



Isolated abducens and facial nerve palsies due to a facial collicular plaque in multiple sclerosis

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as cases with MS based on established criteria. None of these patients was labelled or diagnosed as having MS. Clinical and radiological follow-up of these patients will be helpful in characterising these lesions.

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REFERENCES

1. **Okuda DT**, Mowry EM, Beheshtian A, *et al.* Incidental MRI anomalies suggestive of multiple sclerosis: the radiologically isolated syndrome. *Neurology* 2009;**72**:800–5.
2. **Bourdette D**, Simon J. The radiologically isolated syndrome: is it very early multiple sclerosis? *Neurology* 2009;**72**:780–1.
3. **Lebrun C**, Bensa C, Debouverie M, *et al.* CFSEP. Unexpected multiple sclerosis: follow-up of 30 patients with magnetic resonance imaging and clinical conversion profile. *J Neurol Neurosurg Psychiatr* 2008;**79**:195–8.
4. **Wasay M**, Khatri IA, Khealani B, *et al.* MS in Asian countries. *Int MS J* 2006;**13**:58–65.
5. **Wasay M**, Ali S, Khatri IA, *et al.* Multiple sclerosis in Pakistan. *Mult Scler* 2007;**13**:668–9.
6. **Barkhof F**, Filippi M, Miller DH, *et al.* Comparison of MRI criteria at first presentation to predict conversion to clinically definite multiple sclerosis. *Brain* 1997;**120**:2059–69.

Neurological picture

Isolated abducens and facial nerve palsies due to a facial collicular plaque in multiple sclerosis

Multiple sclerosis (MS) is an autoimmune demyelinating disease of the central nervous system. Although brainstem involvement is common, isolated cranial nerve palsies, mostly caused by infranuclear intramedullary lesion, is rare in MS patients.^{1–4}

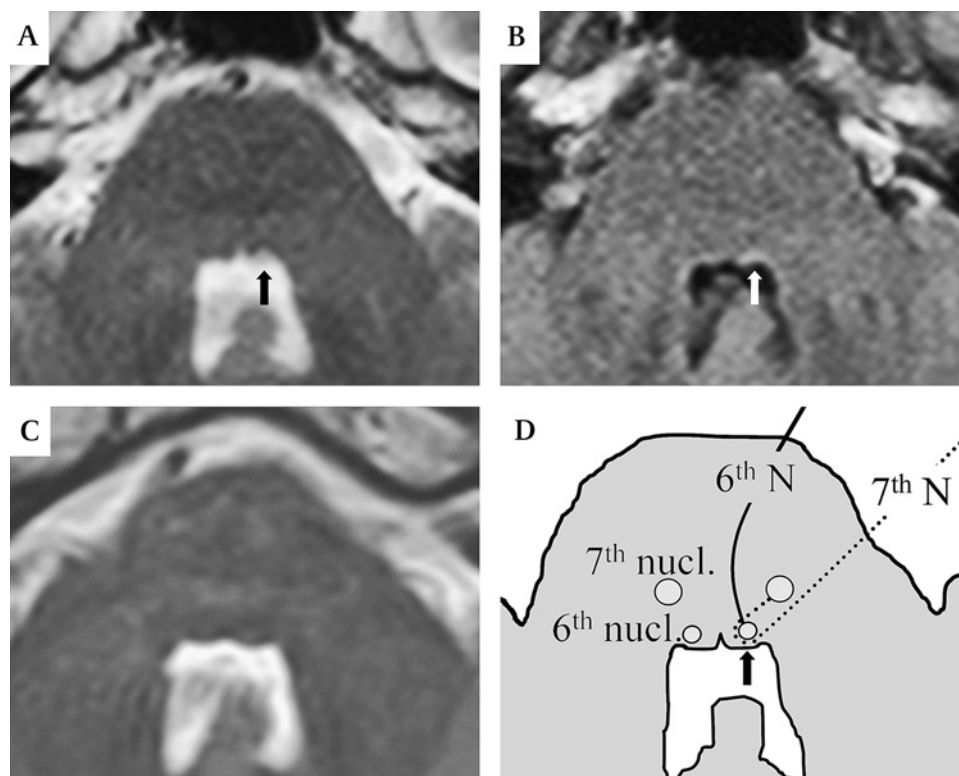
In this study, we describe an MS patient who presented with isolated abducens and facial nerve palsies due to a small facial collicular lesion, and provide an anatomical review of the lesion in this case.

A 63-year-old Japanese woman had experienced three demyelinating episodes with different spinal lesions since the age of 33 years. Brain MRI revealed some cerebral plaques, and rela-

psing—remitting MS was diagnosed. She consulted us after she had noted acute diplopia and left orbicularis oris muscular weakness for 3 days. Neurological examination revealed palsy of the sixth and peripheral seventh cranial nerves on the left side with no other neurological deficits. She had no history of diabetes. We suspected that the symptoms occurred as a relapse of MS, and treated her with high dose intravenous methylprednisolone for 3 days which led to complete relief from the symptoms within a month. Three weeks after the onset of symptoms, brain MRI revealed a small isolated high intensity lesion at the left facial colliculus on T2 weighted and FLAIR images without gadolinium enhancement (figure 1A and B). The lesion was not identified on MRI scans performed 1 month before the onset of the present symptoms (figure 1C).

Isolated cranial nerve palsies are rare clinical findings, occurring in 10.4% of MS patients; the fifth cranial nerve is most frequently involved (4.8%), followed by the seventh (3.7%), sixth (1.0%), third (0.4%) and eighth (0.4%) nerves.¹ Although

Figure 1 (A, B) Brain MRI performed 3 weeks after onset showed a high intensity lesion on T2 weighted (A) and FLAIR (B) images of the left facial colliculus (arrows). (C) The left facial collicular lesion was not identified on the brain MRI performed 1 month before onset. (D) The scheme of the lower pons. The abducens nucleus is situated in the dorsal pontine tegmentum and the facial nerves from the nucleus run dorsally and turn behind the abducens nucleus. Black arrow indicates the lesion of our case, localised at the left facial colliculus. 6th N, abducens nerve; 7th N, facial nerve; 6th nucl., abducens nucleus; 7th nucl., facial nucleus.



Neurological picture

the combination of these cranial nerve palsies in MS is relatively rare, peripheral facial weakness in MS patients is sometimes accompanied by other cranial nerve palsies, including that of the abducens nerve.⁵ MRI is the most sensitive method of depicting dissemination in space but may fail to confirm corresponding brainstem lesions in some patients. The prevalence of MRI brainstem lesions in cranial nerve involvement is low; only 30–54% in MS patients with isolated cranial nerve palsies.^{1–4}

Our patient presented a combination of sixth and seventh nerve palsies due to a facial collicular lesion. The abducens nucleus is situated in the lower dorsal pontine tegmentum, and the facial nerves from the nucleus run dorsally and turn behind the abducens nucleus (figure 1D). Hence, a lesion near the abducens nucleus can also affect the ipsilateral intramedullary facial nerve.

The abducens nucleus includes not only motoneurons that project axons to the ipsilateral lateral rectus muscle but also internuclear neurons that project axons via the medial longitudinal fasciculus to the rectus medialis subnucleus of the contralateral oculomotor nucleus complex. Thus, in the present case, a small demyelinated facial collicular plaque apparently involved the infranuclear nerve of the abducens nucleus and the facial nerve fibres.

In conclusion, the MS patient described in our study presented with isolated sixth and seventh nerve palsies with no other neurological symptoms and abnormalities of the left facial colliculus on the brain MRI. To our knowledge, such a condition with MRI confirmed lesion has never been reported in MS. Although isolated cranial nerve palsies are rare symptoms in MS, physicians should be aware that MS may be a cause of isolated cranial nerve palsies. In particular, the combination of abducens and facial

palsies would indicate a lesion localised at the facial colliculus, and appropriate neuroimaging studies should be performed.

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Competing interests None.

Patient consent Obtained.

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REFERENCES

1. **Zadro I**, Barun B, Habek M, *et al*. Isolated cranial nerve palsies in multiple sclerosis. *Clin Neurol Neurosurg* 2008;**110**:886–8.
2. **Barr D**, Kupersmith MJ, Turbin R, *et al*. Isolated sixth nerve palsy: an uncommon presenting sign of multiple sclerosis. *J Neurol* 2000;**247**:701–4.
3. **Szabo K**, Kern R, Griebe M, *et al*. Magnetic resonance imaging demonstration of fascicular inflammation in sixth nerve palsy as the presenting symptom in multiple sclerosis. *Eur Neurol* 2008;**60**:92–4.
4. **Thömke F**, Lensch E, Ringel K, *et al*. Isolated cranial nerve palsies in multiple sclerosis. *J Neurol Neurosurg Psychiatry* 1997;**63**:682–5.
5. **Bonduelle M**, Albaranes R. Statistical study of 145 cases of multiple sclerosis. *Sem Hop* 1962;**38**:3762–73.