

Patterns of Misdiagnosis of Multiple Sclerosis

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Abstract

Background: Multiple sclerosis is a chronic demyelinating disease of the central nervous system that presents with variable signs and symptoms. This variability in the clinical presentation may result in misdiagnosis, unnecessary referrals and misleading information to the patients.

Objectives: To identify the types of misdiagnoses made on the presentation of MS.

Methods: Fifty consecutive MS patients were questioned on their early symptoms, their mental status, the disease course until the diagnosis was confirmed, and the different diagnoses they received.

Results: The patients had been referred to 2.2 ± 1.3 specialists before seeing a neurologist, and learned about their disease 3.5 years after the onset of symptoms. Twenty-nine patients (58%) were initially given 41 wrong diagnoses. While the majority of women were misdiagnosed mentally, orthopedic work-up was offered to the men. Misdiagnosis of MS occurred most often in patients who presented with non-specific sensory symptoms that did not conform to a specific neurologic syndrome. The patients emphasized the fact that not knowing worsened their anxiety, whereas receiving the diagnosis enabled them to begin coping with their disease.

Conclusions: MS is often overlooked when patients present with non-specific sensory complaints. The difference in type of misdiagnosis between men and women may reflect a gender-dependent bias in the way physicians interpret sensory complaints.

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Multiple sclerosis is a chronic disease of the central nervous system that often results in significant disability [1]. The diagnosis of clinically definite MS has been traditionally based on the occurrence of at least two neurologic episodes, disseminated in time and in neuroanatomic location. The mean interval between the first and second relapse is approximately 6 years in benign and intermediate cases [2]. Thus, the diagnosis of MS can be delayed. Technologic advances in neuroimaging have allowed the detection of subclinical lesions, and thus earlier diagnosis [3]. When new patients present with a distinct neurologic syndrome, such as optic neuritis or internuclear ophthalmoplegia, the diagnosis is relatively easy. However, the presenting symptoms and signs of MS are extremely variable [4]. Corticospinal tract involvement may manifest not only as weakness but also as non-specific symptoms, such as "heaviness," "stiffness" or limb pain. Moreover, somatosensory complaints as the presenting symptom may perplex the clinician because they are frequently unaccompanied by objective neurologic signs and may fail to correspond to a recognizable anatomic pattern. The temporal profile of MS attacks may also vary, and the disease may develop indolently. The variability of clinical

presentations, temporal profiles and disease course can make clinical evaluation difficult, possibly resulting in misdiagnosis, unnecessary referrals, and misinformation to the patient [5-7].

The purpose of the present study was to identify the types of misdiagnoses made on the presentation of MS.

Patients and Methods

Fifty consecutive MS patients who came to the outpatient MS clinic for routine follow-up were asked to complete a brief questionnaire on their early symptoms, their mental status, and the range and specialty of physicians they visited until the diagnosis was confirmed. They were questioned regarding the different diagnoses that were disclosed to them and on their general feeling during the time since symptom onset until they learned of their true diagnosis. The information obtained in this survey related entirely to the subjective point of view of the patients and not to the physicians' considerations.

Results

The study group included 33 women and 17 men, whose average age at the time of the interview was 34.5 years. The patients' initial symptoms started at age 29.5 ± 8.2 and they were correctly diagnosed at age 33 ± 9 years. The patients were referred to 2.2 ± 1.3 specialists (excluding the primary care physician) before referral to a neurologist [Table 1]. Twenty-one patients (42%) were diagnosed at presentation as suffering from demyelinating disease, while 29 patients (58%) were initially given 41 different diagnoses, including 29 non-neurologic and 12 neurologic diagnoses. Nine patients were told they suffered from a psychiatric problem such as anxiety, somatization or conversion. Another eight patients were told that there was no medical problem and their symptoms were attributed to "tight jeans" or "contact lenses." In addition, 12 other physical diagnoses were given, including orthopedic problems, such as discopathy (5 patients) and viral infection (2 patients). The type of misdiagnosis was unevenly distributed between women and men. Of the 17 patients who were told that they suffered from psychiatric problems or medically unexplained problems, 14 were women and only 3 were men ($P = 0.074$, Fisher's exact test). There was no apparent difference in subjective feeling of anxiety between the two groups of patients, since 6 of these 17 (35%) supposedly psychiatric patients reported anxiety compared to 14 of the other 33 patients (42%).

The patients were classified according to their major self-reported presenting symptom into four groups [Table 1]: motor weakness (12/50, 24%), gait disturbance (10/50, 20%), ophthalmic problems such as visual loss or diplopia (9/50, 18%), and sensory complaints such as numbness, parasthesia and pain (19/50, 38%).

MS = multiple sclerosis

Table 1. Types of misdiagnosis in men and women with MS

	Women	Men	Total
No. of patients	33	17	50
Age (yrs)			
First symptom			29.5
Confirmed diagnosis			33
At the interview			34.5
Presentation			
Weakness	8	4	12
Gait disturbance	6	4	10
Ophthalmic problems	6	3	9
Sensory complaints	13	6	19
Diagnoses (no. of patients)			
Primary demyelinating disease	12	9	21
Misdiagnosis*	21	8	29
Non-neurologic diagnosis	16	8	24
Neurologic misdiagnosis	9	0	9
Non-neurologic diagnosis (no. of diagnoses)			
"No problem"	7	1	8
Psychiatric problem	7	2	9
Orthopedic problem	1	4	5
Other physical problems	5	2	7
Neurologic misdiagnosis (no. of diagnoses)			
Tumor	6	0	6
Peripheral disease	2	0	2
Vascular attack	2	0	2
Other	2	0	2
No. of medical specialists until diagnosis was confirmed (excluding neurologist)	2.15 ± 1.4	2.24 ± 1.3	2.2 ± 1.3

* Some patients received more than one misdiagnosis.

Of the 24 patients who were misdiagnosed initially as suffering from non-neurologic diseases, 15 presented with mainly sensory symptoms (62.5%). Only 4 of 26 (15%) patients with an initial suspicion of a neurologic disease reported sensory symptoms. This difference was statistically significant ($P = 0.0007$, Fisher's exact test). Ten of 12 women, but only 3 of 6 men who presented with sensory complaints and were misdiagnosed with a non-neurologic disease were told that they have psychiatric or medically unexplained symptoms. This gender difference was statistically significant ($P = 0.048$, Fisher's exact test). Finally, the patients were questioned on their feelings during the period since symptom onset until final diagnosis of MS. Thirteen misdiagnosed patients spontaneously expressed their need to know their diagnosis. They favored truth-telling and emphasized the fact that not knowing worsened their anxiety, whereas revealing the diagnosis would enable them to start coping with their disease.

Discussion

In the present study we asked a representative group of MS patients about the time and way they learned about their disease. This retrospective survey reflects a totally subjective recollection from the patients' viewpoint. At the same time however, it provides us with information regarding the impact of the diagnostic process in

MS patients on their future trust in the medical system. Many patients with a non-specific clinical presentation, especially subjective sensory complaints, were incorrectly diagnosed. Primary non-neurologic diagnoses were given equally to men and women. While psychiatric explanations were given to the majority of women, orthopedic work-up was offered to the men. This difference in type of misdiagnosis between men and women may reflect a gender-dependent bias in the way physicians interpret sensory complaints.

The difficulty in diagnosing MS may be due to both a lack of awareness of MS and to non-specific symptoms that do not conform to a specific neurologic syndrome. The long time course until diagnosis may be related to many unnecessary referrals to specialists. In addition, the delay in conveying to the patient a firm diagnosis of MS may also be related to the problem physicians have in importing bad news to their patients. However, many patients reported a need to know their diagnosis as early as possible. In order to consolidate an approach policy, the first question to be asked is which patients need further evaluation [8]. Though the answer is relatively clear-cut in patients with optic neuritis, it is not so when sensory complaints are involved. The vast majority of patients who present with sensory complaints will probably not develop a disabling neurologic disease. However, it is important to keep in mind that non-specific sensory complaints are physically real and one should avoid underestimating the patient's feelings. We therefore suggest caution in dismissing the patient with a psychiatric diagnosis or having "nothing." Assuring the patients that the likelihood of their symptoms developing into a serious illness is low does not necessarily mean that the physician is compelled to provide a clear diagnosis. On the other hand, a long follow-up and reevaluation in case of recurrent complaints is needed. We confer much importance to the "time factor," where after close follow-up in which no other disease symptoms or signs have appeared there is an increased certainty of the patient's general health.

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