. His physical exam and vitals were within normal limits, urinalysis and urine drug screen were negative, and a magnetic resonance imaging of his brain showed no abnormalities. He was admitted and a lumbar puncture was performed. His cerebrospinal fluid (CSF) had elevated proteins of 180 (normal 15–45), elevated white blood cells of 14 (normal 0–5), and his CSF Venereal Disease Research Laboratory (VDRL) test showed positive titres of 1 : 4, thus confirming the diagnosis of neurosyphilis. HIV, hepatitis, and antinuclear antibody tests were all negative. He was started on a 14-day course of intravenous penicillin G. Additionally, he was started on risperidone to treat his psychosis and agitation. The risperidone was titrated up to 2 mg twice a day but was only partially effective in reducing his symptoms. His delusions persisted though he did get less agitated and acknowledged that he was no longer experiencing auditory hallucinations. He was discharged following the 14-day course of penicillin. At a 1 month telephone follow-up, his family reported that he was still delusional and was again experiencing hallucinations. Unfortunately, at a 3-month telephone follow-up he was an inpatient at a psychiatric hospital, and had been there for over a month with continued symptoms. He was lost to follow-up at that point, and repeat CSF titres were unable to be obtained.

Discussion

In recent times, syphilis was considered a historic disease, potentially on its way to eradication in the United States. However, since the CDC came out with its decree to eliminate syphilis, its incidence has dramatically increased. This has left many junior clinicians without the historical knowledge and perspective to recognise, diagnose, and appropriately treat an adversary prevalent for decades (7).

Though the US Preventive Service Task Force recommends screening all high-risk individuals for syphilis, others have suggested screening all psychiatric patients given the resurgence in rates of syphilis and the constellation of possible presenting symptoms (4). The benefit of routine syphilis screening for psychiatric patients would be to identify and stage these individuals promptly so that urgent treatment can be initiated. Previous studies have documented psychosis as an ominous symptom of neurosyphilis, and any delay in accurate diagnosis and treatment can result in an increasingly poor outcome (8).

There is no consensus treatment guideline for psychosis secondary to neurosyphilis. Risperidone was a reasonable option in this case and has been utilised in similar reported cases, but standardised guidelines should be published to describe the management of psychiatric manifestations of syphilis (1). Additionally, though cognitive symptoms typically acutely improve following treatment with penicillin, there is little data showing long-term symptom progression or relief of psychosis (9). Given the variable improvement of psychosis following treatment, and the potential long-term cognitive sequela of neurosyphilis, urgent identification, staging, and treatment of tertiary syphilis is vital (1). It is conceivable that had Mr. V been properly diagnosed initially, his treatment would have started over 1 month earlier, and his psychosis might have been less refractory to treatment. Based on having no prior history or family history of mental illness, and the relatively advanced age, it is unlikely that the patient was experiencing a first schizophrenic episode. Additionally, although neurosyphilis can exacerbate a pre-existing psychiatric condition, there is no evidence to support that he had an unrecognised mental illness (10). Additional lab testing could have been performed to rule out other conditions that can manifest as late-life psychosis, however, it is much more likely that his symptoms were attributable to neurosyphilis given the positive blood and CSF findings.

Syphilis is the epitome of a syndrome that benefits from interdisciplinary care. An interdisciplinary team in active communication is required to optimise care and ensure prompt disease identification, management, and follow-up (11). Psychiatrists should take a renewed interest in the presenting signs and symptoms, clinical course and management of syphilis. All psychiatric patients with psychosis should have screening for syphilis (in the form of RPR and VDRL lab testing).

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If these are positive the possibility of neurosyphilis must be entertained and appropriate consultation sought.

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