

Unusual presentation of more common disease/injury

Fluctuating neurological symptoms in demyelinating disease mimicking an acute ischaemic stroke

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Summary

Fluctuating neurological symptoms in an older patient most often point towards a cerebral ischaemic pathology. The authors present a 66-year-old male patient suffering from a fluctuating right hemiparesis, with an initial diagnosis of ischaemic stroke. The brain and cervical MRI showed demyelinating lesions with abnormal cerebrospinal fluid (CSF) and visual evoked potentials and the patient was successfully treated with intravenous corticosteroids. Demyelinating disease in older patients could be more frequent than expected. It should be considered even in older patients with fluctuating neurological symptoms. MRI and CSF analysis are critical to provide an accurate diagnosis.

BACKGROUND

The case presented herein emphasises the importance of an accurate diagnosis for proper patient management.

CASE PRESENTATION

A 66-year-old male, presenting smoking and arterial hypertension as cerebrovascular risk factors, was admitted to our hospital in April 2010. He reported a right hemiplegia during the night, which was subsequently resolved. Five hours later, he reported a sudden right hemiparesis and dysarthria with later improvement. He was referred to our emergency department (ED) where he suffered a new episode. Neurological status at admission showed a decreased verbal fluency and a slight right hemiparesis with a normal general examination. He also described a fluctuating altitudinal defect in the right eye with normal ophthalmological examination in the ED. Brain CT showed a left subcortical hypodensity lesion where ischaemic aetiology was assumed (figure 1A). The patient was excluded from intravenous thrombolysis. Left internal carotid pathology was suspected and anticoagulation was initiated. In the following days a complete neurovascular study was performed. Intra and extracranial CT angiography showed no abnormalities and cardiological assessment was normal.

The patient continued to present a slight right hemiparesis during hospitalisation, referring a progressive visual worsening in the right eye and right hypoacusia. An ophthalmological examination (normal fundoscopic exam and optical coherence tomography) was repeated and showed blindness. The brain MRI showed several high-intensity periventricular and subcortical right temporal lesions (figure 1C,D), with right optic nerve (figure 2A) and right protuberancial hyperintensities (figure 2B,C). The cervical MRI showed two hyperintense cervical lesions (figure 2D). MRI diffusion sequences were normal

(figure 1B). The visual evoked potentials showed a prolonged latency in P100 on the right eye. The brainstem auditory potentials showed a prolonged latency of III–V interval on the right side. Determination of immunoglobulin components, antinuclear antibodies, anticytoplasmic antibodies, anticardiolipin antibodies, anti- β -glycoprotein, lupic anticoagulant, rheumatoid factor and HLA-B5 were negative or normal. Blood infectious assessment of Epstein–Barr virus, Echovirus, Varicella zoster, Cytomegalovirus, Herpes simplex, *Borrelia burgdorferi*, Brucella, Coxsackie, syphilis and HIV were negative. Cerebrospinal fluid (CSF) analysis revealed normal cell counts, glucose and protein levels, with negative infectious and cytological results. CSF electrophoresis showed 10–12 Ig G oligoclonal bands, not present in the patient's serum. So clinically isolated syndrome (CIS) was diagnosed and intravenous methylprednisolone treatment was initiated (1 g/day for 5 days) with a subsequent progressive tapering. He recovered all neurological deficits. The patient has remained asymptomatic since then as he is controlled by interferon β -1a. Due to the difficulty in follow-up a control neuroimaging was not performed.

DISCUSSION

Cerebral ischaemic pathology may present itself as fluctuating neurological symptoms suggesting unstable large- or small-vessel pathology. The age and morbidity factors, like arterial hypertension, hyperlipidemia and diabetes mellitus, which increase with age, would lean towards this diagnosis. Nevertheless, the paradigm of demyelinating disease, multiple sclerosis (MS), typically presents itself as recurrent episodes of neurological dysfunction in young people.¹ The accepted age of MS onset is between 10 and 59 years inclusive,^{2–3} but the onset of MS over 50 years is considered late MS onset.^{4–5} In these patients, the condition presents itself in the form of motor or cerebellar

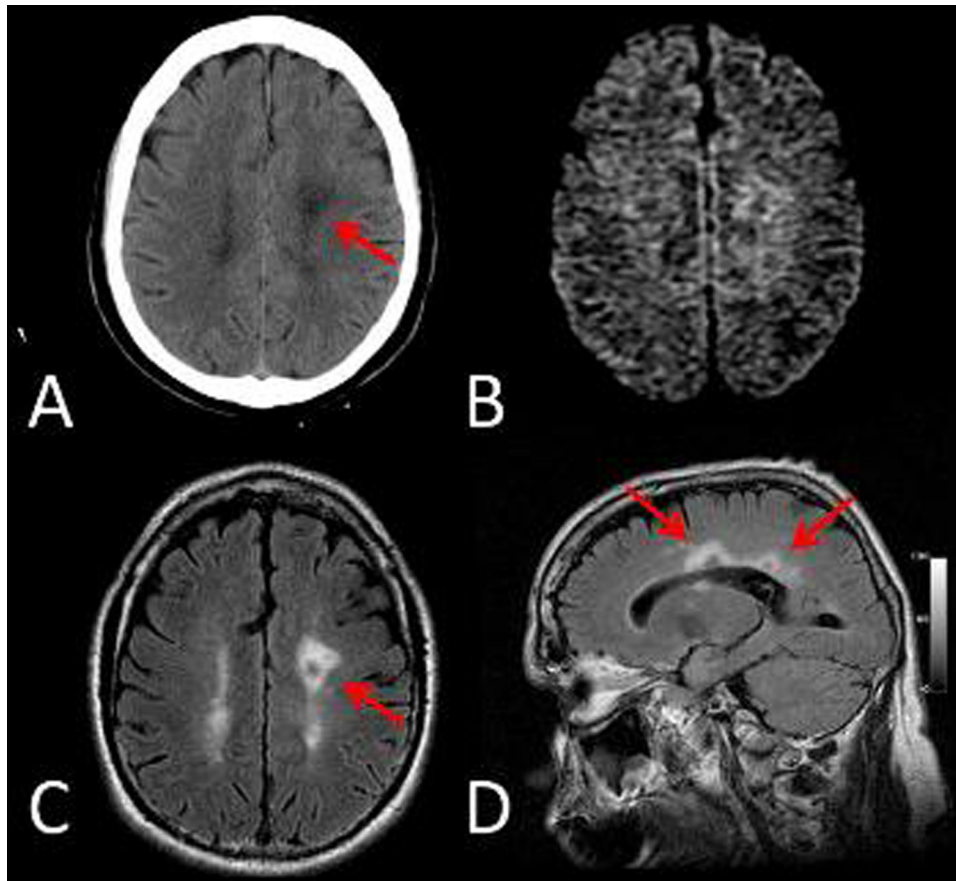


Figure 1 (A) Brain CT at admission showed a left subcortical lesion suggesting an ischaemic stroke. (B) Brain MRI showed normal diffusion sequences. (C and D) Brain MRI (axial and sagittal fluid attenuated inversion recovery T2 sequences) showed several subcortical periventricular and pericallosal hyperintensities.

impairment,⁶ with more frequent predominant involvement of the spinal cord⁷ and visual disturbances occurring very rarely.⁶

A sudden or quickly neurological deficit may be observed in MS. And although uncommon, hemiplegia may occur with startling suddenness.⁸ However, scarce data are found in the literature regarding fluctuating symptoms in the MS, and our review revealed only the case of a young patient suffering from brief hemiparetic attacks with the diagnosis of MS.⁸⁻⁹ In such cases, a wide differential diagnosis may be made including ischaemic cerebrovascular events.⁸

The correct diagnosis of these two entities is essential for an acute management. Antithrombotic treatment, including recombinant tissue plasminogen activator, is the cornerstone of ischaemic cerebrovascular pathology, and could be harmful in the case of demyelinating pathology. On the contrary, intravenous corticosteroid treatment, the cornerstone of a demyelinating disease, could be damaging in the case of ischaemic cerebrovascular pathology.⁷

Our patient presented fluctuating motor symptoms, suggesting internal carotid stenosis and was diagnosed of ischaemic stroke due to his age, cerebrovascular risk factors and brain CT. Because of the latter, he was excluded from intravenous thrombolysis. Surprisingly, the brain and cervical MRI showed typical demyelinating lesions. Oligoclonal bands in CSF and disturbances in the visual evoked potentials contributed to the diagnosis of CIS. To our knowledge, it is the first report of an older patient with

demyelinating pathology and fluctuating symptoms mimicking an acute stroke.

Learning points

- ▶ In conclusion, demyelinating disease in older patients could be more frequent than expected. It should be considered even in elderly patients with fluctuating neurological symptoms mimicking an acute stroke. Brain MRI and CSF analysis and visual evoked potentials are the most relevant tools to clarify the diagnosis and choose the most appropriate treatment. The case presented herein emphasises the importance of an accurate diagnosis for proper patient management.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Lublin FD**, Miller AE. Multiple sclerosis and other inflammatory demyelinating diseases of the central nervous system. In: Bradley WG, Daroff RB, Fenichel GM, Jankovic J, eds. *Neurology in Clinical Practice*. Fifth Edition. Philadelphia, PA: Butterworth Heinemann 2008:1583–614.
2. **McDonald WI**, Compston A, Edan G, *et al*. Recommended diagnostic criteria for multiple sclerosis: guidelines from the International Panel on the diagnosis of multiple sclerosis. *Ann Neurol* 2001;**50**:121–7.

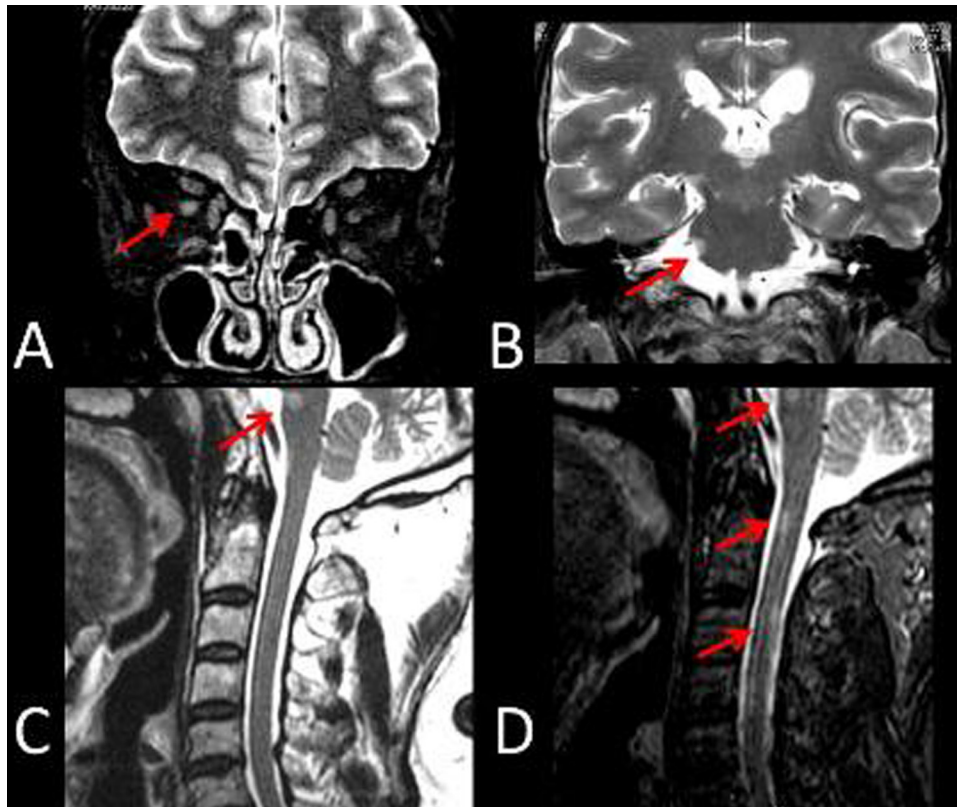


Figure 2 (A) Brain MRI (coronal short TI inversion recovery (STIR) sequences) showed a right optic nerve hyperintensity. (B and C) Brain MRI (coronal T2 sequences) and cervical MRI (sagittal T2 sequences) showed a right protuberancial hyperintensity. (D) Cervical MRI (sagittal STIR sequences) showed a C2 and C3 hyperintensities.

3. **Poser CM**, Paty DW, Scheinberg L, *et al*. New diagnostic criteria for multiple sclerosis: guidelines for research protocols. *Ann Neurol* 1983;**13**:227–31.
4. **Friedman AP**, Davison C. Multiple sclerosis with late onset of symptoms. *Arch Neurol Psychiatry* 1945;**54**:348–60.
5. **Noseworthy J**, Paty D, Wonnacott T, *et al*. Multiple sclerosis after age 50. *Neurology* 1983;**33**:1537–44.
6. **Martinelli V**, Rodegher M, Muiola L, *et al*. Late onset multiple sclerosis: clinical characteristics, prognostic factors and differential diagnosis. *Neurol Sci* 2004;**25** (Suppl 4):S350–5.
7. **Hooge JP**, Redekop WK. Multiple sclerosis with very late onset. *Neurology* 1992;**42**:1907–10.
8. **Matthews B**. Symptoms and signs of multiple sclerosis. In: Compston A, Ebers G, Lassmann H, McDonald I, Matthews B, Wekerle H, eds. *McAlpine's Multiple Sclerosis*. Third Edition. London: Churchill Livingstone 1998:145–90.
9. **Cowan J**, Ormerod IE, Rudge P. Hemiparetic multiple sclerosis. *J Neurol Neurosurg Psychiatr* 1990;**53**:675–80.

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