

Treatment of Acute Intracranial Occlusion with the PTCA Dilatation Catheter: Initial Experience

Dr. Reza Omid Varmezani

MD, DSc., PhD.

Abstract: Basilar artery (BA) supplies brain stem, cerebellum, thalami, occipital lobes, and medial temporal lobes. Acute occlusion of this artery has a poor prognosis and produces high risk of stroke and death. The high mortality risk of symptomatic basilaris stenosis justifies balloon angioplasty in selected cases. We report our first clinical experience with a marked flexible monorail balloon for treatment of acute A. basilaris Occlusion.

Keywords: occlusion, experience, Acute, basilaris.

1. INTRODUCTION

Basilar artery (BA) supplies brain stem, cerebellum, thalami, occipital lobes, and medial temporal lobes. Acute occlusion of this artery has a poor prognosis and produces high risk of stroke and death (1-3). Intravenous or intra-arterial thrombolysis results in 40% to 65% recanalization with 22% to 24% good outcome (3-7). Without recanalization, the likelihood of good outcome is 2 % (7).

Balloon angioplasty or primary stent implantation of intracranial atherosclerotic stenosis is nowadays common interventional procedure. Therefore, endovascular treatment of stroke by PTCA-balloon has not yet been shown to be effective from a scientific perspective. However, the high mortality risk of symptomatic basilaris stenosis justifies balloon angioplasty in selected cases, especially in patients with high-grade vascular elongation or/and proximal stenosis.

We report our first clinical experience with a marked flexible monorail balloon for treatment of acute A. basilaris Occlusion. This treatment resulted in a satisfactory improvement of posterior cerebral circulation.

2. CLINICAL PRESENTATION

A 78- years- old woman who initially presented to a local hospital with sudden syncope. She had no history of hypertension, diabetes or coronary artery disease. His laboratory tests and cardiac work-up were unremarkable. An immediate brain CT scan showed no demarked infarcts in the posterior circulation.

CTA revealed complete occlusion of distal basilar artery and significantly decreased of perfusion of brain stem and cerebellum.

The patient underwent uncomplicated angioplasty and revascularization of basilar artery with excellent angiographic results.

3. INTERVENTION

The procedure was performed under general anesthesia and with systemic anticoagulation. The angiogram confirmed an occlusion of distal basilar artery. Through a 5-F guiding catheter, a Renegade Microcatheter and a 0.014 Transend microguidewire were navigated cautiously across the embolus into the right distal PCA. The Microcatheter positioned proximal of occlusion and 30 mg rtPa was administrated. The following angiogram showed no recanalization of BA at all. Due to high elongated right vertebral artery (V4-segment) it was impossible to locate a stent in the basilar artery. We have unsuccessfully tried a mechanical thrombectomy by Phenox Clot retriever.

The guide wire positioned in P1-segment, and a 2x20 mm monorail high-pressure balloon (Ryujin Plus, Terumo) was exchanged and positioned across the occlusion. Three serial Inflations of the balloon to pressure of 4 atm. For periods of 5 seconds were required to improve the occlusion. After angioplasty, the lumen of basilar artery was complete open and significantly antegrad flow of both PCA. Fragmented thrombus was observed in right proximal PCA.

4. CONCLUSION

Recanalization of intracranial occlusion with the Monorail system balloon catheter is technically feasible. The availability of new flexible intravascular balloons, allowing access to tortuous proximal intracerebral vessels, providing a new therapeutic approach for patients with basilar artery occlusion. There were no periprocedural complications.

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