clinical utility of the **ballast** 088 long sheath:

Valley Baptist Medical Center Case Series (Femoral and Radial Approach)

Harlingen, Texas

case review

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Right Carotid Stenting - Radial Approach

Case Presentation

69-year-old presented with multiple medical comorbidities and recurrent TIAs. Non-invasive imaging identified stenosis of the right carotid bulb.

Procedure Overview

Cerebral angiogram confirmed the presence of the right carotid web. Treatment was successfully completed with carotid stenting via the right radial approach.

Ballast Impressions

One of the biggest challenges in radial access can be the acute angle from the subclavian to the right common carotid, as seen in this case. This angle would not be manageable with the majority of guide catheters on the market today. However, the Ballast was able to track around this difficult curve without kinking or ovalization to allow the carotid stent to be delivered through it with no difficulty and without losing position.

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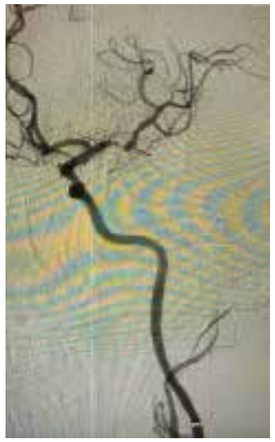
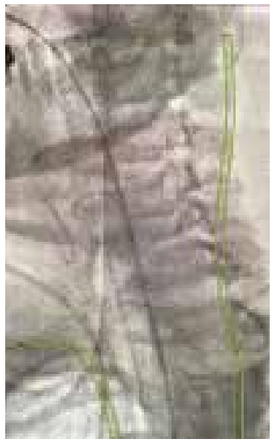
Left Middle Cerebral Artery with Intracranial Atherosclerotic Disease - Radial approach





Case Presentation

72-year-old male with history of diabetes, hyperlipidemia, hypertension and recent stroke resulting in left sided weakness, presented to Valley Regional Medical Center with complaints of worsening left-sided weakness and altered speech. Initial evaluation identified a NIHSS of 14 and the patient did not qualify for ivTPA due to the recent previous stroke. Upon transfer to Valley Baptist Medical Center, CT and CT perfusion identified a left MCA distribution area of ischemia. The patient was brought to the cath lab by Dr. Wondwossen Tekle for further evaluation and potential treatment.

Procedure Overview

Angiography identified severe right MCA stenosis (>70%) with superimposed thrombus mildly limiting flow (TICI 2b). Flow was restored to TICI 3 with a single pass of mechanical thrombectomy. After recanalizing the vessel, non-flow limiting distal M1 stenosis of greater than 85% and 50% stenosis of the bilateral vertebral artery origins was identified.

Follow-up MRI the following day showed a left posterior parietal infarct, believed to be flow related watershed. Second day post echo demonstrated and LVEF of 50-55% and stage 1 diastolic dysfunction, while non-contrast CT for complaints of headache showed a stable infarct with no hemorrhage. The patient was consented to have the symptomatic left M1 stenosis (>90%) treated with balloon angioplasty and stent through a radial approach. After the successful treatment, the residual stenosis was reduced to <40%.

Ballast Impressions

Radial Access to the left carotid artery provides significant challenges with the support profile of the long sheath. The 90 cm Ballast .088 navigated the arch with ease and was parked in the proximal cervical segment of the ICA. What stood out was the Ballast's ability to support this ICAD treatment without prolapsing into the arch proximally, a frequent occurrence when navigating larger devices into the left carotid through a radial approach.

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Right Middle Cerebral Artery Stenosis

Case Presentation

59-year-old female with paraclinoid aneurysm treated previously with a flow diverter with 80 to 90% stenosis of the right middle cerebral artery M1 segment.

Procedure Overview

Patient was taken to the cath lab and treated with a stent. Severe proximal tortuosity provided a challenge to bring the stiff device to the target lesion. Placing the Ballast long sheath through the cervical loop and into the horizontal petrous segment enabled better distal purchase with the intermediate catheter, and enabling a successful deployment of the stent. Excellent angiographic result, with complete resolution of the M1 stenosis.

Ballast Impressions

Tortuosity adds a lot of complexity when it comes to treatment decisions. Not being able to navigate support devices high enough may be the difference in not being able to successfully treat a patient. In this case, getting support past the proximal cervical tortuosity was critical to provide support to the target lesion. The Ballast .088 Long Sheath's distal tip is designed to enable navigation in the most challenging anatomies. This was critical in enabling me to navigate far enough distally to ensure my intermediate support catheter could get high enough to support delivery of a stiff, bulky device like a stent. Once there, the Ballast's robust support profile ensured the device didn't fall back during the procedure and enabled successful deployment of the device. Additionally, despite our distal location with the Ballast, the final runs showed no evidence of dissection or vasospasm.

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Right ICA Intracranial Atherosclerosis

Treated with Intracranial Stent

Case Presentation

64-year-old male referred with history of multiple left-sided strokes, resting tremor and transient blurry vision was referred for evaluation of carotid and intracranial stenosis after non-invasive imaging found both left carotid stenosis and severe right intracranial stenosis. Angiogram performed and identified approximately 80% stenosis in the right lacerum and cavernous segments of the ICA.

Procedure Overview

The treatment plan was to treat the stenotic vessel with balloon angioplasty and multiple stents. The proximal anatomy did not enable us to bring the proximal support higher than the carotid bulb. Despite this challenge, we successfully deployed 3 stents after balloon angioplasty of the long segment of stenotic vessel. Resulted in an excellent angiographic outcome with no residual stenosis observed.

Ballast Impressions

There are times the anatomy simply will not allow us to place the device where we want for a given procedure. In this case, the vessel diameter forced us to place the Ballast .088 Long Sheath very proximally. Despite this position and the use of the angioplasty balloon and 3 stents, Ballast provided outstanding support throughout the procedure and did not budge from our initial positioning.

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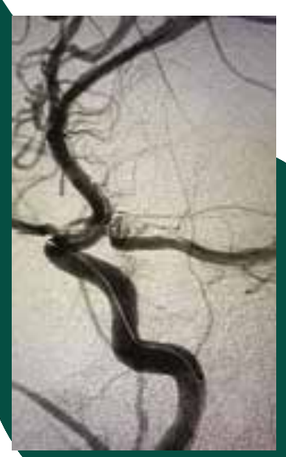
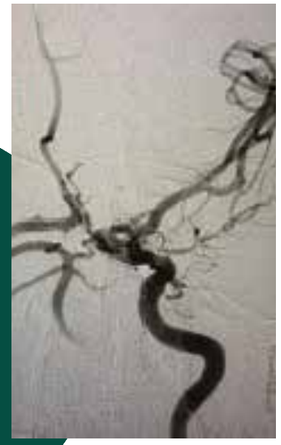
Balloon Assisted Coiling of a Fetal Posterior Communicating Artery Aneurysm

Case Presentation

76-year-old female presented to our sister facility ER via EMS for complaints of headache, altered mental status, right sided weakness, altered coordination and respiratory distress. The patient had awoken with no symptoms 3 hours prior, however developed nausea and a headache, which intensified over time. By the time she got to the ER she was unresponsive. CT showed a large left temporal lobe hematoma measuring 4.8 x 5.5 cm with a volume of around 66 ml, subarachnoid hemorrhage and a rightward midline shift. The patient was transferred to Valley Baptist for endovascular treatment with a Hunt & Hess 3 and Fisher Grade 4.





Procedure Overview

Cerebral angiogram demonstrated a left posterior communicating artery fetal PCA aneurysm measuring approximately 5.3 mm x 4.6 mm x 3.8 mm with a 3.2 mm neck. Balloon assisted coiling was chosen due to the wide neck and desire to preserve the ostium of the Pcom. Final result showed no significant residual filling post coiling. The patient required a decompressive left frontal craniectomy and placement of an EVD, which was able to be removed after 13 days.

Ballast Impressions

The Ballast .088 Long Sheath was placed in the proximal cervical segment. Ballast, once again, provided stable support throughout the treatment. Additionally, the large ID enabled both the balloon and the coiling catheter to be introduced with plenty of extra room to allow for great runs and visibility for the progress of the procedure.

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Right Middle Cerebral Artery Aneurysm

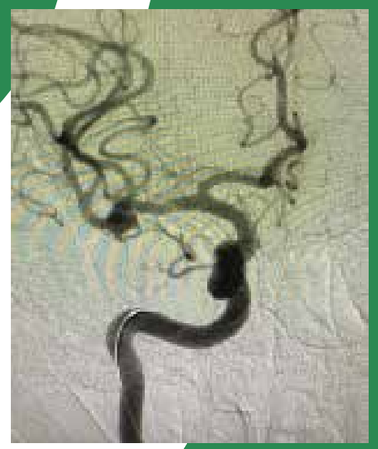
Treated with an Intrasaccular Device

Case Presentation

77-year-old female was referred to Dr. Hassan for evaluation of an MCA aneurysm, identified on CT angiography after presenting to the hospital with neck pain after a fall. Diagnostic angiogram confirmed the presence of a right MCA bifurcation aneurysm measuring 6.1mm x 5.5mm x 4.4mm.

Procedure Overview

After confirming the measurements at 6.8 mm x 5 mm x 4.5 mm and a 3.5 mm neck, treatment with a 6 mm x 3 mm single layer intrasacular device was performed. Mild tortuosity of the ICA required good proximal support for the .021" delivery microcatheter. Successful deployment with good conformity to the aneurysm walls resulted in excellent angiographic outcome.



Ballast Impressions

The tortuosity in the cavernous segment of the ICA requires good proximal support of the delivery catheter. The design of the distal segment of the Ballast .088 enables distal navigation, in this case into the horizontal petrous segment. This enabled stable support with minimal movement of the Ballast during the procedure.

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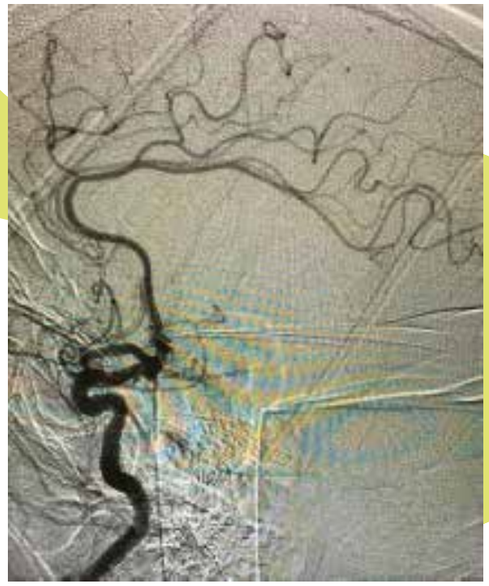
Right Middle Cerebral Artery Occlusion

Treated with Primary Aspiration

Case Presentation

73-year-old female with history of hypertension, hyperlipidemia and on rivaroxaban for atrial fibrillation. The patient presented to Valley Regional Medical center at 10:30 pm with left side weakness, slurred speak, last known well of 4:00 pm and a NIHSS of 18. Due to use of anticoagulants, ivTPA was not administered and was transferred to Valley Baptist for further care. On arrival, CT perfusion showed a right MCA penumbra, while CT angioagraphy demonstrated decreased flow to the right MCA branches.



Complete Occlusion of the right M1

Procedure Overview

The patient was taken to the cath lab by Dr. Hassan for mechanical thrombectomy of a complete occlusion of the right M1. Access with the Ballast .088 Long Sheath and a large bore .072 aspiration catheter resulted in complete recanalization and a TICI 3 result.

Ballast Impressions

The Ballast .088 Long Sheath provided excellent arch support for the delivery of a large bore aspiration catheter. Once Ballast position was established in the lower cervical segment of the right ICA, the robust proximal shaft provided worry-free support and confidence throughout the treatment.

TICI 3 flow post mechanical thrombectomy

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Right Carotid Stenting - CREST 2

Case Presentation

84-year-old male with history of left hemisphere infarct where he originally presented to ER via EMS with right side weakness, numbness and an altered mental status. Initial CT imaging in the ER showed signs of brain atrophy, but no indication of acute intracranial abnormality. However, MRI did indicate the presence of multiple small, hyperintense foci throughout the left cerebral hemisphere, consistent with an acute infarct. Additional imaging with MRA of the head and neck demostrated atherosclerotic disease and less than 40% stenosis in the bilateral carotid arteries. The decision was made to perform a cerebral angiogram with Dr. Tekle.

Procedure Overview

Angiography demonstrated a symptomatic left common carotid artery with significant stenosis in the common (60%) and the left internal carotid artery origin (65-70%). Successful revascularization acheived with balloon angioplasty and stenting.

The origin of the right internal carotid was also noted to have a 70% asymptomatic stenosis. This patient was consented and enrolled in CREST 2. The staged treatment was completed with balloon angioplasty and stenting through the Ballast .088 Long Sheath. Excellent angiographic outcome with resulting residual stenosis of approximately 15%.

Ballast Impressions

The Ballast .088, once again, easily navigated to the right carotid artery and provided outstanding support throughout the treatment. The midshaft support of the Ballast ensures that it will not prolapse into the arch even during deployment of large carotid balloons and stents.

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Right Middle Cerebral Artery Aneurysm Intrasaccular Treatment

Case Presentation

75-year-old male with history of a recent right posterior frontal stroke that was treated with ivTPA with no residual neurologic deficits and being followed by neurology services. The patient was referred back for evaluation of a right MCA bifurcation aneurysm that had been under observation for a few years after being identified by cerebral angiogram. Follow-up angiogram by Dr. Hassan indicated that the right MCA aneurysm was growing and was selected for treatment. A small left MCA bifurcation aneurysm was also noted and designated for observation.

Procedure Overview

The right MCA bifurcation aneurysm, measuring 6.3 mm x 6.1 mm x 5.8 mm, was selected for treatment with an intrasaccular device. A 7 mm X 4 mm single layer intrasaccular device was deployed, providing excellent conformation to the aneurysm walls and good contrast stasis with less than 10% residual aneurysm at conclusion of the case.

Ballast Impressions

Proximal support for intrasaccular cases is crucial for success. The last thing a physician wants to worry about is the long sheath losing position and support, making the case much more difficult. The Ballast .088 does an outstanding job of quickly tracking to my desired location and maintaining its position throughout the case, enabling focus on the target lesion and the device being deployed.

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