SHORT REPORT

Micrographia associated with a parietal lobe lesion in multiple sclerosis

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Abstract
The occurrence of micrographia in a 52 year old woman two years after an isolated episode of painful sensory disturbance led to the diagnosis of multiple sclerosis. Her handwriting returned to normal after a course of intravenous methylprednisolone. Previous reports of movement disorders occurring in the context of multiple sclerosis are briefly reviewed. The finding on MRI studies of an enhancing lesion in the dominant parietal white matter supports Kinnier Wilson's suggestion that the anatomical origin of micrographia lies in the cerebral hemisphere rather than the corpus striatum.

With the notable exception of motor symptoms reflecting involvement of the cerebellum and its connections, movement disorders are unusual in multiple sclerosis. Of those which are described, most are positive phenomena, and paroxysmal events, such as the classically described tonic spasms, are seen more commonly than sustained symptoms. We describe the case of a 52 year old woman, in whom the onset of micrographia two years after a spontaneously resolving painful sensory disturbance led to further investigations that confirmed the diagnosis of multiple sclerosis. Treatment with intravenous steroids was accompanied by a rapid resolution of her micrographia.

Case report
A 50 year old right handed woman developed a superficial burning sensation in her right anterior thigh spreading to the suprapubic area, together with hyperpathia, two months after an oophorectomy for benign ovarian cysts. This was unaccompanied by any motor or sphincter symptoms, and there were no objective abnormalities on examination. Investigations, including blood count, erythrocyte sedimentation rate, glucose, liver function, protein electrophoresis, ultrasound scan of pelvis, and MRI of the spinal cord were all normal, and her symptoms resolved spontaneously after three months.

Two years later, two months after minor surgery for a Meibomian cyst, she noticed an abrupt change in her handwriting. Her script had become smaller and less clear; the act of writing had become laborious. Other activities requiring fine finger control, including sewing, tying parcels and peeling vegetables were unaffected, but she had noticed a slight deterioration in the speed and accuracy of her right hand using a word processor keyboard.

At this time, general physical examination was unremarkable, and there were no neurological abnormalities in the cranial nerves or in the lower limbs. Power, tone and tendon reflexes, and sensation were all normal. Language function was entirely normal, as were other tests of higher mental function. Her handwriting was slow and small, however (fig 1), with a tendency to decrease further in size as she continued writing; she was unable to increase the size to command. Copying tests revealed no constructional apraxia and there were no other visuospatial abnormalities. There was very slight impairment of rapid alternating movement of the right hand and finger. Tests of mimicking, mime, and object use revealed no apraxia. Facial expression was normal, there was no glabellar tap response, no bradykinesia, and her gait was normal.

Routine blood tests were again normal or...
negative, including autoimmune and treponema
erosive tests. Visual, auditory, and somatosensory evoked potentials (from both upper
lips) were also normal. An MRI scan
er her head showed multiple T2 high, T1 low
signal lesions in the white matter of both
cerebral hemispheres, however, particularly
in the periventricular areas. The largest lesion,
in the left parietal white matter, showed rim
enhancement (fig 2); it did not involve the
basal ganglia. None of the lesions exhibited a
mass effect, and the appearances were inter-
pred as being strongly suggestive of multi-
ple sclerosis.

A course of intravenous methyprednisolone
(1 g daily for three days) was associated tem-
porarily with a good improvement in the size
and fluency of her handwriting (fig 1 (bot-
tom)); this improvement has thus far (now six
months after her original symptoms) been
maintained. Furthermore, repeated examina-
tions have consistently continued to fail to
reveal the emergence of any parkinsonian
signs.

Discussion

The clinical picture of an episode of painful
sensory disturbance spontaneously resolving
over two to three months, followed by an
episode of motor disturbance that resolved
after a course of high dose intravenous
steroids, is highly suggestive of multiple sclerosis,
a diagnosis strongly supported by the
MRI abnormalities.

Extrapyramidal movement disorders are
unusual in multiple sclerosis; of these, nega-
tive phenomena are rarer still, although
paroxysmal akinetorr are rare. Mao
et al reported two cases with tremor, brady-
kinesia, hypomimia, and rigidity, one of
whom was treated (unsuccessfully) with intra-
avenous steroids, and Vieregge et d also
reported two cases of parkinsonism associated
with multiple sclerosis; both had hyperintense
lesions on spin-echo MRI that involved the
basal ganglia, and both made a significant
response to intravenous steroid treatment.

Our case was notable for the occurrence
of micrographia without other features of
parkinsonism. Micrographia was first
described by Pick in 1903; the association
with parkinson’s disease was soon
recognised,7 and has since been accepted as a
feature of diagnostic significance.8 Kinnier
Wilson described cases of micrographia in
cerebral syphilis and in arteriosclerosis, how-
ever, with subsequent postmortem studies
revealing the absence of involvement of the
corpus striatum.9 He also cited cases of severe
postencephalitic parkinsonism with profound
immobility and rigidity and yet normal
handwriting, and of severe micrographia in
a female with otherwise very minor
parkinsonian symptoms.

McClenann et d have more recently con-
irmed that “micrographia is totally separable
from tremor and rigidity”, basing their con-
clusion on a detailed study of 95 patients with
micrographia associated with parkinsonism.10
They found a lack of correlation between
micrographia and the side, severity, and dura-
tion of classical parkinsonian features; micro-
graphia often preceded other manifestations
by as much as three to four years, and exhib-
ted a very variable response to L-dopa treat-
ment, by contrast with its more predictable
beneficial effect on other symptoms and
signs.

Court described an association of depres-
sion with micrographia,11 although
McClenann’s group found that “elevation or
depression of mood...did not...have much
effect on micrographia” — which they also
noted did not improve with antidepressant
treatment.10

Although McClenann et al do not specu-
late on the anatomical substrate for micro-
graphia, Kinnier Wilson concluded that
abnormalities in the cerebral cortex were
much more likely to underly micrographia
than disorders in the corpus striatum. The
matter remains unresolved: MartineVil
et al recently reported a patient with isolated
micrographia associated with a lenticular
haematoma.12 Our case supports Kinnier
Wilson’s suggestion, as MRI scanning
revealed no abnormality in the basal ganglia
but a large lesion in the dominant parietal
white matter. The lesion enhanced with
naxolinum so that it is likely to reflect active
disease13 and to be responsible for her
symptoms.

1 Mathews WB, ed. McAlpine’s multiple sclerosis. 2nd ed.
2 Mao CC, Gancher ST, Herndon RM. Movement dis-
3 Fog T, Lannemann F. The course of multiple sclerosis.
4 McAlpine D, Lumsden CE, Acheson ED. Multiple sclerosis:
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9 Kinnier Wilson SA. The Croonian Lectures on some disorders of motility and of muscle tone, with special reference to the tongue. Lancet 1923;3:1–10

Amnesia

Amnesia that includes the loss of memory for personal details seldom causes the neurologist diagnostic difficulty. The condition is not related to organic brain disease and it is perhaps surprising that novelists continue to regard it as such. Sometimes, for example with Saki, the problem is pursued for its comic possibilities. The whole of Rebecca West’s novel, The return of the soldier, is constructed around the premise of memory loss for personal affairs. Dickens’s characterisation is famous in a scene in A Manette appears to retain some insight into his behaviour; one would almost consider the problem to be one of malingering, though clearly that was never Dickens’s intention.

Charles Dickens, 1859. A tale of two cities

Miss Pross, with a terrified face, was at her ear. “O me, O me, all is lost!” cried she, wringing her hands. “What is to be told to Ladybird? He doesn’t know me, and is making shoes!” . . . “Doctor Manette. My dear friend, Doctor Manette!” The Doctor looked at him for a moment—half enquiringly, half as if he were angry at being spoken to—and bent over his work again.

So far as it was possible to comprehend him without overstepping those delicate and gradual approaches which Mr. Lorry felt to be the only safe advance, he at first supposed that his daughter’s marriage had taken place yesterday. An incidental allusion, purposely thrown out, to the day of the week, and the day of the month, set him thinking and counting, and evidently made him uneasy. In all other respects, however, he was so composedly himself, that Mr. Lorry determined to have the aid he sought. And that aid was his own.

“My dear Manette, it is the case of an old and prolonged shock, of great acuteness and severity to the affections, the feelings, the— as you express it—the mind. The mind. It is the case of a shock under which the sufferer was borne down, one cannot say for how long, because I believe he cannot calculate the time himself, and there are no other means for getting at it. In the case of a shock from which the sufferer recovered, by a process that he cannot trace himself—but, unfortunately, there has been”—he paused and took a deep breath—“a slight relapse.”

George Eliot, 1860, The mill on the floss

“Dr. Turnbull thought him a deal better this morn-

ing,” said Mrs Tulliver; “he took more notice, and spoke to me—but he’s never known Tom yet—looks at the poor lad as if he was a stranger, though he said something once about Tom and the pony. The doctor says his memory’s gone a long way back, and he doesn’t know Tom because he’s thinking of him when he was little.”

Saki, 1914, A holiday task

“It is a curious thing,” said the young woman, “that I should be able to tell you the name of those roses without an effort of memory, because if you were to ask me my name I should be utterly unable to give it to you.” . . .

“Yes,” answered the lady, “I suppose it is a case of partial loss of memory. I was in the train coming down here; my ticket told me that I had come from Victoria and was bound for this place. I had a couple of five-pound notes and a sovereign on me, no visiting cards or any other means of identification, and no idea as to who I am. I can only hazily recollect that I have a title; I am a Lady Somebody—beyond that my mind is a blank.” . . .

“Yes, she’s the Lady Champion at golf in my part of the world. An awful good sort, and goes about a good deal in Society, but she has an awkward habit of losing her memory every now and then, and gets into all sorts of fixes.”

Saki, 1923, The disappearance of Crispina Umblerleigh

Her wandering away had been caused by a sudden and complete loss of memory. She usually dressed in the style of a superior kind of charwoman, and it was not so very surprising that she was one, and still less that people should accept her statement and help her to get to work. . . . It was the shock of being patronisingly addressed as “my good woman” by a curate, who was disputing with her where the stove should be placed in a parish concert hall, that led to her sudden restoration of her memory. “I think you forget who you are speaking to,” she observed cruelly, which was rather unduly severe, considering she had only just remembered it herself.