

Proximal Protection Grabs the Initiative

Mark W. Burket, MD

University of Toledo Medical Center

Toledo, OH

USA



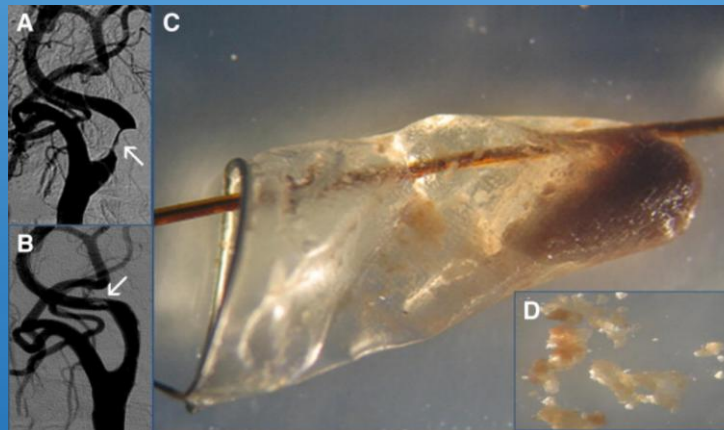
THE UNIVERSITY OF
TOLEDO
HEART AND VASCULAR CENTER

Why Does It Grab the Initiative?

- It is a more sound physiologic concept
- Overall clinical outcomes are superior
- It makes certain impossible cases possible

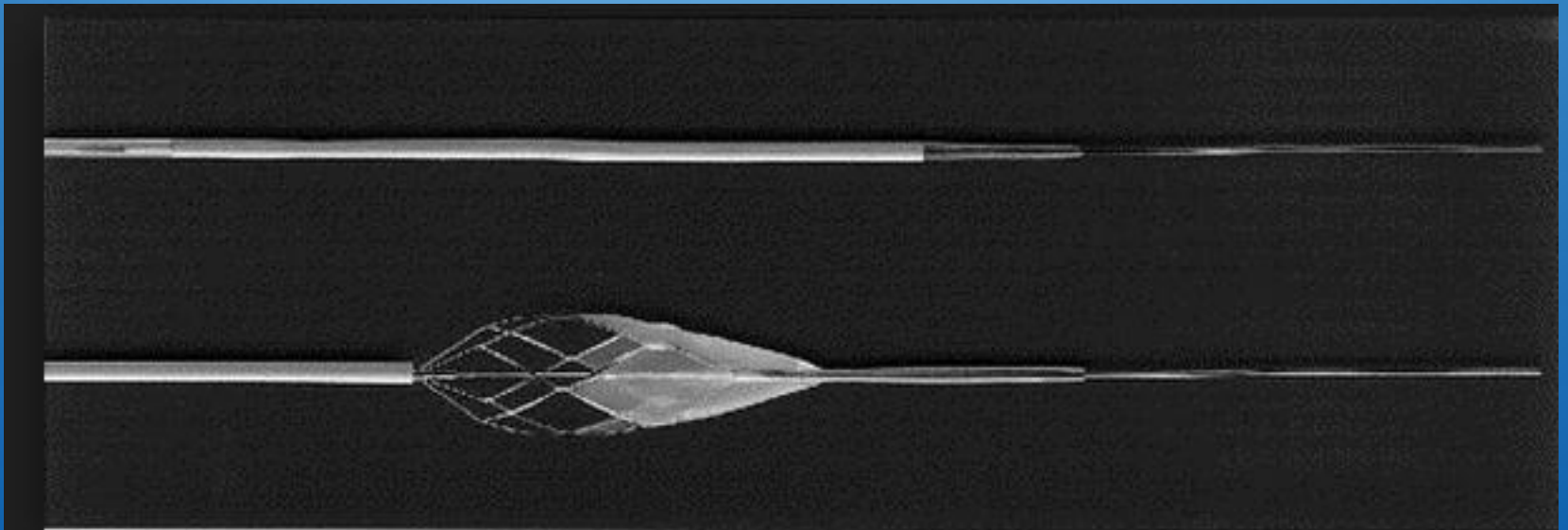
More Sound Physiologic Concept

Universal agreement that embolic protection is good



More Sound Physiologic Concept

- Only proximal protection provides start-to-finish safeguards
- Wire tip and/or collapsed filter can dislodge emboli



Filter Vulnerabilities

- Imperfect wall apposition
- Pore size larger than particle size
- Difficult-to-retrieve filters



Ischemic Lesions by Diffusion-Weighted MRI (patients randomized between filter and proximal protection)

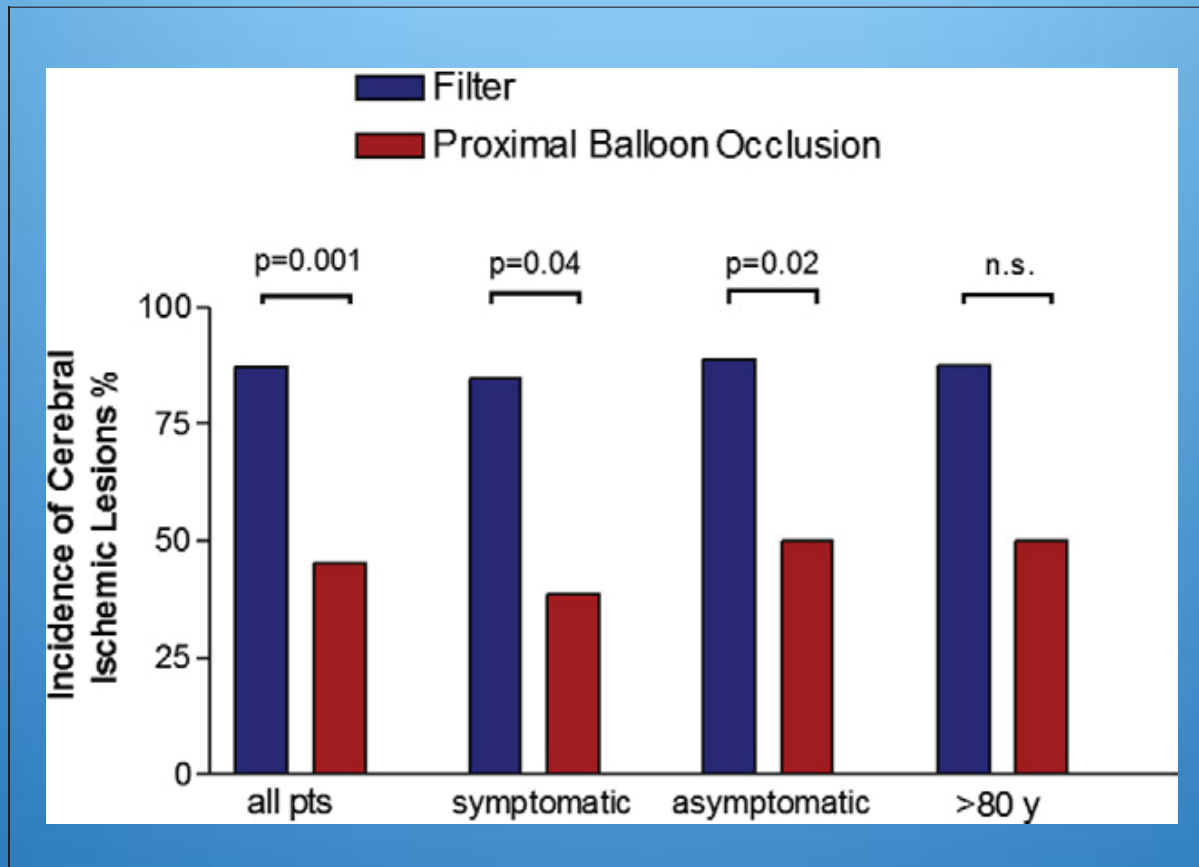


Figure 2

Incidence of New Ischemic Lesions in Patients With Filter Protection Versus Proximal Balloon Occlusion

Fewer Microembolic Events

(proximal occlusion versus filter)

- Schmidt. J Am Coll Cardiol 2004;44:1966
- El-Koussy. J Endovasc Ther 2007;14:293
- Gupta. J Vasc Surg 2011;53:316
- Montorsi. J Am Coll Cardiol 2011;58:1656
- Bijuklic. J Am Coll Cardiol 2012;59:1383

Great Clinical Trial Results

- ARMOUR (Mo.Ma)
 - 28.9% octagenarians
 - 2.7% 30 day MI, stroke, death
- Prospective series (Mo.Ma)
 - 198 octagenarians
 - 2.52% 30 day stroke, death
- EMPIRE (Gore)
 - 16% octagenarians
 - 2.9% 30 day stroke, death

Ansel. Catheter Cardiovasc Interv 2010;76:1-8

Micari. Catheter Cardiovasc Interv 2010;76:9-15

Clair. Catheter Cardiovasc Interv 2011;77:420-429

Great Clinical Trial Results

- Meta-analysis of 6 trials
- Mo.Ma and Gore devices
- 2,397 patients
- 2.25% 30 day MI, stroke, death

Where Proximal Protection Shines

- Tortuous vessels
- Severe, complex, symptomatic lesions
- String sign

Case Example

tortuous vessel

- 41 yo male with recurrent episodes of right eye transient blindness
- Age 9: neck, chest radiation for Hodgkins
- Age 22 CABG

Right Carotid Artery

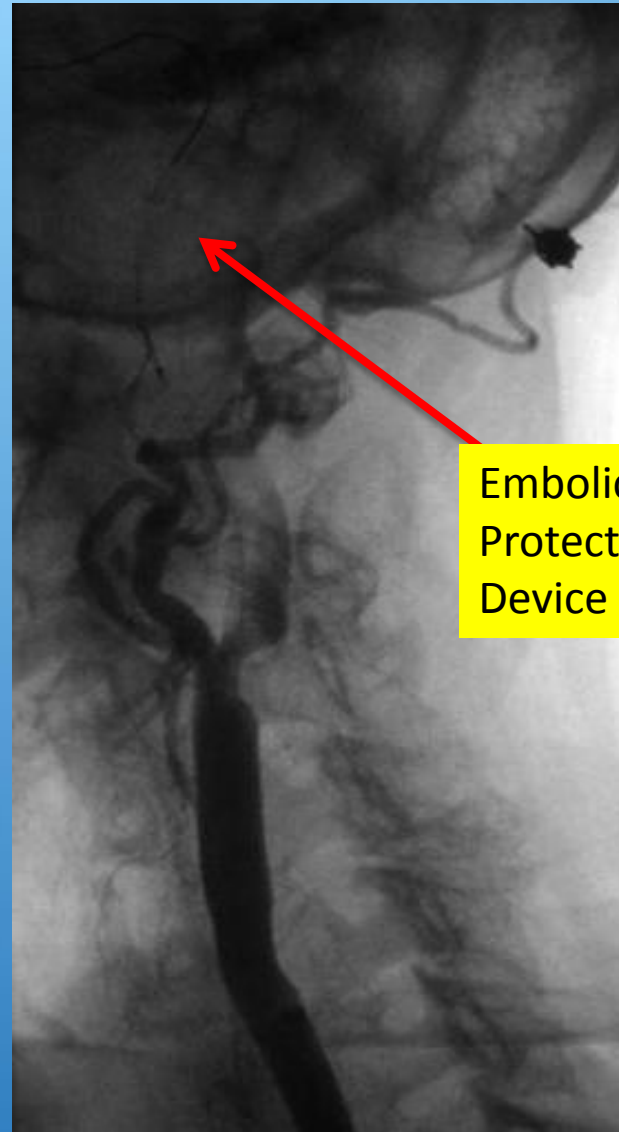
PSV 394

EDV 147

ICA/CCA ratio 3.41



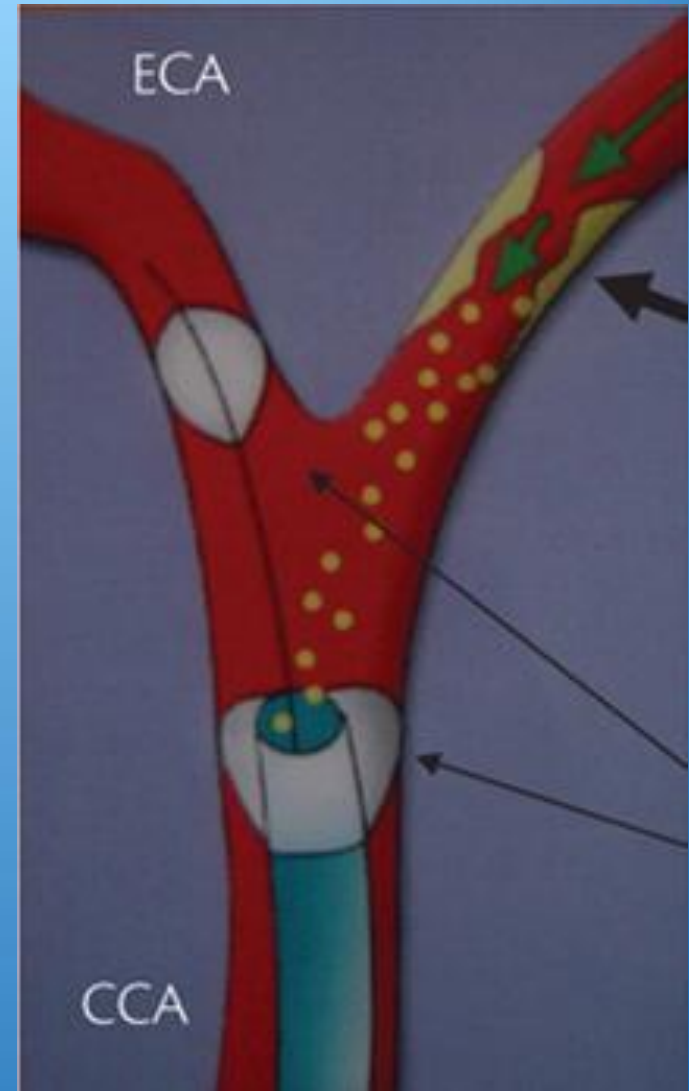
Loss of Carotid Flow from Vessel Straightening



Embolitic
Protection
Device

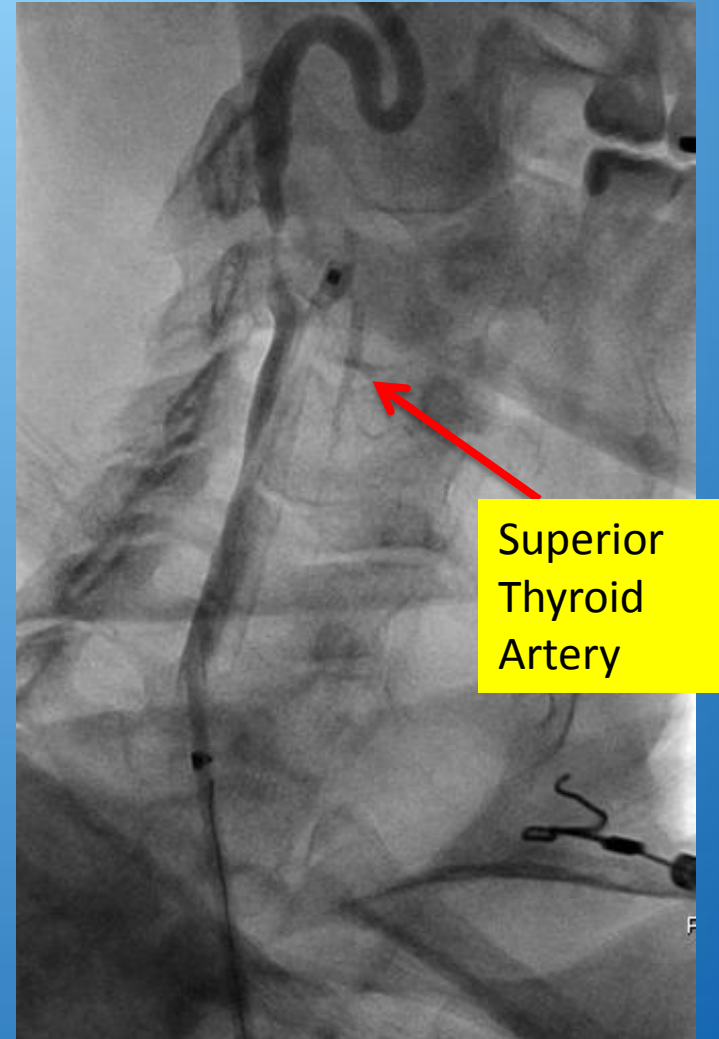
Proximal Protection

Medtronic Mo.Ma Device



Obstruct External Carotid Artery Flow

partial flow arrest



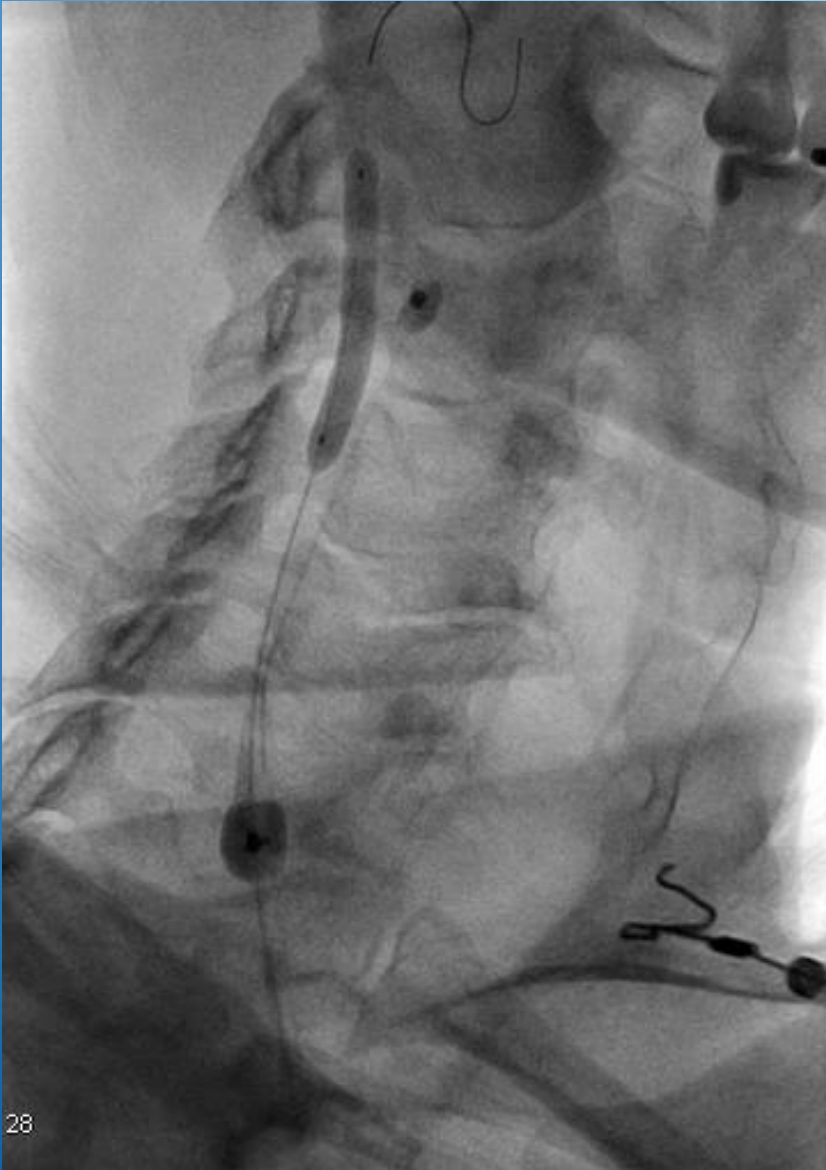
Full Arrest of External Carotid Flow



Arrest Common Carotid Flow



Dilate Internal Carotid Stenosis



- Stent
- Post dilate
- Aspirate common carotid
- Deflate balloons

Final Angiogram



Case Example


severe, complex, symptomatic lesion

- 65 yo male
- Severe CAD, CABG 1987 (age 41), ICD, CHF
- 2001 (age 54)
 - OHT evaluation
 - RICA stent for 90% stenosis and TMB
 - LICA watched

Case Presentation

- 2004 (age 57)
 - RICA stent ok
 - LICA progresses, treated with stent
- Operator leaves town
- 2012 presents with 6 months of right TMB, clumsiness

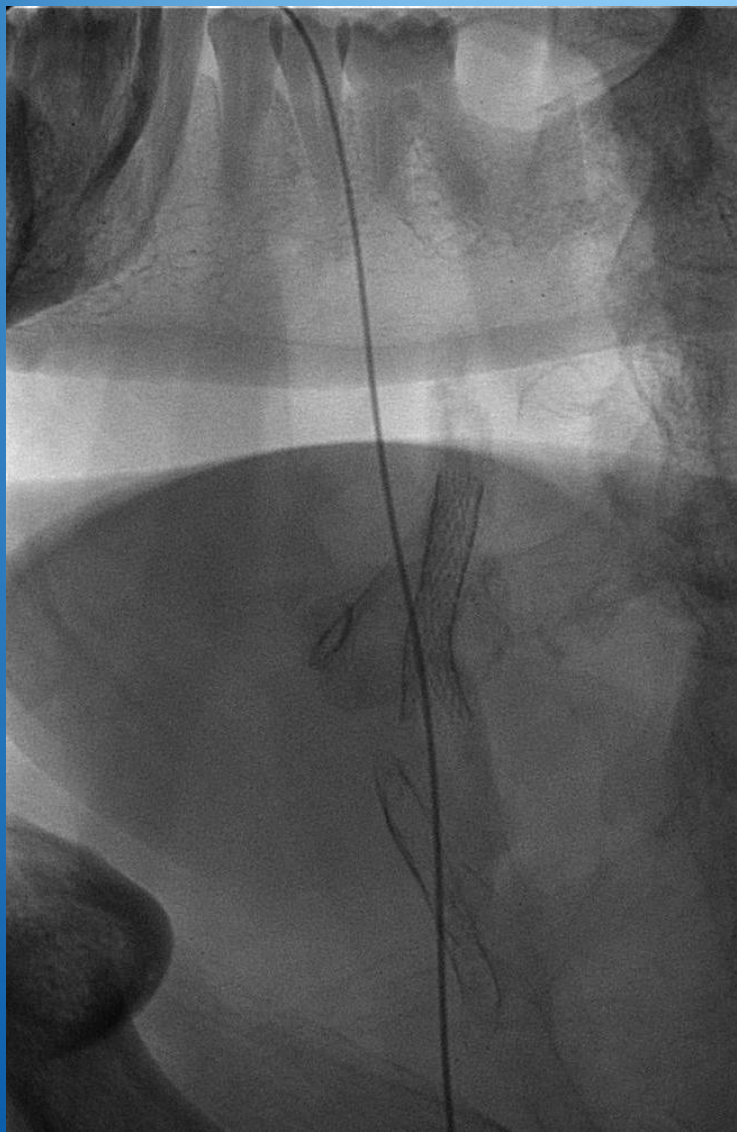
Right Carotid Angiogram



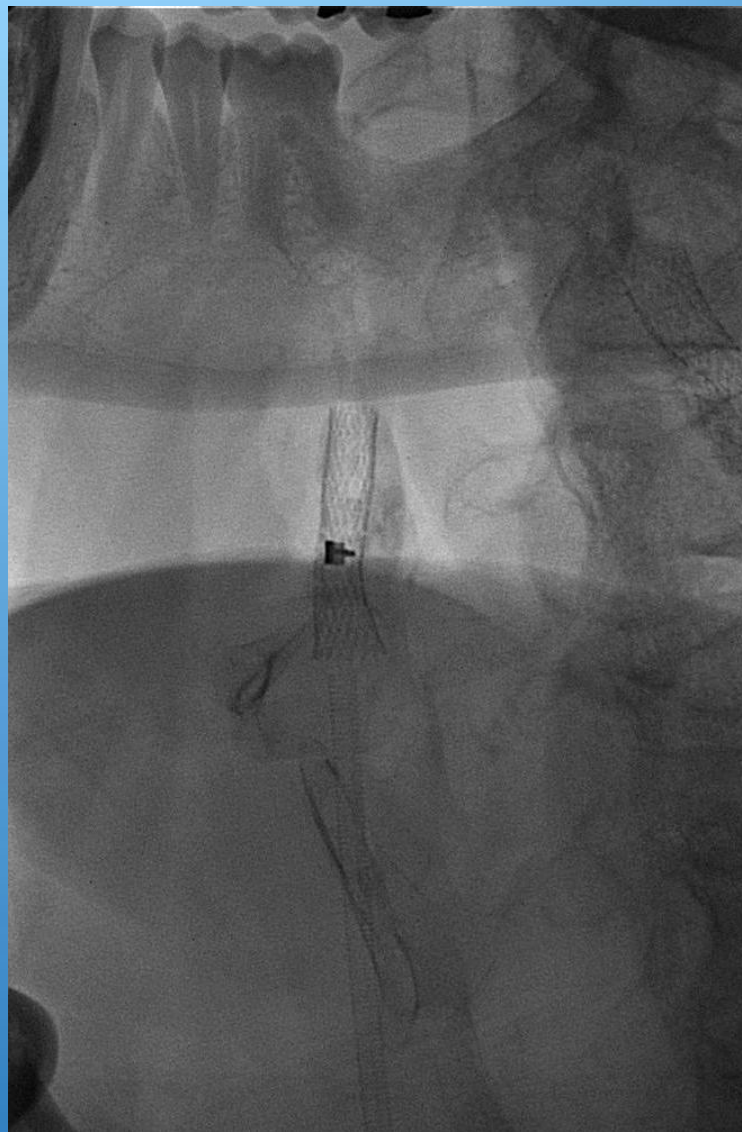
PSV 334
EDV 101
ICA/CCA 12.5

This is a grayscale angiogram of the right carotid artery. The image shows the vessel lumen as a dark, elongated structure. There is a noticeable narrowing or stenosis in the middle section of the vessel. The surrounding tissue is shown in lighter shades of gray, providing contrast for the vessel. The overall image has a grainy texture typical of medical X-ray angiography.

Glidewire Into ECA



Mo.Ma Into Stent to Occlude ECA



Final



Follow-Up

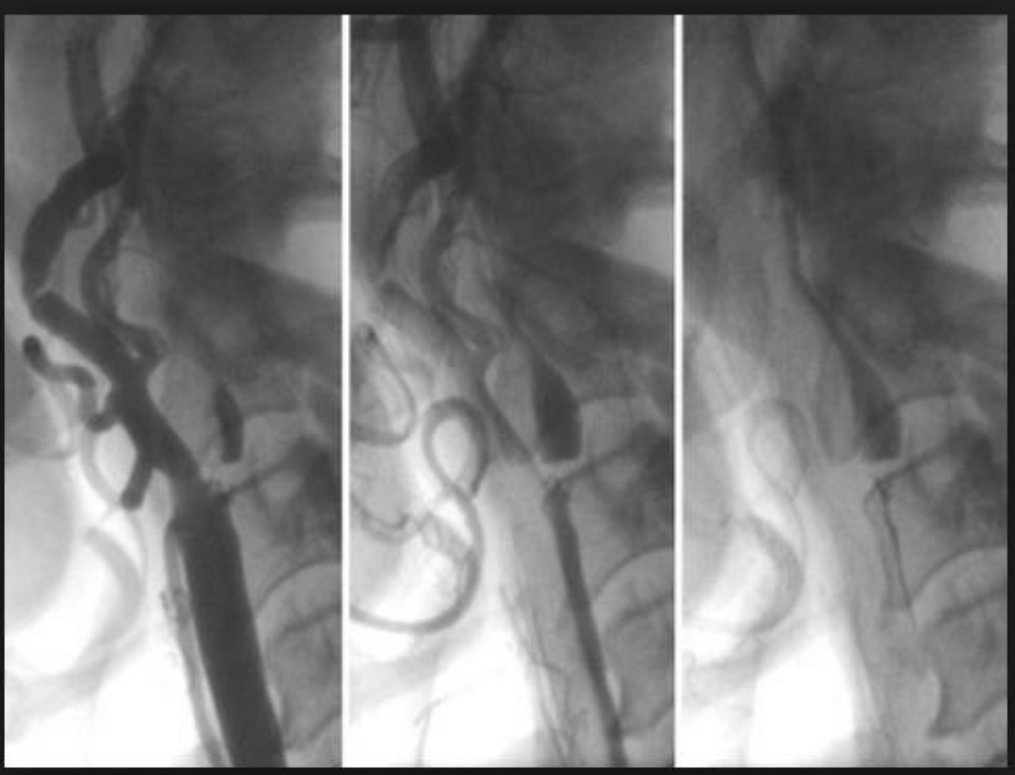
- No recurrent TMB
- Clumsiness resolved
- Mental clarity increased

PSV 334 → 103

EDV 101 → 32

ICA/CCA 12.5 → 2.15

String Sign



- 25 patients
- 40% octogenarians
- 80% symptomatic
- No strokes at 12 mo

Proximal Protection Grabs the Initiative

- It is a more sound physiologic concept
- Overall clinical outcomes are superior
- It makes certain impossible cases possible



THE UNIVERSITY OF
TOLEDO
HEART AND VASCULAR CENTER