The importance of the clinical examination

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Speech dysfunction is a major focal neurologic disability. The type of speech abnormality that a patient manifests allows the clinician to localize the lesion. We present a case of a patient who developed acute dysarthria without dysphasia. The CT brain revealed a hematoma in the pre-frontal cortex rather than the motor cortex or sub-cortical tracts. Considering the discrepancy between the clinical findings and the CT brain, an MRI of the brain was performed which, in fact, revealed an acute sub-cortical lesion, which explains the patients symptomatology. This study confirms again the importance of the physical examination in diagnosing neurological diseases rather than blindly depending on ancillary studies.

An 80-year-old man, not known hypertensive or diabetic, non-smoker, with no history of coronary artery disease or cerebrovascular disease, presented to the emergency unit with acute onset isolated dysarthria. No headache, fever, diplopia, motor weakness or altered level of consciousness. The patient understood and followed orders accurately. He answered questions correctly, but with a difficult to comprehend dysarthric speech. He had no apraxia of speech. He could read and write adequately. He had no weaknesses, normal gait, no disequilibrium, normal deep tendon reflexes and no Babinski signs, normal cranial nerves and fundi, no cerebellar signs, and was afebrile with no neck stiffness. A CT scan of the brain revealed an acute hemorrhage in the left superior frontal cortex. This lesion could not explain the isolated dysarthria. An MRI of the brain carried out on the same day revealed 2 acute lesions; a hemorrhagic lesion in the left superior frontal cortex and an ischemic lesion with restricted diffusion in the left pre-central primary motor cortex (**Figure 1**).

The fact that this patient presented with isolated dysarthria, with no dysphasia or speech apraxia suggested that the lesion had to be in the left hemisphere, but not in Broca's speech center or in the inferior frontal gyrus.[1] The fact that the patient had no diplopia, dysphagia, ophthalmoplegia, or cerebellar symptoms or signs confirms that the lesion cannot be infratentorial, and cannot be in the brain stem. Furthermore, the patient did not have weakness in the limbs or Babinski signs suggesting that the lesion had to be isolated to the tongue area of the motor cortex sparing the part of the motor strip controlling the extremities. Extracerebellar infarcts causing dysarthria are located in the pyramidal tract along its course through the brain. In the absence of other clinical signs indicating the lesion level, the lesion may be located between the lower part of the primary motor cortex and the pontomedullary junction.[2] The CT scan carried out on admission clearly reveals a hemorrhage in the superior frontal cortex of the left hemisphere. This area is in the prefrontal cortex, not even in the supplementary motor cortex, and should not give speech abnormality. Reexamination of the patient confirmed that his speech dysfunction was clearly an expressive rather than a receptive dysphasia. The MRI of the brain resolved this dilemma by revealing another lesion in the lower part of the primary motor cortex at the junction between the cortex and white matter. This lesion represents an acute infarct and can well be the cause a disorder of control of the tongue musculature, as it lies lateral to the internal capsule.

Isolated dysarthria is a rare occurrence (1.6%). It is a lesion of the left hemisphere in most cases.[2] It

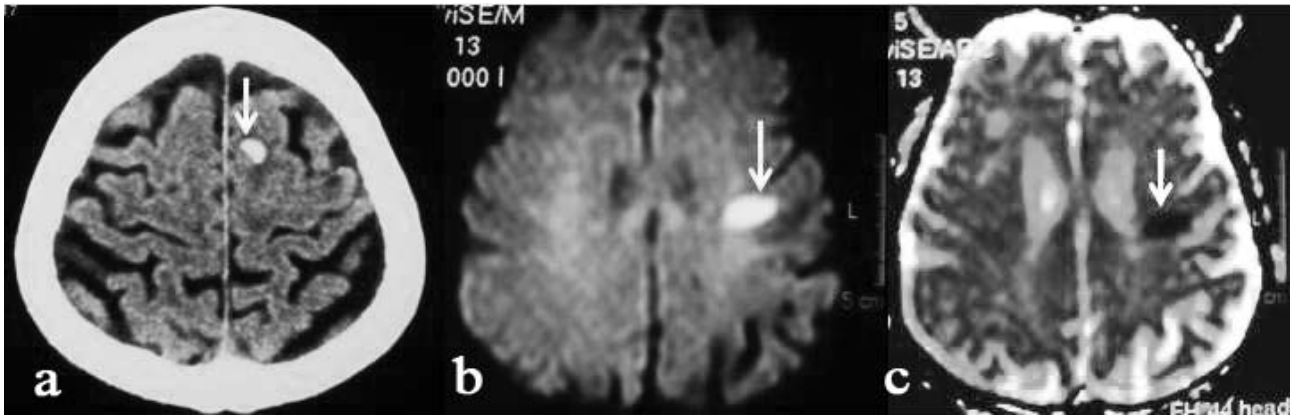

Figure 1 - The CT scan of the brain reveals **a**) a hemorrhage in the superior frontal gyrus of the left hemisphere. The MRI diffusion images **b**) and **c**) also reveal an acute infarct in the lower part of the primary motor cortex at the junction between the cortex and white matter.

has to be an extracerebellar pathology and outside the corticospinal tract. The lesion usually is a corticolingual lesion rather than a cortico-orofacial lesion or a lesion of the brain stem.[1,3] The lesion is located within the pyramidal tract, between the lower motor cortex and the genu and the posterior limb of the internal capsule.[3] The purpose in presenting this case is to emphasize the fact that clinical sense still prevails over radiographic diagnosis. In spite of the fact that the CT in this patient showed an acute hemorrhage, this lesion could not, by any means, explain the patient's symptoms and signs. The controversy that arose forced us to search for another lesion in the motor cortex. This was confirmed by the MRI image. We recommend that neurologists still follow their clinical sense in diagnosing lesions in patients with neurological disorders.

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