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Case Report

A rare case presentation of top of basilar artery syndrome

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ABSTRACT

Top of basilar syndrome occurs due to the thrombotic occlusion of basilar artery. It is very rare in occurrence and constitutes about 1% of all strokes. Clinical manifestations commonly may have the hallmarks of basilar artery occlusion that include dysarthria, visual, oculomotor and behavioural abnormalities with or without significant motor dysfunction and non-specific symptoms like vertigo and headache. Here we report a case of 60year old male who presented with decreased responsiveness and slurring of speech since 2 days and history of vomiting since one day. Neurological examination revealed normal higher mental functions with MMSE score of 28/30, horizontal nystagmus was present, other cranial nerve examination was normal, tone was increased in all the four limbs, Power was 4/5 in all the 4 limbs and Plantar was mute bilaterally. Patient condition deteriorated later and on further evaluation patient was found to have Basilar Artery Occlusion.

Keywords: Basilar artery syndrome, Stroke, MRI brain

INTRODUCTION

Top of basilar artery syndrome also known as Rostral brain stem infarction. Basilar artery which is formed by the union of left and right vertebral arteries at the level of Ponto medullary junction.[1] It is a major component of posterior circulation contributing to the circle of Willis and it also supplies the structures of the posterior cranial fossa including the pons and cerebellum.[2] Posterior circulation strokes accounts for 15 to 20% of strokes. Basilar artery occlusion seen in 1% of strokes.[3]

Occlusion of the basilar artery may be presented with variety of clinical manifestations that can be as transient weakness or paraesthesia or complete paralysis. Complete occlusion of the proximal or middle basilar artery leads to ischemia of the para median base of the pons but spares the tegmentum. This result is locked-in syndrome, in which consciousness and oculomotor function are preserved, but all other voluntary muscle movement is lost. A complete distal basilar artery occlusion can cause ischemia to the midbrain and thalamus, most often resulting in oculomotor abnormalities and alterations in alertness and behaviour and is called as top of basilar artery syndrome. Partial occlusion of the basilar artery can lead to a variety of deficits depending on the location and severity of the occlusion, and the anatomical regions affected.[4] The time from symptom onset to diagnosis is crucial, as early intervention to re-open the artery via either intravenous thrombolysis, intra-arterial thrombolysis, or mechanical endovascular technique may improve the outcome.

CASE REPORT

A 60-year-old male who presented to the emergency department with history of vomiting 2 episodes since 1 day, decreased responsiveness since 2 days, slurring of speech since 2 days and headache since 2 days. History of deviation of left eye laterally since 2 days. History of difficulty in walking since 2 weeks. No history of deviation of mouth, involuntary movements and loss of consciousness, difficulty in swallowing, fever. No history

of similar complaints in the past. Patient was a known case of hypertension and on treatment since 6 months. Patient was chronic alcoholic and smoker since 10 years. No history of similar complaints in the family.

On examination, patient was drowsy, responding to oral commands. Glasgow coma scale (GCS) score was E3V4M5 (13/15). Blood pressure was 160/80 mm hg and pulse was 86 beats per minute, regular. On neurological examination, higher mental functions were normal with MMSE score of 28/30, horizontal nystagmus present, other cranial nerve examination was normal, tone was found to be increased in all the four limbs. Power was 4/5 in all the 4 limbs. Plantar was mute in both the lower limbs. Reflexes were normal. Laboratory investigations revealed normal complete blood count, peripheral smear, Liver function test and kidney function tests, lipid profile, thyroid profile and random blood sugar. Homocysteine levels were normal. 2D Echo was normal. Clinical diagnosis of stroke was made, and MRI Brain was taken and showed acute non-haemorrhagic infarct in the left occipital lobe (Figure 1). Patient was treated with dual anti platelets, anticoagulants, statins, injection thiamine and physiotherapy was done.

After 2-days patient condition was deteriorated suddenly, GCS was dropped to E1V1M1 and patient was intubated in view of low GCS. Bilateral pupils reacting to light and were equal. Repeat MRI Brain along with MR Angiography was taken and found to have ill-defined areas of diffusion restriction in bilateral thalami, midbrain, pons, left occipital lobe, bilateral superior and middle cerebellar peduncles (Figure 2) and Acute thrombotic occlusion showing complete non visualization of left vertebral (VA), basilar and posterior cerebral arteries and their branches with faint visualization of right vertebral artery (V4) suggestive of Top of basilar artery syndrome (Figure 2). Patient had 2 episodes of malena. Endoscopy was normal. Anti-platelets were stopped for 2 days and restarted later. Patient was on ventilator for 10 days, later patient was discharged against medical advice and taken home for home physiotherapy and care and has lost the follow up.

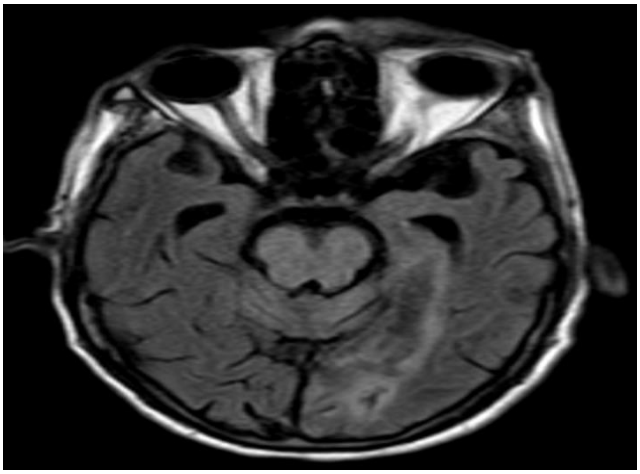

Figure 1: MRI brain of occipital lobe infarct.

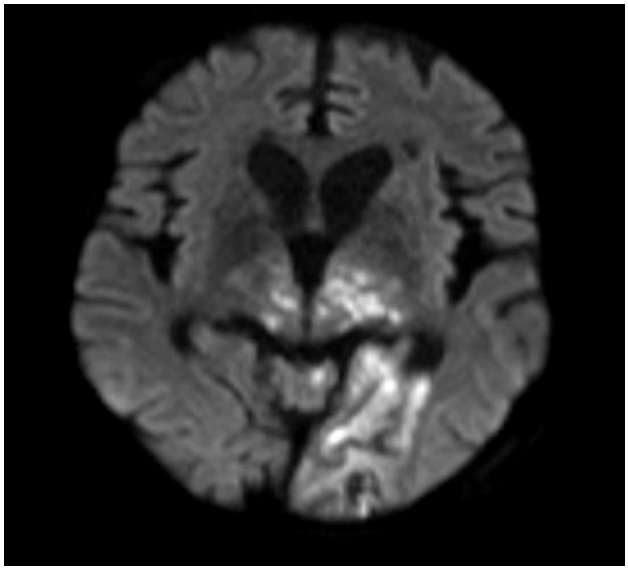

Figure 2: MRI brain of have ill defined areas of diffusion restriction in bilateral thalami, midbrain, pons, left occipital lobe.

DISCUSSION

Top of the basilar artery syndrome is due to the thromboembolic occlusion of the top of the basilar artery. Risk factors for the thrombosis are hypertension, diabetes mellitus, obesity, hyper homo cystinemia and excessive alcohol intake. It may be secondary to the cardiogenic emboli like mural thrombi in myocardial infarction and atrial fibrillation or valvular thrombi in infective endocarditis and valvular heart disease. Hypercoaguable states like antiphospholipid antibodies, protein C deficiency, protein S deficiency may also lead to the thrombotic events. Small vessel vasculitis in sickle cell disease may be associated with this syndrome.

Rhodes et al presented a case of 36-year-old female patient who presented with dizziness, vomiting, head and neck pain, and left lip paresthesia and had right medial gaze palsy. CT Angiogram showed thrombus in the distal part of basilar syndrome. Patient was treated with emergent endovascular thrombectomy and she improved. He concluded that Patients with basilar artery occlusion can experience significant recovery following reperfusion therapy but delay in presentation to the emergency department and diagnosis of basilar artery occlusion leads to poor prognosis and recovery.[5]

Sudhar et al reported a case of 45 year old male presented with sudden onset bilateral ptosis, dilatation of the pupil and paresis of extraocular muscles with MR cerebral angiographic image filling defect is seen in the basilar artery suggestive of thrombosis. He concluded that patients if presented early helps in the recovery.[6]

Salih et al reported 3 cases of top of basilar artery syndrome in which the first case was 36year old female admitted for snakebite later patient had basilar artery

occlusion, second case of 85-year-old male presented with decreased consciousness and found to have top of basilar artery syndrome, third case of 30-year-old woman presented with loss of consciousness and on evaluation diagnosed as basilar artery occlusion. He concluded that the emergency intervention helps in the recovery of the patients.[7]

In our case patient presented with decreased consciousness and slurring of speech and on further evaluation patient diagnosed as Top of basilar artery syndrome and treated accordingly. Risk factors in our case include hypertension, chronic smoker and alcoholic. We report this case due to rarity.

CONCLUSION

We report a case of 60-year-old male patient who was diagnosed as top of basilar artery syndrome. Our patient presented with decreased responsiveness and slurring of speech initially diagnosed as left occipital lobe infarct and due to progression of symptoms repeat MRI brain revealed top of basilar artery syndrome. Hence for the patients who are deteriorating clinically repeat imaging should be taken to not to miss the diagnosis of basilar artery occlusion and the patients if presented early chances of recovery will be good whereas if the patient presented late the recovery chances will be poor.

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