Low Invasive Intervention Cured Impending Stroke: Angioplasty & Stenting for Subclavian Steal

**Patient Presentation**

- Early 70s male with history of left carotid endarterectomy, left common carotid artery stenting complaining dizziness and occasional dysarthria.
- MRI showed no lesions in the brain.
- Interarm pressure difference was greater than 20mmHg (Lt<<Rt)

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**Evaluation and Imaging**

- Diagnostic catheter angiography demonstrated right-to-left subclavian steal (Figure 1) due to an eccentric stenosis in the left subclavian artery proximal to the left vertebral artery origin (Figure 2).

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**Intervention Performed**

- Our indications for subclavian artery stenosis are:
  1) Inter-arm BP difference greater than 20mmHg
  2) Symptomatic lesion
  3) Subclavian steal
Procedures provided by DINR for adult and pediatric patients

- Acute Ischemic Stroke
- Acute Thrombectomy/Thrombolysis
- Extra/Intracranial Angioplasty/Stenting
- Brain Hemorrhage, Aneurysm/AVM/Fistulae
  - Aneurysm coiling
  - Stent/balloon assisted aneurysm coiling
  - Flow diverter stent device embolization
  - AVM/Dural fistulae embolization
- Venous Sinus Thrombectomy/Thrombolysis
  - Direct transcutaneous embolization
- Chronic Occlusive Cerebrovascular Disease
  - Extra/Intracranial Angioplasty/Stenting
  - Venous Sinus Angioplasty/Stenting
- Head/neck/orbit tumors & vascular malformations, epistaxis
- Endovascular embolization
- Direct percutaneous embolization

Division of Interventional Neuroradiology – A Leader in Neurovascular Care and Research

- Invented the Merci retriever – the 1st endovascular device for acute stroke therapy
- Invented GDC and Matrix coils – the leading tool for aneurysm treatment around the world
- Developed Onyx liquid embolic material – the leading therapy for brain vascular malformations

THE OUTCOME

- The patient tolerated the procedure well without any complications.
- The patient no longer has dizziness or dysarthria.
- In carefully selected patients, we can safely perform angioplasty and stenting to prevent catastrophic stroke.

Figure 3: Pre-stenting angioplasty to expand the critically narrowed lesion in the left subclavian artery.

Figure 4: After Pre-stent angioplasty, two stents were placed followed by post-stent angioplasty. Now there is anterograde flow in the left vertebral artery.

Figure 5: Right vertebral artery angiography was performed after the left subclavian angioplasty and stenting. The Rt-to-Lt subclavian steal was no longer observed.