

# Isolated facial palsy in Iranian multiple sclerosis patients

Akbar Soltanzadeh, Maryam Sharifi, Yashar Ilkhchoui, Hajir Sikaroodi

Dr. Ali Shariati Hospital, Tehran University of Medical Science, Tehran, Iran

## Abstract

According to the World Health Organization, the prevalence of multiple sclerosis (MS) in Iran is 4 in 100,000. One of MS manifestations is peripheral facial palsy. There has not been any study of the prevalence of facial palsy secondary to MS in Iran. Therefore we conducted a retrospective descriptive analytical cross sectional study in which we reviewed the medical records of all patients diagnosed with MS who visited the neurology clinic between years 1991 and 2007. One thousand and sixty nine patients were studied and among them 53 patients (5%) had isolated facial palsy. In 22 patients (2.1%), isolated facial palsy occurred as the first MS clinical manifestation. In these patients, the interval to the second neurological symptom was 52 months. We compared the occurrence of other neurologic manifestations in patients with and without facial palsy. Facial numbness, internuclear ophthalmoplegia, gustatory disturbance and pyramidal disorders were significantly more prevalent in patients with facial palsy. In conclusion, isolated facial palsy occurs in about 5% of MS patients in Iran. It may rarely be the presenting feature of MS.

## INTRODUCTION

Multiple Sclerosis (MS) is a chronic autoimmune disease that begins most commonly in young adults and is characterized pathologically by multiple areas of central nervous system (CNS) white matter inflammation, demyelination and glial scarring (sclerosis)<sup>1</sup>, which includes damage to axons, oligodendrocytes and neurons.<sup>2</sup> The age at onset follows a unimodal distribution with a peak between ages 20 and 30 years. In women the incidence of MS is 1.4 to 3.1 times higher than men.<sup>1</sup> The incidence and prevalence of MS varies throughout the world. Unfortunately few studies on MS prevalence have been done in Iran. According to the World Health Organization (WHO), the prevalence of MS in Iran is 4 in 100,000.<sup>3</sup>

The onset of MS can be abrupt or gradual, and in the beginning symptoms could be mild or very severe, and the symptoms vary according to the area of the CNS involved.<sup>1</sup> MS could present with many different neurologic manifestations, one of the symptoms is peripheral facial palsy, which could be the first clinical manifestation or occur during the course of the disease. Unilateral facial weakness is common in MS but complete peripheral 7<sup>th</sup> cranial nerve palsy is rare. On the other hand hemifacial spasm is a rare but characteristic paroxysmal disorder of MS.<sup>1</sup> Peripheral facial palsy is a neurologic symptom with many differential diagnoses; the

most common being idiopathic facial palsy which is called Bell's palsy. In almost all MS related articles, facial weakness has been mentioned as one of symptoms, but the detail is often not described.<sup>4</sup> The most recent case was reported by Topolska and Kulak in 2006. In this report, a 16 year old girl had facial palsy, progressed to transitional sudden hearing loss and transitory vertigo. In audiologic examinations, the stapedia reflex was absent. The diagnosis of MS was made after MRI examination.<sup>5</sup> Another case was reported by Critchley in 2004. This was a 35 year old man who had a pure right sided facial palsy with no sensory abnormalities and a barely perceptible loss of coordination in right upper extremity. Brain MRI revealed multiple white matter lesions and MS diagnosis was confirmed.<sup>6</sup> According to a study by Chemaly *et al* in 2000, the most prevalent oromaxillofacial MS symptoms are trigeminal neuralgia, trigeminal sensory neuropathy and facial palsy.<sup>7</sup> The prevalence of facial palsy in MS patients was said to be 2.6-52% and the prevalence of facial palsy as the first MS symptom was 1-4.8%.<sup>4,8-13</sup> Making the diagnosis of MS in patients presenting with isolated facial palsy as the first clinical manifestation is not easy and requires a high index of suspicion.<sup>8</sup> Jonsson reported a probable MS patient with Bell's palsy with MRI showing pontine lesion.<sup>14</sup> Another case is a 31 year old male with MS admitted with subacute and isolated central facial nerve palsy

reported by Schnorpfel *et al.*<sup>15</sup> Since facial palsy could be the first manifestation of MS, careful follow up of patients who have been diagnosed with Bell's palsy is necessary.

The prevalence of facial palsy in Iranian MS patients is not known. The aims of this study were to determine the prevalence of facial nerve palsy in MS, its prevalence as the first clinical manifestation, the interval between facial nerve palsy as the onset symptom and the subsequent diagnosis of MS, and the relationship of facial nerve palsy with other clinical features.

## METHODS

In this retrospective descriptive analytical cross sectional study, we reviewed the medical records of all patients diagnosed with MS in our neurology clinic between the years 1991 and 2007. This study has been approved by the appropriate ethics committee and all patients gave their informed consent prior to their inclusion in the study. Patients diagnosed with MS according to the Poser's criteria<sup>12</sup>, who had at least four visits in the clinic and who had complete medical record were included. There were 1,600 Iranian MS patients attending the neurology clinic, of these 1,069 patients met the inclusion criteria above and were analysed. The analysis of data was performed with SPSS software (10th edition).

The correlation between variables was tested with Chi-square or Fischer exact test. P values of less than 0.05 were considered significant.

## RESULTS

One thousand and sixty nine patients were studied and among them 53 (5%) had facial palsy. Of those with facial palsy, 41 were females (77.4%). This was not significantly different from the 669 patients (65.6%) without facial palsy ( $p > 0.05$ ). The mean age of MS onset in those with facial palsy was 23 years and for those without was 26.5 years ( $p < 0.05$ ). Isolated facial palsy occurred in 23 patients, 2.1% of all patients and 43.3% of those with facial palsy. In those whose first MS symptom was not facial palsy ( $n = 31$ ), the mean interval between the onset of MS and the occurrence of facial palsy was  $67.5 \pm 49.8$  months (range 1-216 months). In 22 patients (2.1% of all patients and 41.5% of those with facial palsy) facial palsy was the first MS clinical manifestation. In these patients the next symptom occurred  $52.2 \pm 36.5$  months later (range 1-216 months). These symptoms were pyramidal in 5 patients (26.3%), pyramidal and sensory disturbance in 3 patients (15.8%), ataxia and optic neuritis in 2 patients each (10.5%). Comparisons between the patients with facial palsy (53 patients) and those without (1,016 patients) are shown in Table 1.

**Table 1: Comparison between the MS patients with and without facial palsy**

Parameters	With facial palsy, n (%)	Without facial palsy, n (%)	p value
Sensory disturbance	5 (9.4%)	165 (16.2%)	NS
Facial numbness	7 (13.2%)	60 (5.9%)	0.033
Gustatory disturbance	4 (7.5%)	14 (1.4%)	0.010
Pyramidal disorders	7 (13.2%)	195 (19.2%)	0.022
Ataxia	9 (17%)	148 (14.5%)	NS
Vertigo	1 (1.9%)	34 (3.3%)	NS
Nystagmus	7 (13.2%)	138 (13.6%)	NS
Diplopia	12 (22.6%)	260 (25.6%)	NS
Optic neuritis	7 (13.2%)	138 (13.6%)	NS
Internuclear ophthalmoplegia	4 (7.5%)	22 (9.2%)	0.036
Periauricular pain & headache	2 (3.8%)	50 (4.9%)	NS
Urinary incontinence	2 (3.8%)	21 (2.1%)	NS
Diabetes mellitus	0 (0%)	20 (2.0%)	NS

NS = not significant

## DISCUSSION

There are few studies on facial palsy in MS patients, with the prevalence of facial palsy in MS varies widely in different studies, from 2%<sup>12</sup> to 52%.<sup>13</sup> It was 2.6% in a study by Kurtzke *et al*<sup>12</sup>, 10% in Bonduelle *et al*<sup>4</sup>, 19.6% in Fukazawa *et al*<sup>8</sup>, 20% in Shibasaki *et al*<sup>10</sup> and more than 52% in an autopsy study by Carter *et al*<sup>13</sup>. Our prevalence of 5% in this retrospective study on a large number of Iranian MS patients is at the lower range. The prevalence of facial palsy as the first clinical manifestation of MS is rather consistent over many studies; 1% in Kelly *et al*<sup>9</sup>, 2.1% in Kurtzke *et al*<sup>12</sup>, 3% in Shibasaki *et al*<sup>10</sup>, 4% in Hung *et al*<sup>11</sup>, 4.7% in Fukazawa *et al*<sup>8</sup>, 4.8% in Bonduelle *et al*<sup>4</sup> 4.8%, and 2.1% in this study. Our figure is similar to other studies. Thus, isolated facial palsy is not an uncommon feature of MS; it may be the presenting feature in up to 5% of patients. It is difficult to differentiate Bell's palsy from isolated facial nerve palsy during the first attack of MS, with the diagnosis of MS becoming more obvious with subsequent clinical course. In our patients, the interval to second neurological symptom was 52 months. A diagnosis of "Bell's palsy" may thus rarely be a harbinger of MS.

We found that the onset age of MS patients with facial palsy was significantly younger than those without facial palsy, 23 years for patients with facial palsy, and 26.5 years for those without. There is no obvious explanation for this difference. There are very few studies on associated neurologic manifestations in MS patients with facial palsy, though some case reports are available. Topolska and Kulak reported transitional sudden hearing loss and transitory vertigo accompanying facial palsy in a 16 year-old female MS patients.<sup>5</sup> Critchley reported a 35 year old MS male patient with facial palsy and a barely perceptible loss of coordination in his right upper extremity.<sup>6</sup> Jonsson reported facial palsy accompanying gustatory disturbance and periauricular pain in a young man who was later diagnosed with MS.<sup>14</sup> In this study we compared the occurrence of other neurologic manifestations in MS patients with and without facial palsy during the course of MS and we found that facial numbness, internuclear ophthalmoplegia, gustatory disturbance and pyramidal disorders were significantly more prevalent in MS patients with facial palsy. This probably reflects pathological involvement of the brainstem. More clinical and imaging studies on MS patients with facial palsy may further clarify the underlying pathology.

## REFERENCES

1. Miler J. Demyelinating diseases. In: Rowland PL, editor: Merritt's neurology. 10<sup>th</sup> ed. USA: Lippincott Williams &Wilkins, 2000:773-96.
2. Coyle Pk, Hammad MA. General background: Atlas of multiple sclerosis.1st ed. London: Science Press 2003: 1-15.
3. Ale-Yasin H, Sarai A, Alaeddini F, *et al*. Epidemiology of multiple sclerosis in Iran: A study of 318 cases (1998). <http://www.ams.ac.ir/AIM/0251/aim025124.Htm>
4. Compston A, Ebers G, Lassmann H, McDonald I, Matthews B, Wekerle H. Clinical signs and symptoms. In: McAlpine's Multiple sclerosis. 3<sup>rd</sup> ed. China: Churchill Livingstone 1999:182-3.
5. Topolska MM, Kulak W. Facial palsy as the first syndrome of multiple sclerosis in 16 years old girl. *Otolaryngol Pol* 2006; 60(3):439-42.
6. Critchley EP. Multiple sclerosis initially presenting as facial palsy. *Aviat Space Environ Med* 2004; 75(11): 1001-4.
7. Chemalty D, Lefrancois A, Perusse R. Oral and maxillofacial manifestations of multiple sclerosis. *J Can Dent Assoc* 2000; 66(11):600-5.
8. Fokazawa T, Moriwaka F, Hamada k. Facial palsy in multiple sclerosis. *J Neurol* 1997; 244(10): 631-3.
9. Kelly R. Clinical aspects of multiple sclerosis. In: Vinken PJ, Bruyn GW, Klawans HL, Koetsier JC, eds: Demyelinating disease. 3<sup>rd</sup> ed. Amsterdam: Elsevier, 1985;53.
10. Shibasaki H, McDonald WI, Kuroiwa Y. Racial modification of clinical picture of multiple sclerosis between British and Japanese patients. *J Neurol Sci* 1981; 49(5):253-71.
11. Hung TP, landsborough D, Hsi MS. Multiple sclerosis amongst Chinese in Taiwan. *J Neurol Sci* 1976; 27(4): 459-84.
12. Kurtzle JF, Beebe GW, Nagler B. Studies on natural history of multiple sclerosis 4: clinical features of the onset bout. *Acta Neurol Scand* 1968; 44(7):467-99.
13. Carter S, Sciarra D, Merrit HH. The course of multiple sclerosis as determined by autopsy proven cases. *Res Pub Assoc Res Nervous Ment Dis* 1950; 28(5):471-511.
14. Jonson I, Thomas KA, Stenquist M, *et al*. Acute peripheral facial palsy stimulating Bell's palsy in case of probable multiple sclerosis with a clinically correlated transient pontine lesion on magnetic resonance imaging. *ORL J Otorhinolaryngol Relat Spec* 1991; 53(6):362-5.
15. Schnorpfeil F, Braune HJ. Nuclear facial palsy in multiple sclerosis: a case report. *Electromyogr Clin Neurophysiol* 1997; 37(4): 207.