



Emergency Vertebro-Basilar Stenting in Recurrent Medial Medullary Ischemic Stroke

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Abstract

Intracranial stenting and angioplasty has been used widely to treat atherosclerotic symptomatic vascular stenosis when conventional medical therapy fails to eliminate ischemic symptoms.

We describe a case report of middle age diabetic male with endovascular stent deployment for the treatment of atherosclerotic vertebro-basilar artery stenosis with acute recurrent medullary ischemic stroke. Application of a Drug Eluting (DES) coronary stent without previous balloon dilatation resulted in vessel reopening and good clinical improvement. Emergency primary intracranial stent deployment can be technically feasible and improve the outcome in acute vertebro-basilar artery occlusion whenever indicated.

Keywords: Intracranial stents; Basilar artery; Drug eluting stent (DES); Deep venous thrombosis (DVT); Dual antiplatelets (DAPT)

Introduction

Patients with vertebrobasilar occlusive disease are at high risk for stroke that leads to worst neurologic symptoms. Although an unfavorable clinical outcome is found in as many as two-third of patients with vertebrobasilar ischemic stroke. Technically successful thrombolysis and stenting of vertebrobasilar artery occlusion is associated with good clinical outcome [1].

We report our experience with stenting without previous dilatation of symptomatic basilar artery with recurrent acute atherosclerotic ischemic lesions refractory to medical therapy.

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Case Presentation

A 45-year middle age man was admitted to the neuro-intensive care unit with dysarthria, asymmetric quadriparesis, and difficulty in deglutination since 2 days. Serum ANA, viral markers were negative. ECG and ECHO were within normal limit. His NIHSS score was 14. His MRI brain and MRA showed acute lacunar diffuse restriction in upper medulla while MRA showed focal tight stenosis in vertebro-basilar junction with diffuse atherosclerotic plaque in vertebrobasilar junction and distal vertebral artery. Right vertebral artery was absent with right fetal PCA.

He was treated with anticoagulants and dual antiplatelets. On 10th day of admission his condition deteriorated. He became tachypnic, drowsy and went to flaccid quadriparesis. After intubation his MRI brain showed acute diffuse restriction in bilateral extensive medial medulla.

Intra-arterial angiography was performed few hours later after aggravation of symptoms showed focal critical stenosis in vertebro-basilar artery with diffuse atherosclerotic plaque in that region.

Therefore emergency stenting was planned to restore distal flow and to prevent recurrent stroke. Loading dose of DAPT was given. Heparin 5000 IU was given with intravenous route. A guide catheter neuron max 6 Fr was positioned with the support of guide wire in distal V2 segment in appropriate position with 1000 IU/hr continuous heparin flush. Traxcess microwire 0.014 was navigated slowly across the lesion and positioned in left P2 segment. Coronary balloon mounted 3 mm × 12 mm (Yukon choice) drug eluting stent was positioned to cover entire lesion without prior balloon angioplasty. The pressure elevation was performed by two atmospheres in each step. Balloon was inflated slowly not more than 15 second with gradual increment of atm up to third attempt not under sizing the stent in comparison to vessel diameter. Angiogram was repeated for next 30 min to check dissection, thrombus formation or flow restriction. After half an hour no thrombus or dissection was seen in angiogram of left vertebral artery. IV heparin was continued for seven

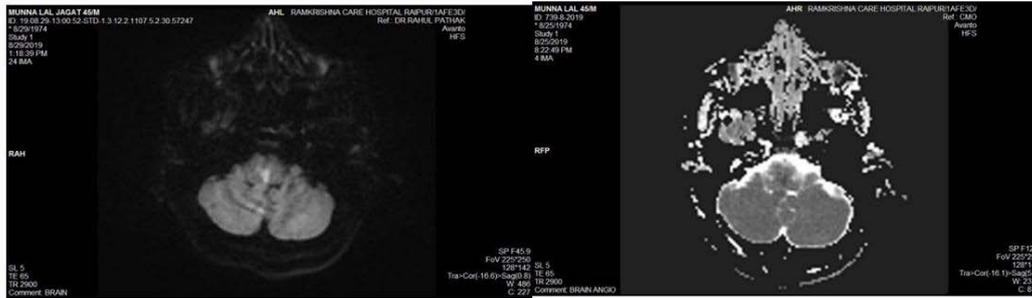


Figure 1: Acute lacunar diffusion restriction in medial upper medulla.

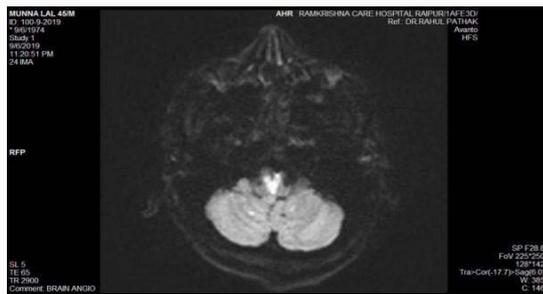


Figure 2: Bilateral medial medullary diffusion restriction on 10th day.



Figure 3: MRA -focal stenosis in vertebro-basilar junction.

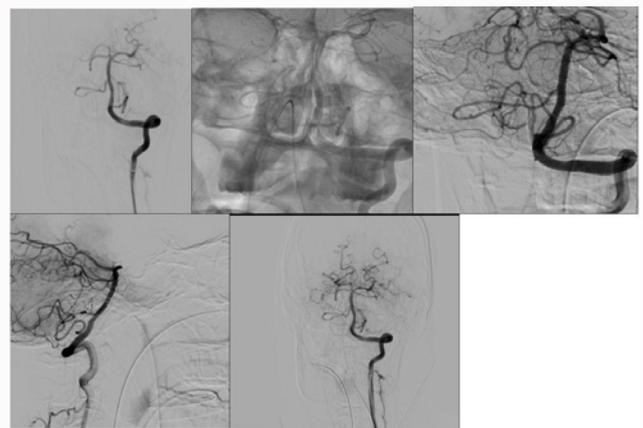


Figure 6-10: Post stenting images with complete recanalization.



Figure 11: Stent in situ in vertebrobasilar junction.

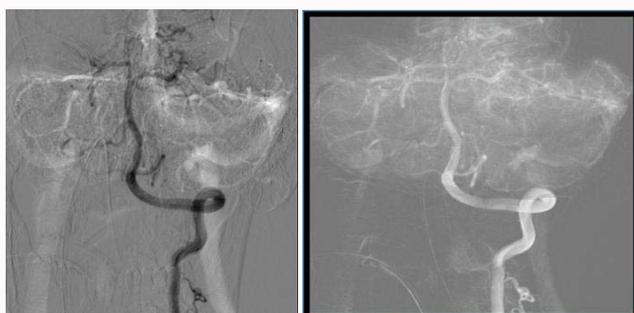


Figure 4 and 5: Focal stenosis in vertebrobasilar junction with atherosclerotic plaque.

days to prevent thromboembolic complications and then for DVT prophylaxis.

Patient was extubated on 3rd day of procedure. He became conscious and was able to follow simple vertebral commands. Extraocular movements were full in all direction and were able to move tongue in, out and side by side. Mild dysarthria and deglutination was there. After 2 weeks his speech improved with power grade 3/5 on right and 2/5 on left side. His Modified Rankin Scale (MRS) was

4 at time of discharge. Ecosprin 325 mg and clopidogrel 75 mg was continued for secondary prophylaxis. On follow up angiography showed normal filling in basilar artery as previously.

Discussion

The prognosis with basilar artery atherothrombotic occlusion is worst with highest more than two-third mortality rate if not treated. Even with aggressive medication and local intra-arterial fibrinolytic treatment, death is still a probable outcome for such cases. Distal basilar artery occlusion is embolic usually while mid-third and proximal basilar artery occlusion occurs due to thrombus formation in preexisting atherosclerotic disease. Proximal and mid third basilar occlusion has worst prognosis as compare to distal basilar occlusion.

Currently, for both angioplasty and stenting, for high-grade (70%) stenosis refractory to medical therapy is indicated for intervention, while others also advise intervention for asymptomatic high-grade (70%) stenosis [2]. Intraplaque dissection, plaque dislodgment, vessel recoil with restenosis, perforator occlusion, and excessive in-stent

neointimal growth rarely formation of an intra stent aneurysm or stent infection are endovascular complications [3-5].

Other indications for stenting are cases refractory to balloon angioplasty, because of calcified lesions, bailout stenting for dissection after angioplasty and symptomatic vertebrobasilar artery restenosis after previous angioplasty.

Several cases have been reported worldwide of endovascular stent treatment in the atherosclerotic basilar artery, however there are only few reports of stent application as rescue therapy in symptomatic acute recurrent ischemic infarct with acute high grade basilar artery stenosis.

In our case patient developed recurrent medial medullary ischemic infarct despite of aggressive medication with underlying severe stenosis of the proximal basilar artery. This patient has strong likelihood of restenosis if narrowing was not relieved timely. We applied the stent without previous dilatation. This decreases the risk of intimal dissection and distal embolism by plaque prolapse.

Therefore emergency basilar stenting without balloon angioplasty is technically feasible and effective as a rescue treatment with tight basilar stenosis.

Our case is probably the first case worldwide of emergency basilar stenting with acute bilateral recurrent medial medullary syndrome with severe vertebro-basilar atherosclerotic stenosis.

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