

# Dynamic 3D Imaging of Peripheral Arteriovenous Malformations

Courtesy: Walter A. Wohlgemuth, MD, University Hospital Halle (Saale), Germany<sup>1</sup>

## Patient history

28-year-old female patient with progressive pain and swelling of a warm, pulsatile lesion on the fourth digit of the left hand. Clinical examination and ultrasound suggested a diagnosis of arteriovenous malformation (AVM).

## Treatment

Embolization using a combined percutaneous (direct) puncture and transarterial approach with Onyx®.

## Comments

Standard-of-care imaging for peripheral shunt diseases currently includes preprocedural MR imaging, ultrasound, and interventional 2D digital subtraction angiography (DSA). The use of dynamic 3D imaging to assess contrast dynamics in peripheral AVMs and its value to analyze and treat complex peripheral vascular disorders is currently being explored. The software application *syngo Dyna4D* used here provides a series of consecutive time frames that visualizes the contrast dynamics at each point in time from every angle in a 3D dataset. This helps to overcome the limitations of conventional 2D angiography in terms of resolution of overlapping structures and vessel foreshortening.

## Protocol

5s DSA Head (200 degrees, 1.50 deg/frame, 133 projection images, digital subtraction angiography), no X-ray delay, injection of 19 mL Omnipaque 300 contrast agent, 100 % contrast, 5 mL/s. ●

## Diagnosis

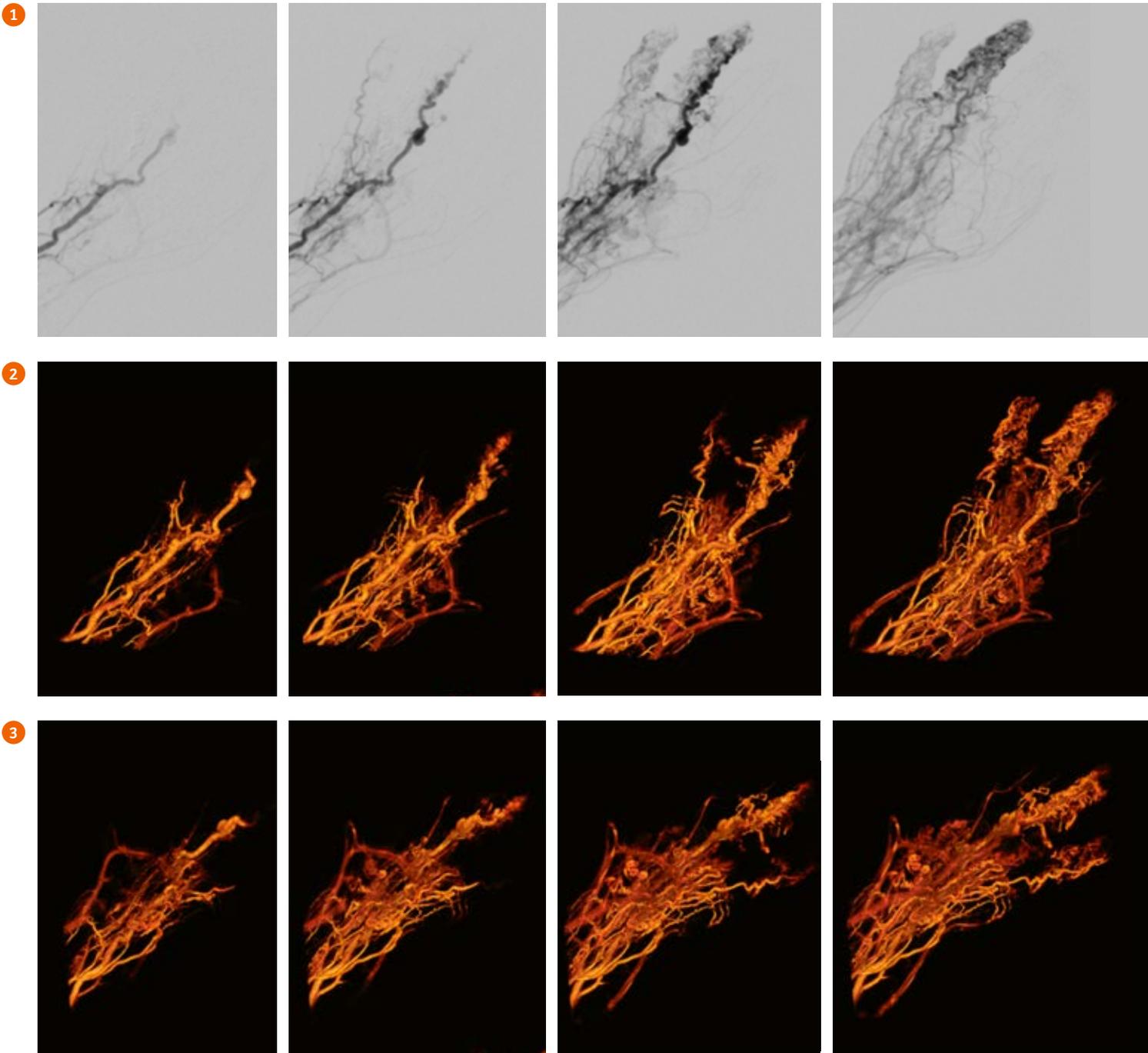
Extensive arteriovenous malformation of the fourth digit of the patient's left hand, with small flow-related aneurysms.



*“syngo Dyna4D can help avoid additional series when analyzing peripheral shunt diseases. It provides a comprehensive, dynamic 3D dataset that allows you to assess complex AVM dynamics from any angle with one injection.”*

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<sup>1</sup> This case comes from Walter Wohlgemuth's time at the Department of Radiology, University Hospital Regensburg, Germany



- 1 Pre-embolization 2D DSA showing arteriovenous malformation of the left hand.
- 2 Time-resolved 3D image series showing arteriovenous malformation of the left hand (LAO 0°, CAUD 0°).
- 3 Time-resolved 3D image series showing arteriovenous malformation of the left hand (LAO 180°, CAUD 0°).

*The outcomes by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.*

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