

Delusion of Parasitosis: an Atypical Initial Presentation of Multiple Sclerosis

多發性硬化症的一項非典型初期表現：寄生蟲妄想症

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Abstract

Multiple sclerosis, a common demyelinating disorder, has been associated with mood symptoms for years. There are very few reports in which the psychiatric symptoms are either the presenting signs of multiple sclerosis or present simultaneously with neurological signs and symptoms. We present a case where the patient presented with overwhelmingly psychiatric manifestations—delusional parasitosis. The patient gave detailed descriptions of the shape, colour, and types of offending parasites: crawling, biting, burrowing. In such cases, therapy with antipsychotic medication is necessary. Despite treatment with antipsychotics, the patient's delusions persisted and detailed investigations led to a diagnosis of multiple sclerosis as the cause of her psychosis. The authors recommend that clinicians have a high index of suspicion and, after exploring all the common possibilities, should look for neurological causes in a patient with psychosis. Multiple sclerosis is one such condition, where the patient can present with psychotic symptoms even in the absence of neurological deficits.

Key words: Antipsychotic agents; Delusion; Parasitic diseases; Psychotic disorders; Hypochondriasis

摘要

多發性硬化症是一種普遍的髓鞘脫失病，一直以來都被認為與情緒症狀有關。很少有報告指出精神病症狀為多發性硬化症的徵兆或會與神經特徵同時出現。本文報告一名病人出現寄生蟲妄想症的全然神經精神表現。病人可以按形狀、顏色、種類詳細形容寄生蟲分為爬行、咬人、掘洞的類別。這種情況下服用抗精神病藥物是必須的，可是病人的妄想症仍然存在。進一步的詳細檢查後才發現病人患上多發性硬化症。醫生必須對精神病患者提高警覺，在找出各種可能性仍未有任何發現後，可嘗試尋找與神經有關的因素。多發性硬化症正是其中一種病例，病人可能沒有表現神經功能缺損的情況下出現精神病徵狀。

關鍵詞：抗精神病藥物、妄想症、寄生蟲病、精神病、疑病症

Introduction

Multiple sclerosis (MS), a common demyelinating disorder, has been associated with mood symptoms for years. Its association with psychosis has been described in the literature¹⁻⁴ but not many cases have been reported. "Psychosis" as a first presentation of MS has always been a hot topic of debate⁵ but there are very few reports⁶⁻⁸ in which the psychiatric symptoms are either the presenting signs of MS or present simultaneously with the neurological symptoms. We report a case of an individual with MS presenting with a delusion of parasitosis as the first manifestation. There were

no neurological signs and symptoms pertaining to MS in this case.

Case report

Ms B, a 49-year-old African American female with a lifelong history of eczema presented to Psychiatry Emergency (CRISIS) in September 2007 with a 6-month history of seeing and feeling bugs crawling on her skin and on her clothes. These bugs had not been seen by anyone else in her family. The patient reported that the bugs are a species of gnat that came from the everglades. She described different species of gnats, "angel gnats", which she described as small and less aggravating and not coming near her if she kept her body clean, "nasty gnats" which were bigger and looked like creatures from outer space and were always present, and "misty gnats", aggravating gnats which were the worst ones that the patient could not see but which she could feel, saying they itch, sting and bite. She reported their presence all over her body except the genital areas "because she used powder there and the gnats don't like the powder". She self-

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medicated with creams and insecticide sprays without any benefit and reported using alcohol, tylenol and benadryl for 3 weeks to "numb" the sensation of the bugs. She also reported hearing "whispers" in her house, when alone at home. These gradually disappeared and she has not heard them since.

Her history included 3 episodes of depression. The first episode occurred after her first pregnancy, which ended in a miscarriage in 1983. The other 2 episodes were postpartum, occurring after the births of her 2 children (1985 and 1989). She denied being given any treatment for depression. She also gave a history of chronic eczema treated by many doctors with poor results.

She said she drank alcohol occasionally at parties (1-2 glasses of wine twice a year) except for recently when she had tried to use alcohol to numb the skin sensation, reporting drinking 3 bottles of wine daily for 3 weeks. She denied any illicit substance use. Her family history was significant for a sister with seizures, a daughter with attention-deficit hyperactivity disorder, and the death of an elder sister 1 year earlier due to colon carcinoma.

A mental status examination revealed a physically healthy woman who was calm and cooperative and totally preoccupied with her alleged "bugs". Her thought form was well organised, but the content was replete with firmly held delusions. She was alert and oriented on admission, with a Folstein score of 30/30. Along with the bug delusions and generalised pruritus that the dermatologists did not believe was caused by an infestation, visual hallucinations were also present. The patient reported that she could see these bugs and even taste them as they sometimes entered her mouth. There were no other abnormalities at the time of her mental status examination. She satisfied the DSM-III criteria for atypical psychosis. She was stable and did not show any signs of alcohol withdrawal.

She was diagnosed as having delusions of parasitosis, was admitted to the psychiatry inpatient unit and treated with chlorpromazine 25 mg orally twice a day, thiamine 100 mg orally daily, folic acid 1 mg orally daily, aquaphor topical 3 times a day, and alcohol taper, to target any withdrawal symptoms. On day 5 of her admission, triamcinolone 0.1% topical (twice a day) and hydrocortisone 2.5% topical (twice a day) were added to treat her eczema. She showed some improvement with the chlorpromazine treatment but continued to have bug infestation delusions.

A magnetic resonance image (MRI) of her brain was performed to rule out any neurological disorders and this showed multiple areas of abnormal T2-weighted and fluid-attenuated-inversion-recovery (FLAIR) hyperintensity in the bilateral periventricular white matter as well as in the left cerebellar hemisphere. Many of these areas were perpendicular to the ventricular surface, suggesting MS as a possible diagnosis. A sample of her cerebrospinal fluid (CSF) was examined to confirm the diagnosis. A raised CSF immunoglobulin G (IgG) of 8.5 (normal level, <8.1), serum IgG level of 1750 (normal level, <1500), an increased CSF index of 0.67, and an increased ratio of CSF IgG-to-

albumin of 0.32 (normal level, <0.27) was consistent with the diagnosis of MS.

Ms B was continued on chlorpromazine for about 6 weeks and responded very well, reporting an improvement in her symptoms. She was discharged from the psychiatry inpatient unit and advised to continue chlorpromazine and to attend the neurology department on an outpatient basis for further management.

Discussion

Patients with delusions of parasitosis, also known as monosymptomatic hypochondriacal psychosis (MHP),⁹ have an unshakeable false belief that they have been infested by parasites, worms, mites, or bacteria.¹⁰ Delusional parasitosis is a rare syndrome. Retterstol¹¹ has reported a prevalence of 0.4% for hypochondriacal psychosis and Heim and Morgner¹² have described a prevalence of 0.09% for delusional infestation.

Delusion of parasitosis or MHP has been classified into primary delusions, secondary functional delusions, and secondary organic delusions.¹³

Munro¹⁴ has suggested that primary cases with delusion of parasitosis, where the delusions occur in the absence of any functional or underlying medical problems, are due to an endogenous dysfunction in the limbic area, somewhat similar to the exogenous dysfunction induced by amphetamines, and may be the result of pathological dopaminergic overactivity. Maier¹⁵ suggested that primary delusion of parasitosis should be considered late-onset schizophrenia of the coenaesthetic type. Delusion of parasitosis has been associated with a lot of functional disorders and hence the second class (secondary functional) relates its occurrence along with psychiatric disorders like bipolar disorder,¹¹ depression,^{16,17} schizophrenia, schizophreniform illness, anxiety disorders, and obsessive compulsive disorders.

Secondary organic delusion of parasitosis is associated with some underlying medical, surgical, neurological, or dermatological disorders. Skott¹⁸ reviewed over 70 cases of delusions of parasitic infestation and recorded the following organic aetiologies: toxins, primary central nervous system neoplasms especially tumours of the hypophysis,^{16,19,20} hypothyroidism, diabetes mellitus, cardiovascular disease, polycythaemia vera, vitamin B12 deficiency, anticholinergic agents, monoamine oxidase inhibitors,²¹ amphetamines,²²⁻²⁴ cocaine,²⁵⁻²⁹ and methylphenidate.

The association between delusional syndromes and the organic central nervous system disease has been the subject of several recent studies. The relationship between delusions and neurological disorders has been demonstrated in many past cases. Cummings et al³⁰ demonstrated late-onset delusions in up to 40% of patients with multi-infarct dementia. McGowan and Cook³¹ observed the syndrome in a patient following encephalitis lethargica. Golomb et al³² recently reported a patient with a delusional infestation associated with normal pressure hydrocephalus.

The treatment of delusions of parasitosis is primarily pharmacological. The traditional therapy is pimozide,^{33,34} an antipsychotic of the diphenylbutylpiperidine class, but it carries a 10 to 15% risk of inducing extrapyramidal symptoms, a prolonged QT interval, and T wave changes, so is no longer favoured. The treatment of choice is now one of the atypical antipsychotics,^{35,36} either risperidone³⁷⁻³⁹ (1-2 mg/d) or olanzapine⁴⁰ (2.5 mg/d). Other agents that can be used include sulphiride,⁴¹ haloperidol, and chlorpromazine. If the delusions are associated with mood disorders, normalisation of mood can lead to a resolution of the delusions. Depressed patients can benefit from treatment with selective serotonin reuptake inhibitors. In cases of coincident bipolar disorder and delusions of parasitosis, citalopram is effective.⁴²

Multiple sclerosis presenting as a psychiatric disturbance has received more attention than the empirical evidence supports.¹⁸ This contention is borne out by previously reported cases in which patients presented with neurological deficits and in acute confusional states, all of them in sharp contrast to our patient who never demonstrated any symptoms indicative of encephalopathy.

On history alone, drug abuse and medications were ruled out as causes as she had not used any drugs or medications that would cause pruritus.

The patient was admitted in the inpatient unit and to make sure that the presentation was not due to any drug abuse, a toxicology screen was done which was negative for opioids, benzodiazepines, cannabinoids, cocaine, and salicylates. As she had used alcohol recently to numb the sensation, she was given thiamine, folic acid, and ativan orally as required. The next step in our management was to run some basic screening tests, so a thyroid profile, general biochemistry and haematological workup was performed, all of which were within normal limits except for raised high-density lipoprotein and triglyceride levels. Her vital signs remained stable.

Because there was no evidence of an underlying organic cause for her delusions, Ms B was started on chlorpromazine and benadryl for her pruritus. Although pimozide, olanzapine, and risperidone are considered the drugs of choice, we chose chlorpromazine based on our clinical experience with this type of psychosis. The patient showed some improvement and after 2 weeks on chlorpromazine, we decided to further investigate possible underlying organic disorders because, while her symptoms were improving (she was able to sleep at night), they still persisted and some days they were even worse than on the previous day.

Ms B had suffered skin problems since childhood. There is evidence supporting dermatological conditions⁴³ presenting as delusions of parasitosis. A dermatological consultation was arranged and a careful evaluation excluded any actual parasitosis; the illogical and delusional nature of Ms B's complaints were evident with long-term observation. The differential diagnosis included organic delusional disorder secondary to cerebrovascular disease, psychotic depression with MHP, and alcohol-related dysfunction with psychosis.

Her mood was stable so a mood disorder like depression was ruled out as the cause of her delusions.

She did develop some depression after months of stay in hospital but it was due to the long stay in hospital because she missed her family. Depression was an unlikely cause of her delusion because the delusions appeared well before any mood symptoms.

An alcohol-related neuropsychiatric syndrome was also unlikely because the patient had been taking alcohol in very low quantities (twice a year at parties) and only used alcohol in large quantities after the appearance of the delusions in order to "numb" the sensations of bugs.

Ms B did not have any sensory or motor deficits and that was the factor blocking us from considering any kind of neurological disorder^{30,32} or a cerebrovascular stroke as the cause of her delusion.

After ruling out all other possibilities we performed a magnetic resonance angiography (MRA) to visualise the patient's brain circulation and hence rule out any underlying low perfusion or ischaemic brain damage. This is a documented cause of delusions, but to our surprise the MRA showed a normal anterior and posterior circulation. Ms B was very cooperative and insistent on discovering the root cause of her delusions so we organised an MRI brain scan for her. This showed multiple areas of abnormal T2-weighted and FLAIR hyperintensity in the bilateral periventricular white matter as well as in the left cerebellar hemisphere. Many of the periventricular lesions were perpendicular to the ventricular surface, a feature suggestive of MS. Multiple sclerosis has been proven to be the cause of many psychiatric problems like depression and psychosis and this made us consider MS as the cause of Ms B's psychotic delusions. For this reason we ordered a CSF examination to ascertain whether she had MS.

The initial CSF examination ruled out infectious causes because the white blood cell and differential cell counts were within normal limits. Our patient's delusions still persisted but the positive findings on the MRI scan gave her incentive to cooperate with the CSF study, which as described above showed a pattern consistent with MS.

The criteria needed for "dissemination in space"⁴⁴ in MS are 2 MRI-detected lesions consistent with MS in the presence of oligoclonal bands or a raised CSF index. In our patient the serum electrophoresis failed to show oligoclonal bands, which are formed as a result of higher antibody levels but the absence of these does not rule out MS. Demonstration of oligoclonal bands is a useful aid in the diagnosis of MS, subacute sclerosing pan encephalitis, and herpes simplex encephalitis. The presence of oligoclonal bands indicates an immunological response but is not diagnostic for a particular condition.⁴⁵ Many patients with MS do not show oligoclonal bands on CSF examination.⁴⁶ Findings of MRI of plaques perpendicular to the ventricular surface and a raised IgG and raised ratio of IgG-to-albumin suggested the diagnosis of MS in our patient.

This patient reported an approximately 60% improvement in her symptoms and stated that "bugs still exist but they are very less now". She was discharged from the inpatient unit and asked to attend the neurology

outpatients for treatment of her MS. The absence of any functional disorder in Ms B and the presence of findings specific for MS on the MRI and in laboratory investigations, coupled with historical evidence and case reports indicating that MS can present as psychosis,^{2,3,4,20,47,48} indicate that hers is a case of psychosis due to MS with an atypical initial presentation of delusions of parasitosis.

Multiple sclerosis has long been associated with mood disorders but this is one of very few reports showing that it can also present as psychosis. It does not mean that every patient presenting with psychosis or delusion of parasitosis should be screened for MS. The aim of this article was to make students, psychiatrists, neurologists, and dermatologists aware that, after exploring all the common possibilities, they should look out for neurological causes in a patient with psychosis. Multiple sclerosis is a condition where the patient can present with psychotic symptoms even in the absence of neurological deficits. Magnetic resonance imaging is the investigation of choice in this instance.

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