

Case Report

Stroke Presenting as an Isolated Hand Palsy

G. Sonachand Sharma¹, Y. Nandabir Singh², Alex T Touthang³, Tamphleima Kh⁴

Abstract

Isolated hand palsy also known as 'pseudoperipheral palsy' is a rare presentation of ischaemic stroke, often mistaken for peripheral nerve lesion. Here, we report a 13 years old young girl presented with sudden onset right hand palsy without any typical features of either upper motor lesion or lower motor lesion. Ischaemic stroke caused by embolic infarct of left precentral gyrus was the possible cause for her. She was managed with physiotherapy interventions including electrical stimulation, strengthening, grip exercise etc. Such an isolated hand palsy resulting from stroke is a rarely reported entity.

Key words: Isolated hand palsy, ischaemic stroke, pseudoperipheral palsy.

Case Report:

A 13 years old girl presented with sudden onset of complete paralysis of right hand (Fig 1) without any sensory disturbances for a period of 10 days. The patient noticed the weakness of right side of the body when she wake up early in the morning that was associated with headache, paresthesia and weakness in speech. However when she reported to us, she had only predominant weakness of right side of the hand disturbing in her activities of daily livings. There was no history of trauma or any loss of consciousness. Bladder and bowel control and higher mental functions including speech were normal at the time of admission. She had tuberculous meningitis with parasitic neck infections in 2008 and it was treated with medications. The patient was consulted first to the neurologist where she was treated in the line of cerebro vascular accident. Latter, she reported to us for further management.

Clinical examination of right hand revealed muscles weakness with MRC (medical research council) scale 0/5 in the muscles beyond the wrist joint without any wasting of muscle. But, proximal forearm and arm muscles, sensation, muscle tone, and tendon reflexes were unaffected. However, Hoffman sign was positive on the affected hand. Further clinical examination including function of language, cranial nerves, and plantar reflex, did not show any abnormalities.

Routine baseline investigations test were within normal. Chest x-ray and neck x-ray did not show any abnormal features. Electromyogram showed normal nerve conduction velocity and normal late responses. Vaculities and antiphospholipid workup were negative. EEC and echocardiogram were also normal. Retro-viral test was also non-reactive. NCCT scan of brain revealed small left temporoparietal infarct (Fig 2). Diffusion-weighted MRI brain and angiogram could not be done due to financial constraints. Psychiatry consultation did not establish any possible disease.

Proper counselling regarding disease condition was done to patients as well as care giver. For paralysed hand, we advised electrical stimulation followed by active assistive strengthening exercise gradually shifted to active resistive and grip strengthening exercises. In order to prevent complications, we also advised range of motion exercise of hand joints and stretching exercise of finger flexors. After a month, the patient reported with improved right hand muscles power with MRC scale of 4/5 and nearly normal in her activities of daily living.

Authors' affiliation:

¹ MBBS, MD (PMR)

² MBBS, MS (Ortho.), Professor

³ MBBS, Post-graduate Trainee

⁴ MBBS, Post-graduate Trainee

Department of Physical Medicine & Rehabilitation, Regional Institute of Medical Sciences (RIMS), Imphal, Manipur

Cite as:

G. Sonachand Sharma, Y. Nandabir Singh, Alex T Touthang, Tamphleima Kh, Stroke Presenting as an Isolated Hand Palsy. IJPMR, December 2015; Vol 26(4) : 117-18

Correspondence:

Dr. Y. Nandabir Singh Professor, Department of Physical Medicine and Rehabilitation, RIMS, Imphal E-mail: drnbsyumnam@gmail.com and gschandsharma@gmail.com

Received on 18/08/2015, Accepted on, 11/12/2015



Fig1: Isolated Hand Palsy

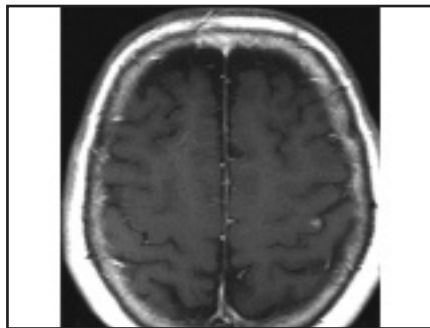


Fig 2: Ischaemic Infarct

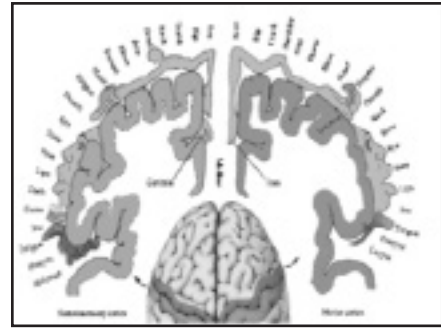


Fig 3: Motor Homunculus

Discussion:

Motor homunculus (Fig 3) is the pictorial representation of body's anatomical part in the brain. It is located in primary motor cortex area of cerebral cortex in precentral gyrus. In the motor homunculus, the hand occupies big area. This hand knob area is supplied by small cortical branch from superior division of middle cerebral artery. Ischaemic infarct in this hand knob area may lead to hand palsy.

Isolated hand palsy also known as pseudoperipheral palsy, caused by cerebral lesions is very rare and often mistaken for peripheral lesion^{1,2}. The term "fractional arm weakness" has also been applied when weakness of the hand differs from that of the proximal joints³. Isolated hand palsy has been reported as a result of, 1) embolic stroke involving the hand knob area, 2) large atherosclerotic infarct of vascular border zones area of cerebral cortex, 3) subcortical lacunar infarct, and 4) rarely due to inferior parietal lobe infarctions resulting from severe carotid stenosis or dissection^{3,4}.

Celebisoy *et al*⁵ reported eight patients presenting with isolated hand palsy due to discrete cortical infarction in the precentral gyrus.

In the present case report, we assumed the involvement of hand knob area in motor homunculus region in the left precentral gyrus by embolic infarct was the possible cause for the isolated hand paralysis. The possibility

of peripheral nerve lesion was excluded by clinical features and normal EMG findings. Psychiatric problem was also excluded. Even though stroke in young age is rare, source of emboli in our case may be due to either tubercular meningitis or parasitic neck infection which the patient had in the past years.

So, it is important to be aware of the broad differential diagnosis of isolated hand weakness and the ischaemic stroke should also be included as a differential diagnosis for uncommon cause of isolated hand palsy.

References:

1. Takahashi N, Kawamura M, Araki S. Isolated hand palsy due to cortical infarction. Localization of the motor hand area. *Neurology* 2002; **58**: 1412-4.
2. Paciaroni M, Caso V, Milia P, Venti M, Silvestrelli G, Palmerini F. Isolated monoparesis following stroke. *J Neurol Neurosurg Psychiatry* 2005; **76**: 805-7.
3. Timsit S, Logak M, Manai R, Rancurel G. Evolving isolated hand palsy: a parietal lobe syndrome associated with carotid artery disease. *Brain* 1997; **120**: 2251-7.
4. Pikula A, Romero JR, Kase CS. An unusual clinical presentation of ischemic stroke due to carotid dissection: the wrist drop. *Int J Neurol* 2009.
5. Celebisoy M, Ozdemirkiran T, Tokucoglu F, Kaplangi DN, Arici S. Isolated hand palsy due to cortical infarction: localization of motor hand area. *Neurologist* 2007; **13**: 376-9.