

Fast micrographia: An unusual but distinctive sign

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Abstract

Fast micrographia is a rare clinical sign, which is reported in patients with pallidal pathology. A 68-year-old male presented with hypophonia and short shuffling gait with decreased arm swing. About 3 weeks before, he had an acute myocardial infarction and a period of hemodynamic and respiratory distress during which he required mechanical ventilatory support. He was found to have a fast handwriting with micrographia from the outset. His rapid alternating hand and finger movements were normal. Magnetic resonance imaging (MRI) of the brain showed features of hypoxic ischemic encephalopathy including hyperintensities on T1 and T2 weighted images in the globus pallidus, and putamen bilaterally.

Key Words

Fast micrographia, globus pallidus hyperintensity, hypoxic ischemic encephalopathy

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A 68-year-old Mr. S.K., diabetic for 15 years, had acute myocardial infarction on March 18, 2012 followed by cardiac arrest and respiratory distress. He was put on mechanical ventilatory support. Two days later, coronary artery bypass graft was done. He was weaned off ventilatory support. About 5 days later, his family members noticed that he was walking slower than before and that his voice volume had decreased. He was also noticed to be doing everything 'fast'.

He was seen by us about 2 weeks after these symptoms started. On examination, he had bradykinesia and rigidity with hypophonia, short shuffling gait, and decreased arm swing while walking. He was able to turn around normally. There was no retropulsion, propulsion, or tremor. Otherwise his neurological examination was normal including higher mental functions, language, cranial nerves, motor power, superficial and deep reflexes, sensory system, and cerebellum. Rapid alternating finger movements were normal. Glabellar tap was normal.

Examination of writing: He was able to hold the pen normally. His writing was fast, with micrographia from the outset with significant overwriting. The letters did not become

progressively smaller and there was no fatigue. [Figures 1 and 2 for sample of handwriting. Figure 3 for sample of premorbid handwriting].

Magnetic resonance imaging (MRI) brain findings (done on 13th of April): diffusion weighted imaging [Figure 4a and b] showed mild restricted diffusion in the caudate nucleus, putamen, and the cerebral cortex (predominantly frontal) on both sides. T1 weighted imaging [Figure 4c and d] showed hyperintensity in the globus pallidus and putamen bilaterally. T2 weighted imaging [Figure 4e and f] also showed hyperintensity in the putamen and caudate nucleus. These findings were suggestive of hypoxic ischemic encephalopathy.

Discussion

Micrographia is classically associated with Parkinson's disease.

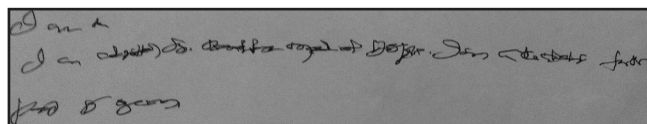


Figure 1: Patients handwriting

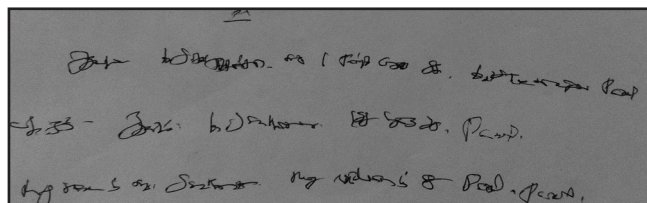


Figure 2: Patients handwriting

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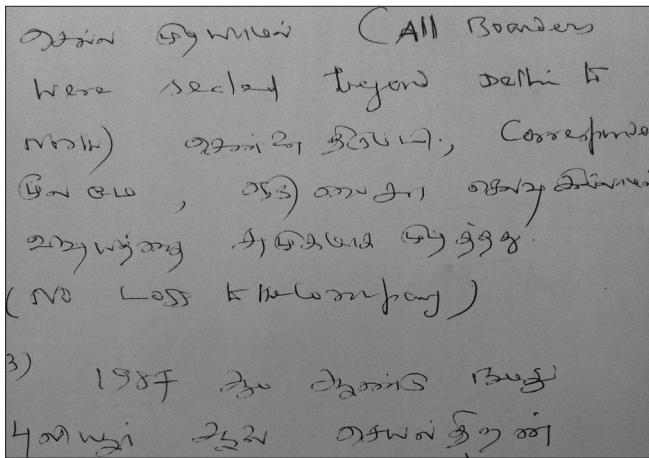


Figure 3: Patients previous handwriting (4 years ago)

Micrographia is also reported in patients with progressive supranuclear palsy, putaminal infarcts,^[1] secondary to lenticular lesions,^[2] and in patients with frontal subcortical infarcts.^[3] In Parkinsons disease patients, the initial size and speed of handwriting are relatively good, but progressively, the writing becomes smaller and slower.

In 2003, Quinn and Kuoppamäki described a quite distinct form of micrographia, the authors termed it as 'fast micrographia'.^[4] 'Handwriting is microscopic from the outset, does not (indeed cannot) become progressively smaller, is accomplished at (astonishingly) normal speed, and does not fatigue. This micrographia can be so marked as to resemble a straight line, so that even the patients are often unable to read what they have written. Whereas the degree of micrographia in Parkinson's disease is usually proportional to the degree of decrement in rate and amplitude of alternating finger movements in the dominant hand, many patients with fast micrographia have completely normal alternating finger movements'.^[4] The authors have observed fast micrographia in case of progressive supranuclear palsy and acquired bilateral lesions of the globus pallidus.^[4] They have proposed that 'the presence of fast micrographia, usually unaccompanied by significant fatiguing or decrement of alternating finger movements, should be considered a useful clinical pointer to the possibility of pallidal pathology'. We meant the glabellar tap was normal and have changed the sentence accordingly. Sample of previous handwriting has been attached. The article has been resubmitted in a more formal language.

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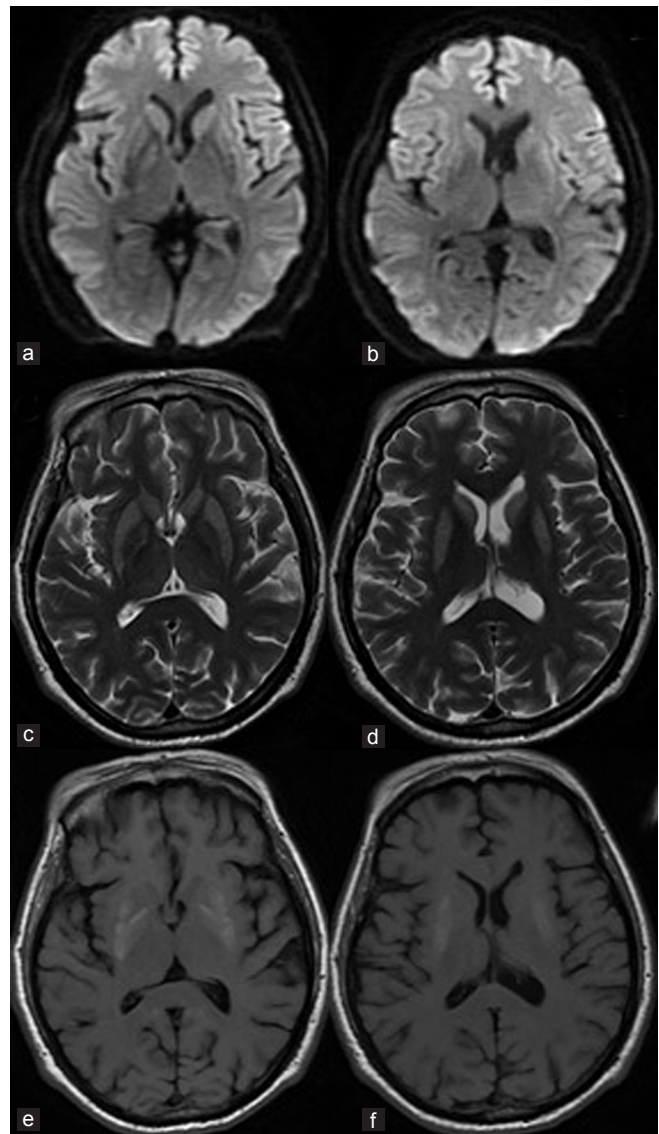


Figure 4: (a), (b) Diffusion weighted imaging. (c) (d) T1 weighted imaging. (e) (f) T2 weighted imaging

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