

## Study Protocol

# Embolization of an IC-ophthalmic artery aneurysm with coil and stent

Neuro Interventions

*syngo DynaCT offers excellent spatial resolution to understand the precise vessel structure before embolization treatment*

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### Courtesy of

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### Supported by

*syngo Dyna3D*  
*syngo DynaCT Micro*  
*syngo Dyna4D*

### System & Software

Artis pheno, VE10B  
*syngo X Workplace VD20B*

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## Case Description

### Patient history

A 54 year old woman underwent MRI for her headache in 2006. An ophthalmic artery aneurysm was discovered. The size did not change on follow-up, but the patient was worried and wished to get a treatment.

### Diagnosis

The maximum diameter of the aneurysm was 5 mm and based on the location of the aneurysm endovascular treatment was recommended. Diagnostic DSA was performed in 2017 and right ICAG (internal carotid artery angiography) revealed that the aneurysm was located at the origin of the ophthalmic artery at the bifurcation of the C2 segment of the ICA. ECAG (external carotid artery angiography) combined with balloon occlusion test (BOT) did not show collateral flow (i.e. no choroidal blush).

To avoid the complication of visual loss, it was therefore of utmost importance to preserve the ophthalmic artery.

### Treatment

After access was established through the right femoral artery and a catheter was advanced until the left ICA a 4D DSA scan was taken to understand the relative location of the catheter before the stent and coil deployment. To perform the embolization, a stent was deployed to cover the neck of the aneurysms and 10 coils were used to fill the aneurysm. A high filling rate of 35.6% was achieved without sacrificing the ophthalmic artery.

### General comments

DynaCT had excellent spatial resolution and thereby helped to determine the border between the aneurysm and ophthalmic artery, which was important to preserve the visual functioning of the patient. Robotic C-arm can be positioned at any angle to optimize visualization during the procedure. In 3D imaging, the robotic C-arm quickly follows any image position, enabling the endovascular surgeons to get views from several angles, which is important for the success of the procedure.

### Tips and tricks

3D imaging helps to find the optimal angle of the C-arm for fluoroscopy during the procedure, ensuring safe deployment of stent and coil placement.

## Embolization of an IC-ophthalmic artery aneurysm with coil and stent

Acquisition protocol	6s Dyna4D	
Injection protocol		
Catheter position	Left ICA	
Contrast medium (CM)	Ioversol (320 mg/mL)	
Dilution (CM/Saline):	no dilution	
Injection volume	18 mL	
Injection rate	3.0 mL/s	
Duration of injection	6.0 s	
X-ray delay	0 s	
Power injector used	Medrad (Warrendale, PA, USA)	
Reconstructions	Primary	Secondary
Name	Dyna4D arterial	
VOI size	Full	Small for better detail resolution
Slice matrix	512 × 512	
Kernel type	HU	
Image characteristics	Auto	
Reconstruction mode	Sub	
Viewing preset	Dyna4D	

# Clinical Images

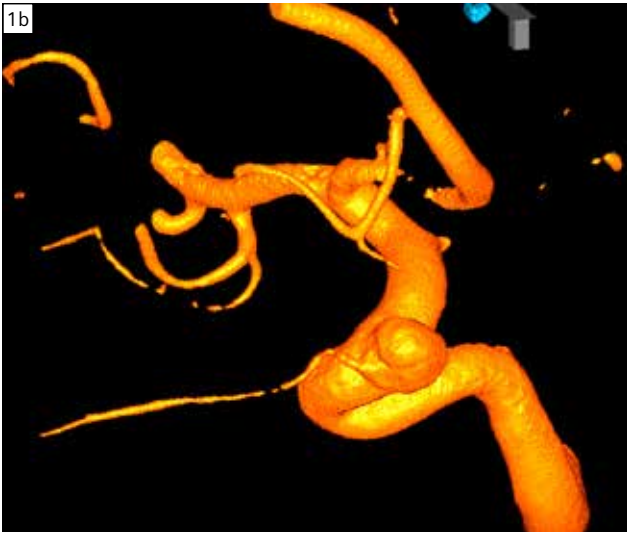
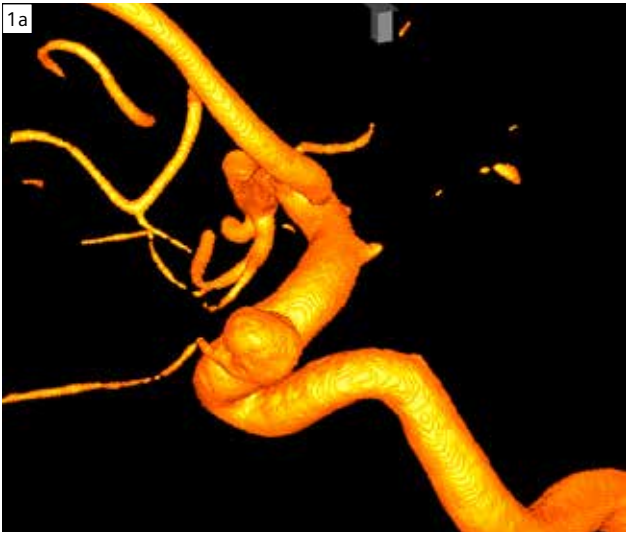


Figure 1: syngo Dyna4D does not only show the morphology in different angles

# Clinical Images



Figure 2: ..but also allows to see it in different timepoints

## Clinical Images

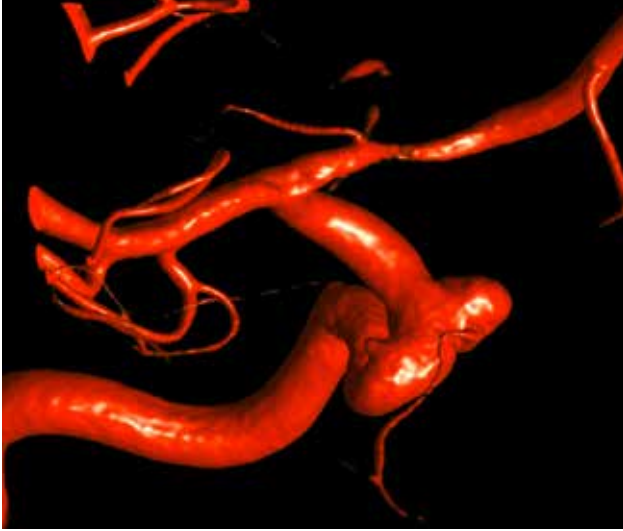


Figure 3: VRT Visualization before intervention



Figure 4: Dual Volume visualization after intervention

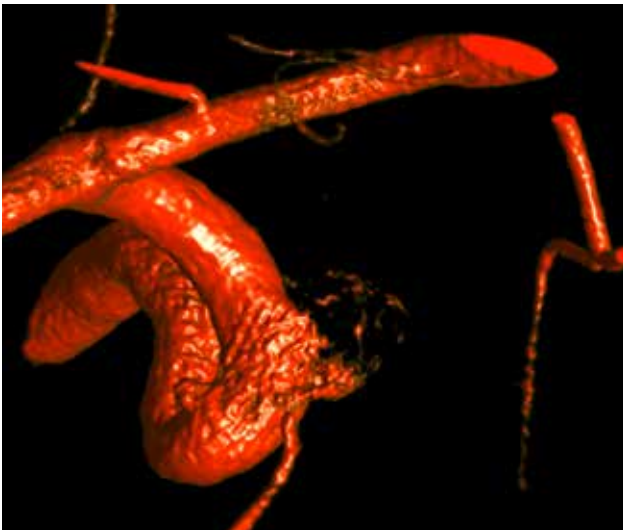


Figure 5: VRT Sub Visualization after intervention

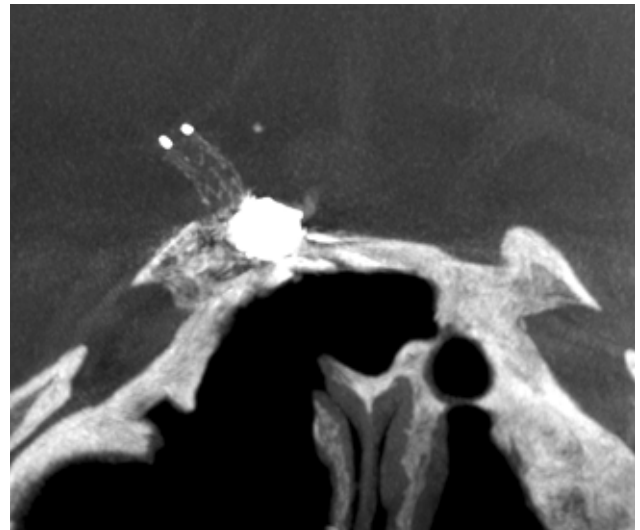


Figure 6: *syngo* DynaCT Micro run reconstructed with *syngo* DynaCT SMART shows you the stent in relation to the coil pack

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