

Foville syndrome due to peripontine infarction: A case report

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ABSTRACT

Introduction. Stroke is the most common cause of mortality and morbidity. Pontine infarction leads to an ischemic stroke in pontine. Variability of its clinical presentation depends on the location of infarct. One of them is Foville syndrome, which features contralateral motor hemiparesis or hemiplegia, ipsilateral cranial nerve palsy, and facial palsy. There were few cases reported especially in Indonesia. We report a case of an elderly female with Foville syndrome due to stroke in Peripontine caused by infarction.

Case presentation. A 63-years-old female presented with acute vertigo, sudden deafness, slurred speech, and hemiparesis on the right side of her body. The onset was 14 hours before hospital admission. The patient had a history of poor controlled diabetes and hypertension. The results of the neurological examination showed left facial nerve weakness, facial numbness, peripheral deafness in the left ear, and right-side weakness of body. Radiological examination of the Head CT-scan showed lesions in the left paramedian pontine region, bilateral cerebellum and multiple lacunar infarction. Patient was given dual antiplatelet therapy, and vascular risk factor medication. Pasien was discharged after 8 days under treatment with minor disability.

Conclusion. We report a rare case of Foville syndrome due to pontine infarction. Clinical signs and symptoms correlate well with anatomic involvement. The treatments depend on the etiologies and risk factors.

Keywords: Foville syndrome, peripontine infarction, Pontine, stroke, facial nerve palsy

INTRODUCTION

The fifth most common cause of death is stroke. It is a neurological disease that causes morbidity and mortality. Stroke's categorization are ischemic, subarachnoid, or hemorrhagic [1]. Pontine infarction is caused by obstruction of blood flow to pons which leads to an ischemic stroke in pontine. Variability of its clinical presentation depends on the location of infarct, for example when there is a reduced blood flow in paramedian perforating arteries causing infarction of ventro-caudal pontine that leads to contralateral motor hemiparesis or hemiplegia, ipsilateral cranial nerve palsy, and facial palsy which is often called Foville syndrome [2,7]. The aim of this study was to report the clinical presentation, diagnostic imaging and management of Foville syndrome due to peripontine infarction. There were few cases reported especially in Indonesia.

CASE PRESENTATION

A 63-year-old female presented to the emergency department with a complaint of acute vertigo, tinnitus and sudden onset of deafness, slurred speech, difficulty while swallowing and numbness and hemiparesis on the right side of the body. The onset of the attack was 14 hours before hospital admission. She has a long history of poor control of diabetes and hypertension. The patient also had a complaint of facial weakness in the left side. The results of cranial nerve examination showed lower motor neuron weakness in the left facial nerve, peripheral deafness in left ear, and facial numbness in the face.

On further neurological examination, we found the right side weakness with muscle power assessment (MRC Scale) revealed that motor power being 4/5 on limbs on the right side. In order to support the diagnosis of this case, several radiological inves-

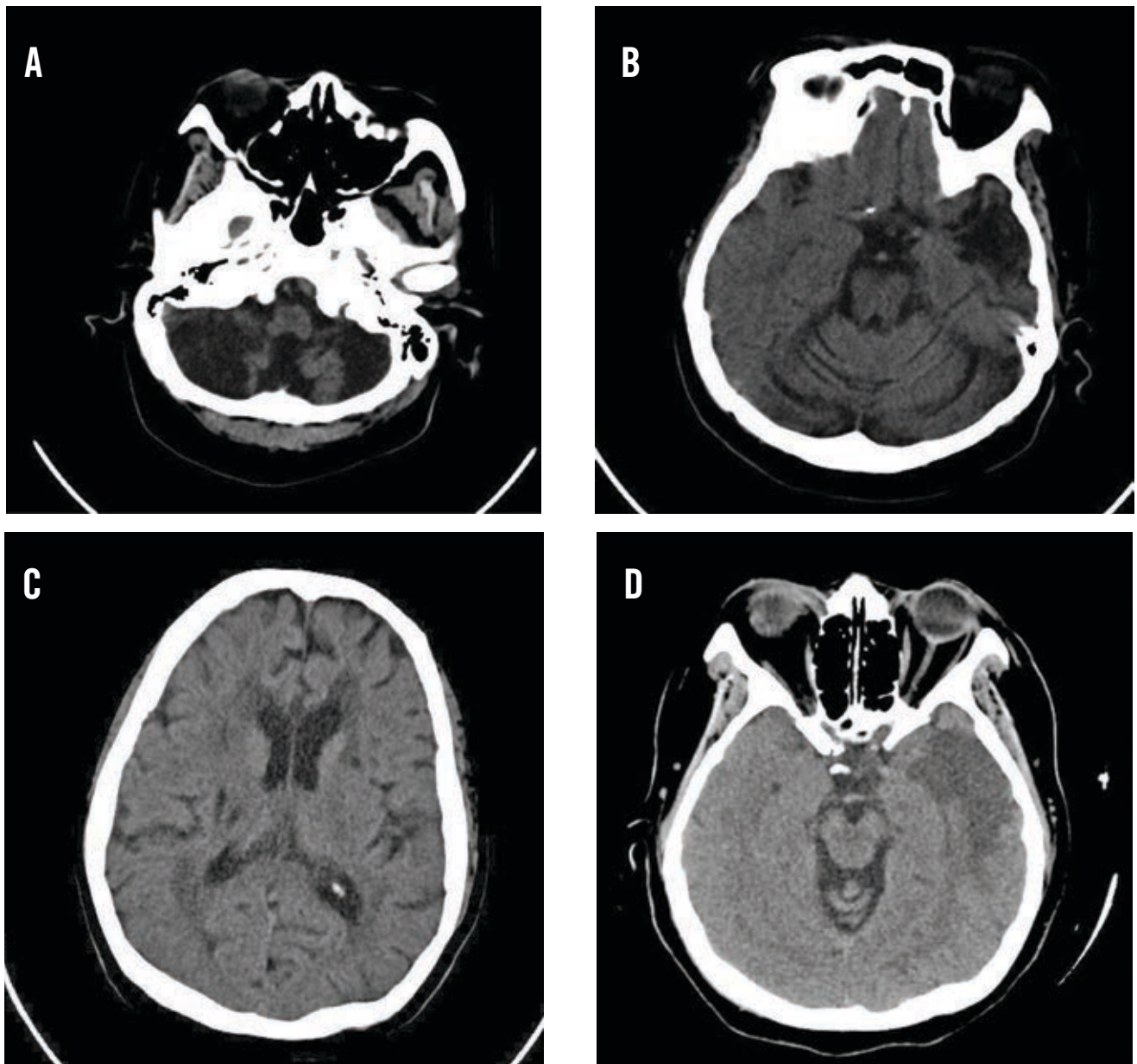


FIGURE 1. The plain brain CT-scan showed (a) peripontine and bilateral cerebellar infarction, (b) infarction in the temporal lobe, (c) multiple old lacunar infarction, and (d) peripontine and temporal lobe infarction

tigations were performed such as CT-scan of head which showed acute infarction at left paramedian pontine region, bilateral cerebellum, and multiple lacunar infarctions. In addition, Transcranial Doppler examination showed severe stenosis in the basilar artery. The complete blood examination including Complete Blood Count (CBC), electrolyte, glucose, kidney function and lipid profile showed high random blood glucose (286 mg/dL), high triglyceride level (384 mg/dl), and very high LDL cholesterol level (221 mg/dL). The ECG and chest X ray were conducted and their results came in as normal range.

According to the clinical manifestations and neuroimaging findings, Foville's syndrome with contralateral hemiparesis and ipsilateral facial weakness resulting from the left paramedian pontine region infarction was diagnosed. The patient was

admitted and received supportive treatment. Loading dose clopidogrel 300 mg, continued with clopidogrel 75 mg, and low dose aspirin (100 mg) as dual anti platelet regimen. Atorvastatin 40 mg daily and basal insulin are also given. The basal insulin was combined with oral anti diabetic medication (metformin and acarbose). Also, rehabilitation techniques were used to address residual functional deficit through physiotherapy speech therapy (swallowing exercise). Serial laboratory investigations.

The patient later complained of left hearing loss. The pure tone audiometry showed left high tone loss and the brainstem auditory evoked potential study suggesting a peripheral lesion. The transcranial Doppler examination showed very severe basilar artery stenosis (peak systolic velocity 174 cm/s). After the treatment, her condition was better. The pa-

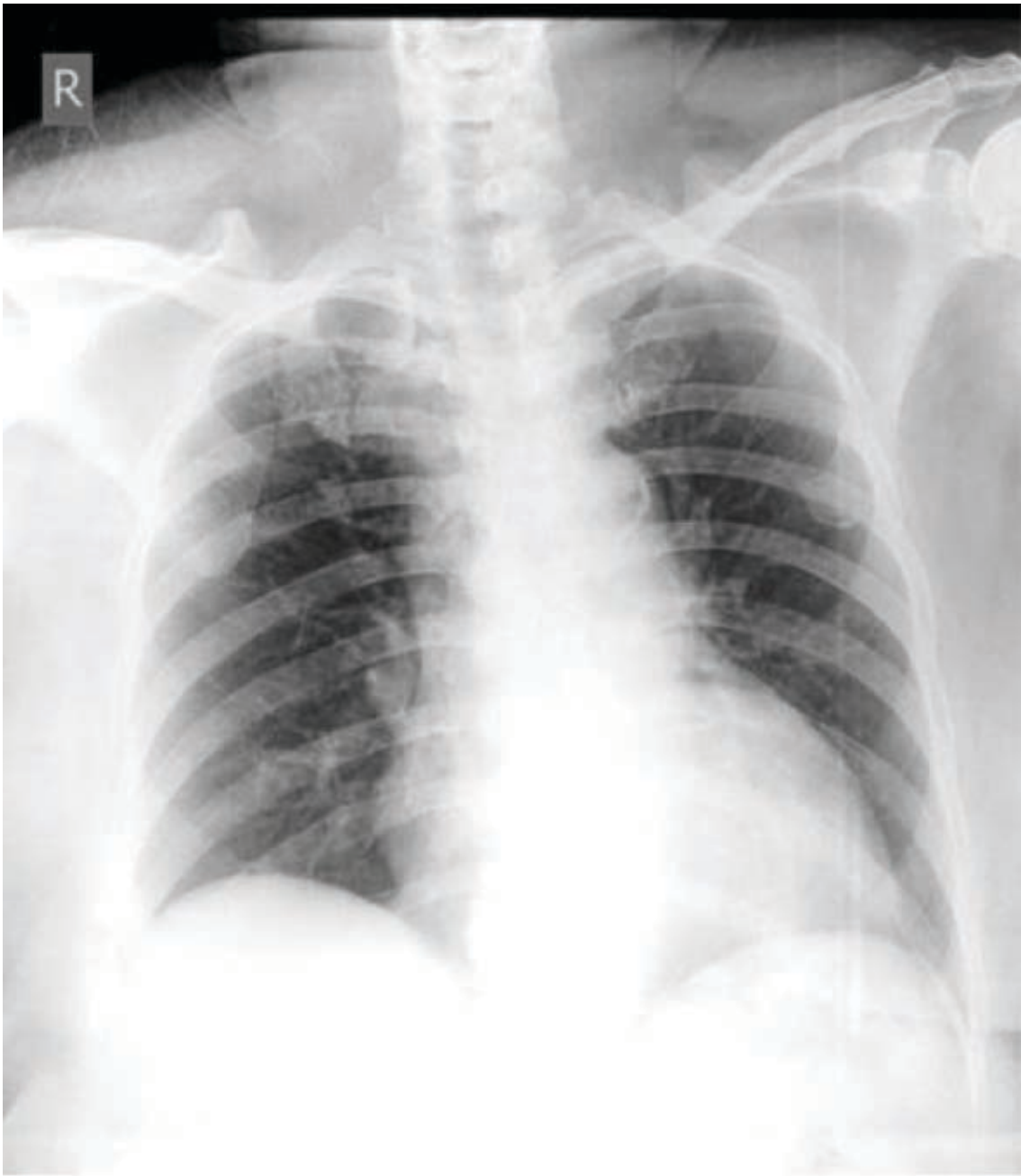


FIGURE 2. The chest X ray showed no obvious abnormality

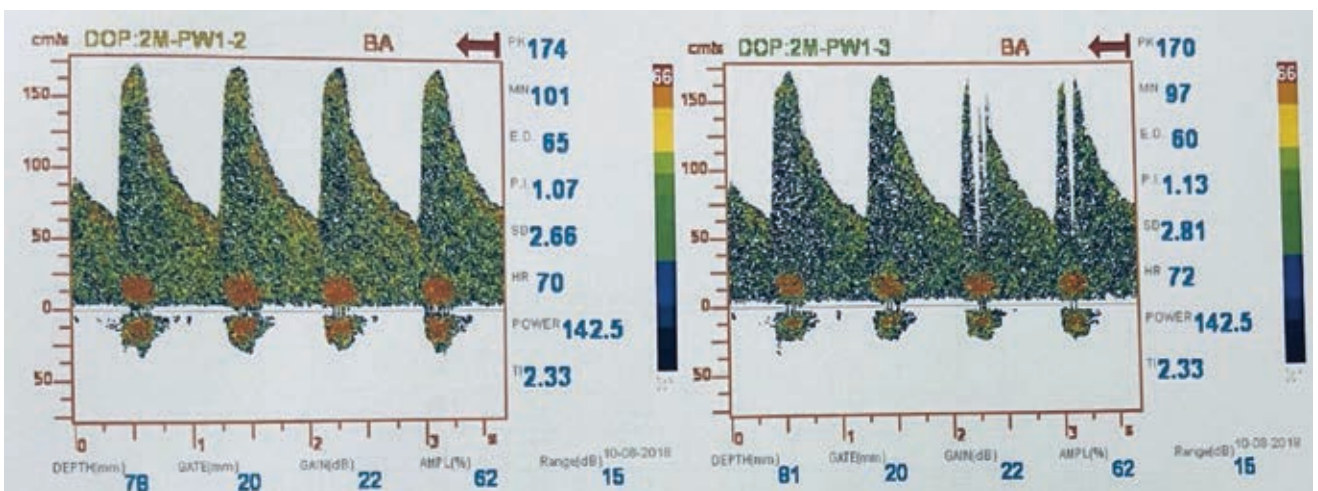


FIGURE 3. The Transcranial Doppler study showed severe stenosis in basilar artery

tient was discharged after 8 days with minor disability (modified Rankin Scale 2).

DISCUSSION

The brainstem (medulla oblongata, midbrain and pons) organizes multiple critical functions, including blood pressure control, cardiac rhythm, respiration, consciousness and sleep-wake cycle. Cranial nerves that exit the brain stem also have important roles in vision, hearing, swallowing, speech, taste, balance, motor and sensory functions [3]. Pontine is consisted of some cranial nerve nuclei, there are nervus trigeminus (N.V), nervus abducens (N.VI), nervus facialis (N.VII), and nervus vestibulocochlear (N.VIII). The presenting symptoms due to pontine infarction are categorized into Millard-Gubler syndrome, Foville syndrome, and Raymond syndrome. Meanwhile, classical symptoms of Foville syndrome are contralateral hemiparesis, ipsilateral abduces nerve palsy, facial palsy, facial hypoesthesia, ataxia, pain, thermal hypoesthesia, peripheral deafness, Horner's syndrome and conjugate gaze palsy. There are few studies that reported about Foville syndrome [4,5,7,10].

Our patient has ipsilateral cranial nerve palsy (left facial nerve weakness, left facial numbness, deafness in left ear, acute vertigo, slurred speech and dysphagia), and contralateral hemiparesis (right upper and lower limbs). Head CT-scan imaging of this patient features acute infarction in the left paramedian pontine region, bilateral cerebellum and there are multiple lacunar infarctions. Besides symptoms and physical examination, the diagnosis of Foville syndrome can be made by imaging [5,7]. Lesion of Foville syndrome typically found in caudal tegmental pontine or lower dorsal pontine. This syndrome affects corticospinal tract, medial lemniscus, middle peduncle, and nucleus of Cranial Nerves V, VI, VII, and VIII. Corticospinal tract located in these structures leads to contralateral hemiplegia of the body. Conjugate gaze innervation was abducens nerves with involvement of PPRF (paramedian pontine reticular formation), but in our patient does not show abducens nerve palsy [3,5-7].

Small vessel disease, cardiogenic emboli, and atherosclerosis cause decrease of blood supply to the paramedian perforating arteries and basilar arteries.

Furthermore, ischemia of the pons occurs because of a lack of blood supply. Hypertension, diabetes, history of ischemic stroke, and infarct myocardial can obstruct the vessel even more in an active-smoker and hypercholesterolemia [2,7]. History of poor control hypertension and diabetes is reported. Plaque in the Vertebrobasilar artery is mostly found in diabetes and these conditions are independent risk factors. 42.7% of pontine infarcts show in patients with diabetes. The level of blood glucose was positively related to the degree of calcification. Whereas, the effect of hypertension on infarction is 77.4%. The results of the patient's laboratory measurement shows high blood glucose, high LDL cholesterol level and very high triglyceride level. High total cholesterol and LDL level is significantly increase risk of pontine infarction [2,8].

Pontine infarction is a kind of ischemic stroke and emergency management is needed. First, initial stabilization of the airway, breathing, and circulation. Thrombolytic therapy can be given within the golden period of symptom (4.5 hours) if there aren't any contraindications of therapy. After receiving this therapy, the blood pressure must be monitored [2,7]. In this patient, thrombolytic therapy was not given because the onset of symptoms was more than golden period. Antiplatelet therapy such as Clopidogrel and Aspirin was given. Diabetes, hyperlipidemia, and hypertension which are vascular risk factors have to be controlled as secondary prevention [1,7,9,10].

CONCLUSION

We report a rare case of Foville syndrome due to pontine infarction. Clinical signs and symptoms correlated well with anatomic involvement. The treatments depend on the etiologies and risk factors.

Informed consent

Verbal informed consent has been obtained from the patient and family.

Conflict of interest

There was no conflict of interest to disclose.

Financial support: none declared

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