CASE REPORT
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Small cerebral cortical infarction presenting as unilateral claw hand mimicking ulnar nerve palsy

Neurology

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ABSTRACT

Small cerebral cortical infarction can present with isolated hand weakness mimicking peripheral nerve palsy. Here reported is 35-year lady who presented with sudden onset of isolated claw hand deformity recovered completely with antiplatelet therapy.

KEYWORDS:

claw hand,small cortical infarction.

Introduction

Vascular infarcts in the central hand knob area can imitate peripheral motor nerve deficits. Isolated hand weakness in cerebral cortical infarction is a rare entity and has been documented to be less than 1% of all ischemic strokes. [1,2] Unilateral typical Claw hand, an ulnar nerve type deficit in cortical infarction has not been reported from India.

Case Report

A 35-year old lady reported progressive weakness of little and ring finger movements of her right hand of 3 days duration. She had no difficulty with movements in the right proximal arm. There was no weakness in the right leg and right face, and no change in speech. She took no medications and denied any prior history of medical illness or similar illness. Physical examination showed blood pressure of 130/90 mm of Hg in left arm with regular pulse rate of 78/minute. Neurological examination showed isolated flaccid paresis of the little and ring finger of right hand suggestive of claw hand deformity (Figure 1) without sensory loss and abnormal tendon reflexes. Strength in biceps, triceps, deltoid, and wrist extensors was Medical research council (MRC) grade 5/5. Strength in third and fourth interosseous of right hand was 0/5 while power in abductor digiti minimi and flexor carpi ulnaris was 2/5. There were no thickened peripheral nerves. Right ulnar nerve deficit was suspected.

Figure 1 showing right claw hand like deformity

Nerve conduction study done was normal. Routine blood parameters were normal except for abnormal blood sugar value with glycosylated haemoglobin of 7% (>6.5%: diabetic range). Computed tomography (CT) head (Figure 2) and Magnetic resonance imaging (MRI) brain (Figure 3) demonstrated an acute cortical infarct located in the left precentral "hand knob" area and a minor involvement of the post central cortex. Diagnosis of pseudo-peripheral palsy was confirmed. Present case had pseudo-ulnar nerve deficit (pseudo ulnar palsy). She was treated with antiplatelet and oral hypoglycaemic agents. Carotid Doppler ultrasonography, MRI angiogram brain, echocardiogram were normal. Vasculitis and antiphospholipid work up were negative. Follow up at 1 month showed complete recovery.

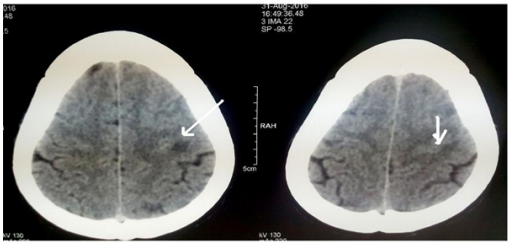

Figure 2 Computed tomography brain showing hypodensity at the left precentral hand knob region marked with arrow suggestive of acute infarct.

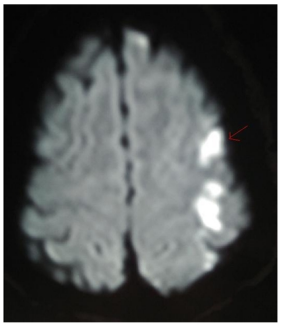

Figure 3 MRI brain diffusion weighted images showing hyper intensity suggestive of acute infarct in precentral and post central region suggestive of Left Middle cerebral artery Infarct.

Discussion

"Pseudo peripheral palsy" weakness of fingers due to central nervous system lesion was first described by Lhermitte in early nineteen hundreds. [3] It is usually caused by ischemic cortical infarcts in the MCA territory, involving the motor hand cortex. [2,4] Three variants of hand weakness have been described following cortical infarcts, as pure motor weakness predominantly in the extensor muscles (pseudo radial palsy), while other resemble ulnar nerve like deficit (pseudo ulnar palsy) and median nerve like deficit (pseudo median palsy). Only few case reports of pseudo ulnar palsy have been documented in literature. [5,6,7]. Present case is the first reported from India.

Claw hand is described as hyperextension at the metacarpo-phalangeal (MCP) and flexion at the interphalangeal joint (IP). These changes are more obvious at the ring and little finger giving an ulnar claw hand deformity. Peripheral nerve lesion is the predominant

cause of claw hand, followed by roots, motor neuron, and muscle. Claw hand due to small cortical infarct is rare and should be considered in patients with sudden onset of claw hand deformity as observed in present case.

PL Chen et al reported six patients of isolated hand weakness due to cortical infarction of hand knob region, while only two patients had pseudo ulnar palsy. [8]The segment of the precentral gyrus that contain a knob like structure concerned with motor hand function is called as central hand knob area. It is shaped like an omega or epsilon in the axial plane and like a hook in the sagittal plane. [9] In present case medial side of precentral knob on the left was involved leading to pseudo ulnar palsy and ulnar claw hand deformity. A Gass et al reported fourteen patients with distal arm weakness due to cortical infarction in the precentral hand knob region. [10] Ulnar distribution of hand paresis was observed in 4 (4/14) and demonstrated infarcts involving medial border of hand knob. [10] Similar findings were observed in present case.

Small cortical infarcts in the motor hand cortex are attributable to the obstruction of distal rolandic artery branch of middle cerebral artery (MCA) without additional tissue at risk [10]This is attributable to benign clinical course and rapid recovery observed in present case. The mechanism of isolated cortical infarct in the present case was undetermined and involved distal branch of left MCA.

Conclusion

It is important to consider small cortical infarcts of hand knob region in patients with sudden onset of claw hand deformity. Hence central nervous system should be evaluated for stroke or even other pathology as the causation of isolated hand weakness without sensory deficit. Further small cortical infarcts are important to identify in order to optimise secondary prevention strategies.

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