ORIGINAL ARTICLE

Modes of Presentation of Multiple Sclerosis

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ABSTRACT

Aims: To describe different modes of presentation of multiple sclerosis in the Pakistani population and to demonstrate that multiple sclerosis may present with a wide variety of signs and symptoms.
Methods: This descriptive one time observational study was conducted in medical and neurology wards of Mayo Hospital, Lahore. Patients and their relatives were selected for interview, based on convenient sampling. The data was collected on a specially designed proforma. Thirty patients were included in this study. All patients were evaluated through clinical examination, blood tests, CSF examination and MRI. The data was analyzed using SPSS version 8.
Results: Mean age was 29.43 years. Up to 57% of the patients were female. Only 16% of patients presented for the first time, while the rest had history of previous episodes. Most of the patients had more than one symptom at presentation. Visual disturbance alone or along with other symptoms was the presentation in around 63% of patients. Another 80% of patients presented with weakness. Urinary incontinence occurred in 40% of patients. Cerebellar signs were present in 17% of patients. In 13% of the patients, multiple sclerosis manifested with paraesthesias.
Conclusion: It is an established fact that with early treatment relapses can be delayed. In addition, multiple sclerosis is an entity that must be considered in the differential diagnosis if neurological symptoms cannot be explained by any other neurological disease.
Keyword: MS, presentation, sclerosis

INTRODUCTION

More than 100 years have passed since Charcot, Carswell, Cruveilhier, and others described the clinical and pathological characteristics of multiple sclerosis[1]. Multiple sclerosis is an incurable neurological illness that frequently causes chronic disability. Neurologists broach the diagnosis with dread. "I'll end up in a wheel chair" is the anguished cry of the newly diagnosed mostly young[2]. It is reckoned as the most common chronic inflammatory demyelinating disease of white matter of central nervous system and a common cause of disability in young adults[3]. Epidemiological and genetic studies implicate multiple factors for multiple sclerosis etiology, including exposure to infectious, chemical or physical agents, damaging the blood-brain barrier, initiating an autoimmune reaction against myelin breakdown products. Potentially damaging exposure, like X-ray examinations, radiological work and treatment with ionizing radiation, none of these is individually sufficient.

Multiple sclerosis is not a Mendelian inherited illness. Only the susceptibility is inherited. The risk of multiple sclerosis is also related to an environmental factor. This seems to be an oligogenic or multigenic disorder with an apparently similar phenotype for the different genes involved[4]. Studies reveal that there is significant increase in total combined prevalence of the autoimmune diseases in the first-degree relatives of multiple sclerosis patients. Patients with primary progressive multiple sclerosis did not differ from patients with relapsing-remitting or secondary progressive multiple sclerosis in the personal or familial occurrence of autoimmune disease. This study states that individuals with multiple Sclerosis have a genetic predisposition to auto immunity in general[5]. Prevalence of multiple Sclerosis varies considerably around the world in different ethnic groups. Northern Europe, Southern Australia and middle part of North America, are areas of highest prevalence. Multiple sclerosis is not rare in Pakistan especially Northern areas[6].

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MATERIALS & METHODS

This was a descriptive hospital-based study conducted at medical and neurology floor of Mayo Hospital Lahore. 30 consecutive cases were included in this study. Convenience sampling technique was used to select patients. This study was conducted at East Medical Ward, Mayo Hospital Lahore. In order to evaluate different modes of presentation of multiple sclerosis. The case records of 30 patients

were evaluated. All the patients or their relatives were interviewed through detailed history. Patients were evaluated through detailed history, examination and investigations, and the data was entered on specially designed proforma. Following investigations were done on patients suspected of multiple sclerosis in order to confirm and also to rule out simulating conditions. Data analyzed on computer based SPSS Programme version 8.0. The frequency of various symptoms and signs measured as percentages. The results are compared with national and international literature available.

RESULTS

A total number of 30 patients that visited Mayo Hospital, Lahore, from areas in and around Lahore, were included in this study. The mean age of the patients was 29. 43 years±10.15. Age ranged between 15 to 55 years. Of these 17(57%) were females with age range of 15 to 47 years with their mean age of 27.18±8.20. The remaining 13(43%) patients were male with an age range of 20 to 55 years and a mean age of 32.38±11.95. (Graph 1) Most of the patients had signs and symptoms along with lesions localized by MRI. Multiple sclerosis has protean manifestations and patients presented to us mostly with multiple symptoms. Most patients had history of previous episodes i.e. 84% (24) patients presented with relapsing and remitting disease.

Weakness of a part of the body was the presenting complaint in 80% of patients. This weakness was further segregated in to para-paresis, quadri-paresis, hemi-paresis and mono-paresis (Graph 2). Power was assessed with grading from 2/5, 3/5, 4/5, to 5/5 (Table 1). The second most common presentation in our study was visual disturbance, which we found in 19(63%) of patients. Visual disturbance was either unilateral or bilateral. The other symptoms found were urinary incontinence, speaking difficulty (dysarthria) and paraesthesias; (frequencies are elaborated in Table-XIV). Amongst signs, we studied plantar and deep tendon reflexes. Exaggerated or brisk deep tendon reflexes and extensor planters was a frequent finding in our study population (Table 1).

MRI is amongst the few modalities available to confirm the clinical features. We found 24(80%) patients of our study had abnormal MRI and 6(20%) patients had unremarkable MRI.Some patients had more than one plaque. There was variety of sites involved in brain and spinal cord (Table 2)

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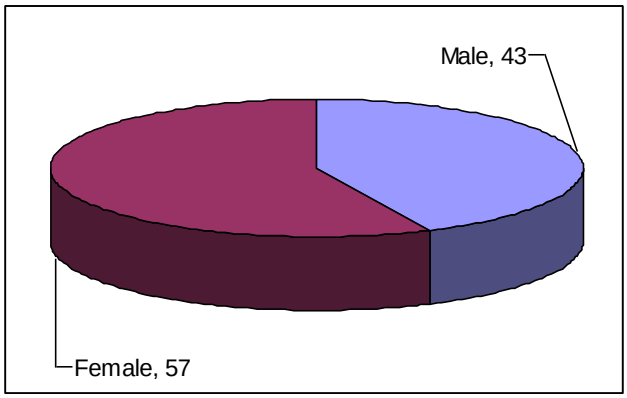
Table 1: Signs & symptoms reported in our study

	Male	**Female**	**Total**
Mean Age	32.38 ±11.95	27.18±8.20	29.43±10.15
Weakness	69% (9)	88% (15)	80% (24)
Power	69% (9)	88% (15)	80% (24)
Grade I	15% (2)	12% (2)	13% (4)
Grade II	15% (2)	23% (4)	20% (6)
Grade III	38% (5)	53% (9)	47% (14)
Grade IV	31% (4)	12% (2)	20% (6)
Visual disturbance	26% (8)	37% (11)	63% (19)
Unilateral	46% (6)	35% (6)	40% (12)
Bilateral	15% (2)	29% (5)	23% (7)
Optic neuritis	61%(8)	41%(7)	50%(15)
Nystagmus	15%(2)	11%(2)	13%(4)
Urinary incontinence	38% (5)	41% (7)	40% (12)
Dysarthria	8% (1)	35% (6)	23% (7)
Paraesthesias	15% (2)	12% (2)	13% (4)
DTR brisk	62% (8)	88% (15)	77% (23)
Babinski	85% (11)	82% (14)	83% (25)
MRI	85% (11)	76% (13)	80% (24)
Mono-symptomatic	15% (2)	35% (6)	27% (8)
Multi-symptomatic	85% (11)	65% (11)	73% (22)
High Proteins CSF >54 = high proteins	38% (5)	65% (11)	53% (11)

Graph 1: Multiple sclerosis in two sexes in our study



Graph 2: Prevalence of weakness in our study

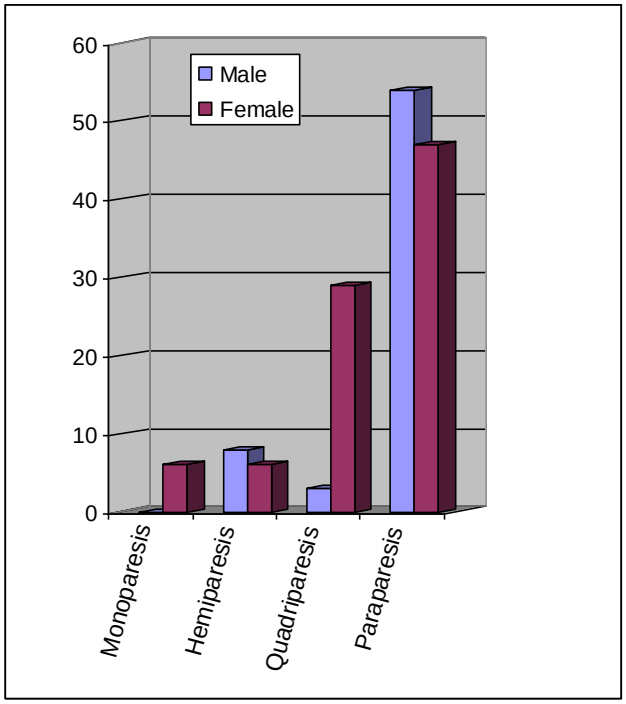


Table 2: Lesion predilection in our study

Site of Lesion	Male	Female	Total
Periventricular lesion	7(54%)	10(59%)	17(57%)
Spinal cord lesion	5(23%)	3(18%)	8(27%)
Optic nerve lesion	1(8%)	4(23%)	5(17%)
Cerebellar lesion	1(8%)	4(3%)	5(17%)
Brain stem lesion	1(8%)	1(1%)	2(7%)

DISCUSSION

The objective of this study was to evaluate various modes of presentations of multiple sclerosis. Multiple studies were carried out on multiple sclerosis mostly in the West; Medline includes over 13000 articles on multiple sclerosis since 1966 excluding chapters and other book references[2]. Being a rare entity in tropical countries, this condition is not extensively studied in Pakistan; few studies are available on this topic in Pakistani Journals. Paucity of resources may be another reason that common neurological disease of the West is understudied in Pakistan.

Although we did not find new or unusual presentations of MS because of a relatively small study population, we were able to match our results with other national and international studies. Being in a tropical zone it is believed that Pakistani population is immune of this disease while the fact is that, this disease comes in differential diagnosis very late or not at all. Even Western researchers stress to diagnose and institute therapy at primary physician level because treatment that can slow its course appears to be most effective when started early.

Multiple sclerosis is a disease with profound heterogeneity in clinical course, neuro-radiological appearance of the lesion, involvement of susceptibility gene loci and response to therapy. The onset of the disease may be mono symptomatic or multi symptomatic. [(8)] The range of ages we found in our population was between 15-55 years overall, female ages were between 15-47 years and males were in 20-55 years range. In addition to female preponderance, we found that females tend to present early with the symptoms of multiple sclerosis. Our finding was supported by the observations of Asif, McDonnell-G-V et al and Richard-A-R et al, which found that worldwide women are affected more commonly[7,14,15].

Most of the cases we found presented with multiple symptoms i.e. approximately two third of the cases. History of relapses and remissions was encountered so frequently that only five patients had history of persistent symptoms or first ever episode. A large number of patients encountered with relapses and remissions may be attributed to improper referrals and delay in diagnosis at non-specialized centers. Additionally few patients who presented for the first time may have had previous symptoms that were either trivial or resolved spontaneously so they did never seek medical advice. Multiple sclerosis being a chronic condition with symptoms that wax and wane, patients loose faith in physicians and are diverted to spiritual healers. Raza-S-Q et al also reported high frequency of patients with relapsing and remitting multiple sclerosis. According to Richard-A-R et al, relapsing remitting disease is the most common and these patients respond well to the treatments available[15].

Amongst symptoms weakness of limbs was more common and we found para-paresis, quadri-paresis, hemi-paresis and mono-paresis in descending order of frequency i.e. most of the

patients who presented to us with weakness had para- paresis. Very few presented with mono-paresis.

Shahid-J et al and Raza-S-Q et al reported weakness as the major complaint in a much larger group. [8, 12] However, in their study specific segregation according to area involved was not found. This may be due to the fact that their study was based on MRI findings and not concerned with symptomatology.

Visual disturbance was next to weakness and we found it in more than half of the patients. We found optic neuritis manifesting as double vision (diplopia), blurring of vision, progressive loss of vision very frequently and nystagmus not uncommon. In contrast, Raza-S-Q et al reported visual disturbance in less then half of the toll they enrolled for study. They segregated ocular disturbance into nystagmus, diplopia and blurred vision in increasing order of frequency. Shahid-J et al reported high prevalence of ocular disturbance and nystagmus[12,8].

Finding of Raza-S-Q of ocular disturbance in smaller number of patients may be because unilateral problem may go unnoticed by patients and doctor as well. In addition, Salmovitis et al reported that one third of MS patients with optic neuritis recover completely and most of the remaining ones improve significantly, even those with profound visual loss and pallor of the optic disc[16].

Dale-R-C et al compared presentation of acute disseminated encephalitis, multi-phasic disseminated encephalitis and multiple sclerosis. They found predemyelinating infectious disease, polysymptomatic presentation, pyramidal signs, encephalopathy and bilateral optic neuritis common in these conditions and unilateral optic neuritis in multiple sclerosis only[17].

In our study, a good number of patients had urinary incontinence. As per Shahid-J et al, this symptom is prevalent in multiple sclerosis. They report this problem in 82% of patients and this may occur late in the course of disease. Most of our study population had early disease, so if followed long term, may develop urinary incontinence and alter our figures. Bladder dysfunction includes hesitancy, urgency, frequency and incontinence. These occur commonly in spinal cord involvement in males and are often associated with impotence, a symptom that the patient may not report unless specifically questioned in this regard[13].

In addition to symptoms, signs found were eye changes, increased tone, extensor plantars and clonus. We found increased tone and extensor planters in most of the patients. Shahid-J et al also reported similar proportions but Raza-S-Q et al reported extensor plantar response in fewer patients. This variation in Raza's study and ours may be a limitation due to small sample size and different horizons of study.

Investigative modalities available for diagnosing multiple sclerosis are MRI, visual evoked response and oligoclonal bands in CSF. Due to paucity of resources, we remained limited to MRIs. Western authors have considerable confidence in the sensitivity of MRI in revealing plaques of multiple sclerosis. Their trust in MRI is evident from this statement "Brain MRI has emerged as the most sensitive investigation to detect demyelination in MS"[10].

We found that the majority of our patients had plaques revealed by MRI; only a few patients had unremarkable MRI study. In these patients, we solely depend on history and clinical features. This pit fall may be because MRI was done too early or patients were treated. Capra et al report that radiological resolution of acute MS plaques typically occurs over a period of at least 6-8 weeks[11].

Werrings' findings indicate that new focal lesions associated with frank blood brain barrier leakage are preceded by subtle progressive alteration in tissue integrity beyond the resolution of conventional MRIs[18].

Peri-ventricular plaques were revealed by MRI in approximately half of the population. This was followed by spinal cord lesion, cerebellar lesion, optic nerve involvement and brainstem hyper-intensity signals in decreasing frequency. Tan-I-L states "MS lesions follow a specific pattern with most of the lesions in the peri-ventricular region and in deep white matter"[9]. Raza-S-Q et al and Dale et al supported our finding with a similar pattern[12,17].

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