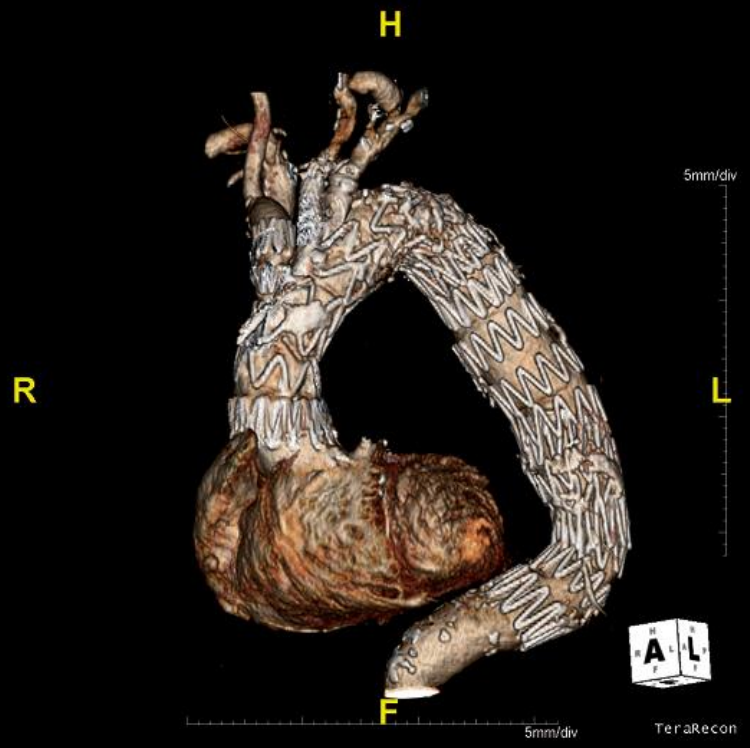
16TH INTERNATIONAL EXPERTS SYMPOSIUM

# CRITICAL ISSUES
## in aortic endografting 2012




May 24 & 25

LILLE, FRANCE 2012

New technologies.
New aortic endograft and bridging stents.

# Medtronic Next Generation abdominal endograft

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# Faculty Disclosure

16th INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
in aortic endografting 2012

***Piergiorgio Cao***

*Speaker's fee and consulting for Gore , Medtronic*

# Predictors of Abdominal Aortic Aneurysm Sac Enlargement After Endovascular Repair

Andres Schanzer, MD; Roy K. Greenberg, MD; Nathanael Hevelone, MPH; William P. Robinson, MD; Mohammad H. Eslami, MD; Robert J. Goldberg, PhD; Louis Messina, MD

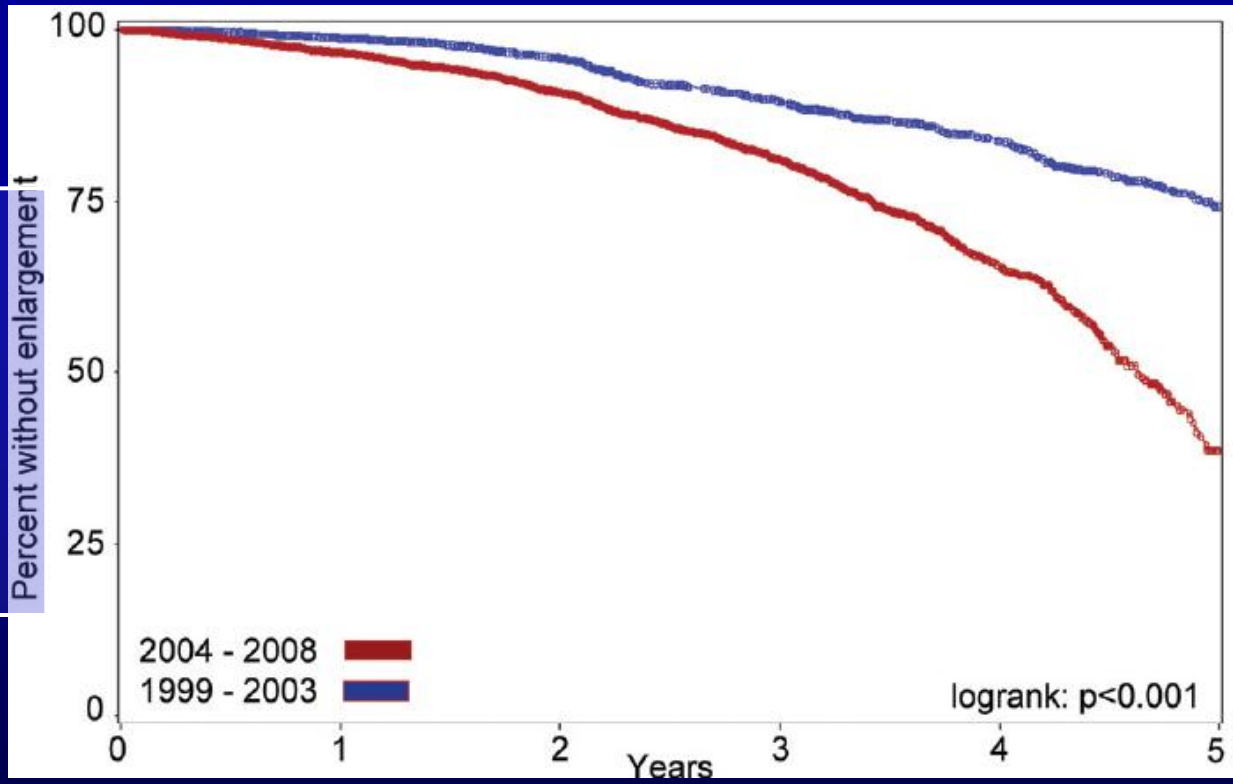
(*Circulation*. 2011;123:2848-2855.)

10228 patients

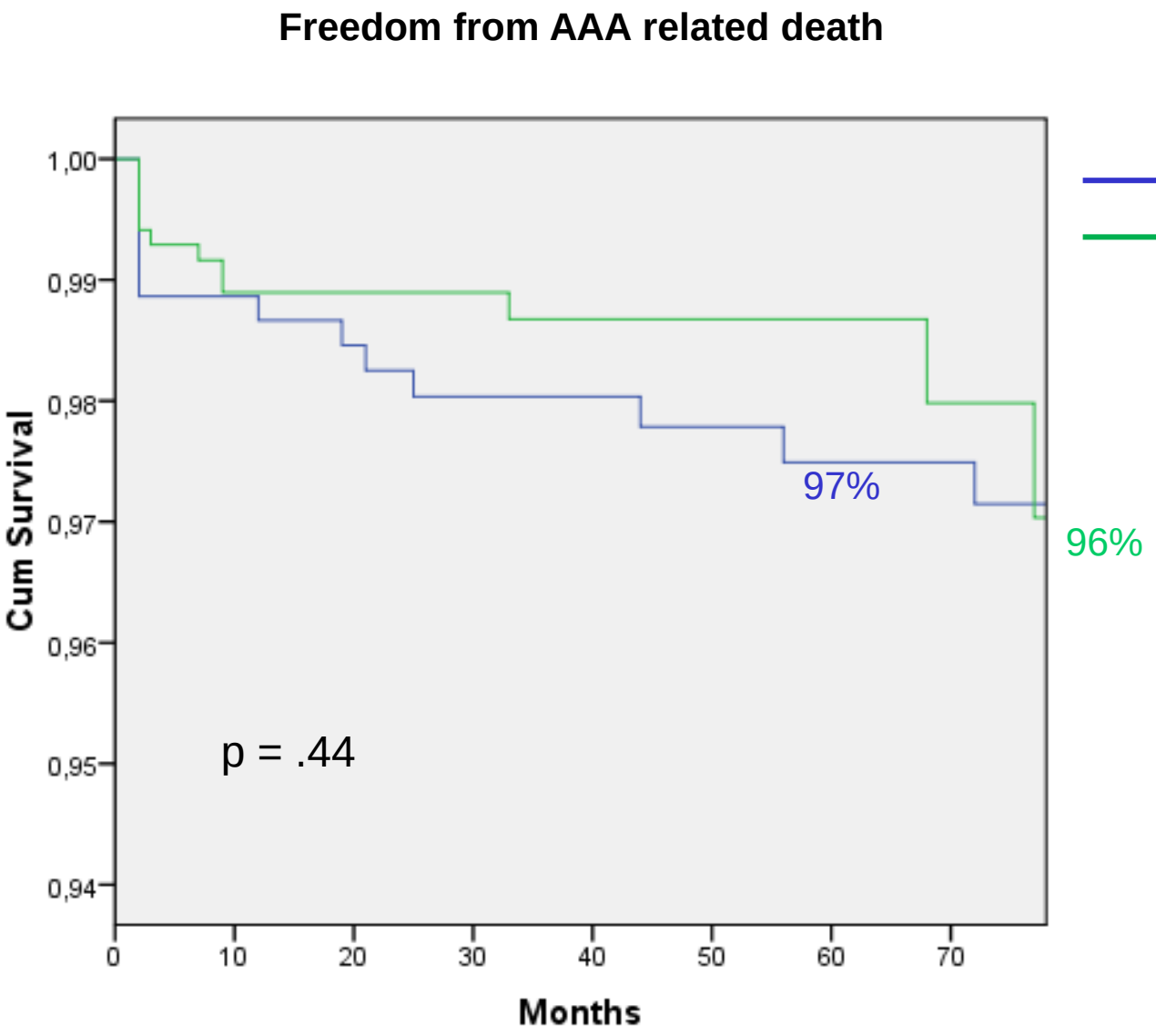
Retrospective study

Experience leads to continued high quality innovation

**?**



# Perugia experience (1997-2011)



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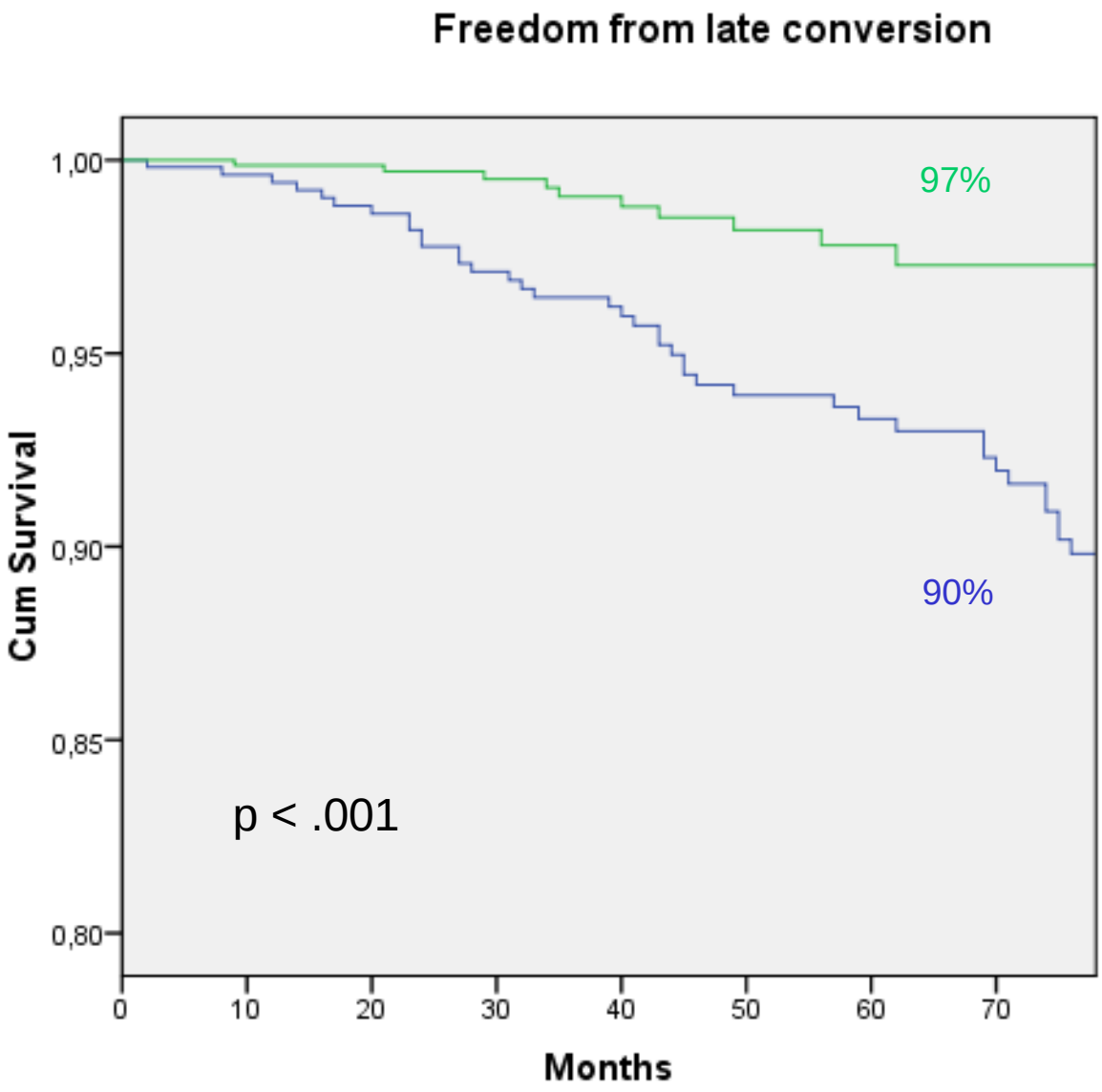


old generation device

new generation device

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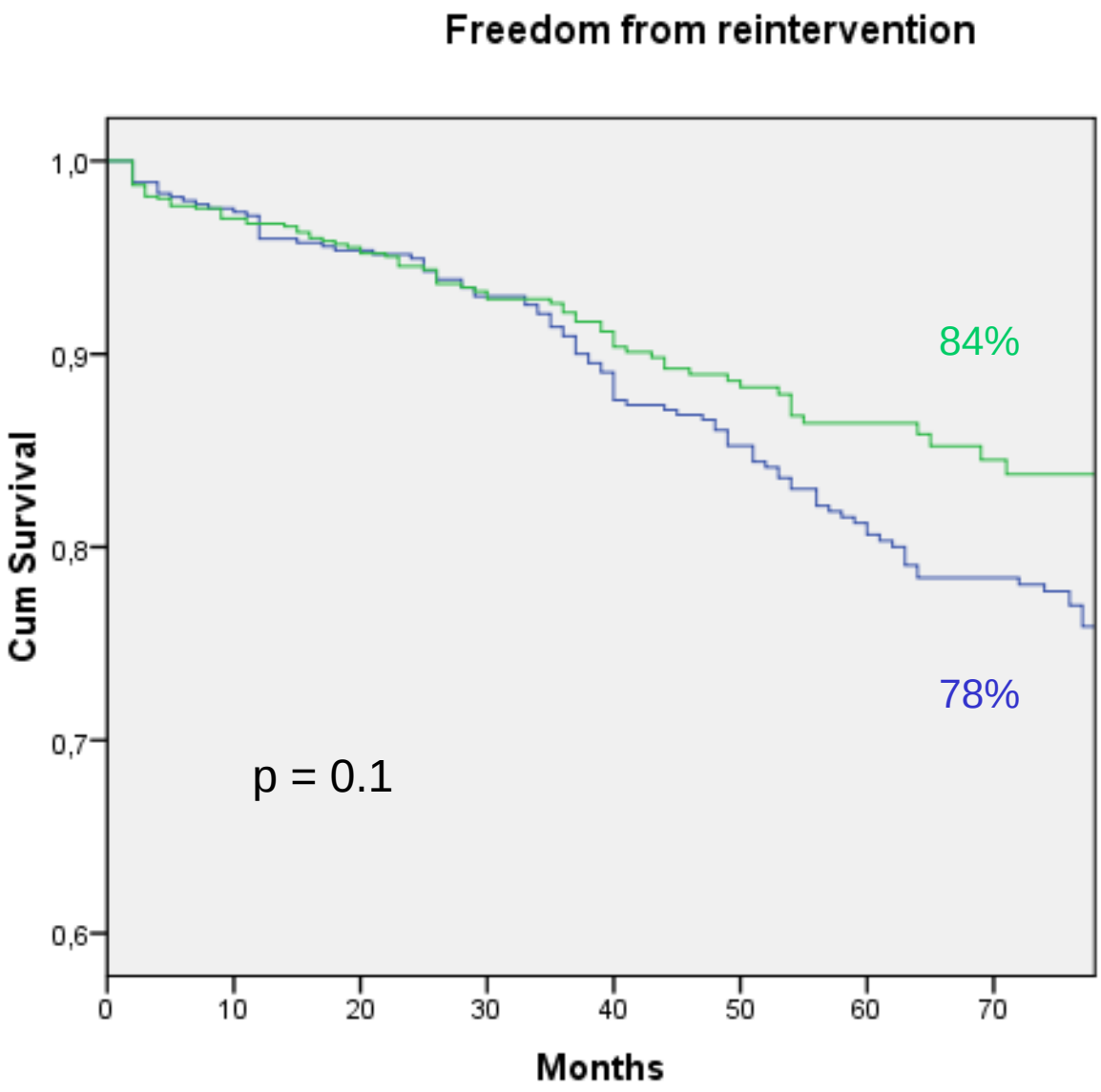
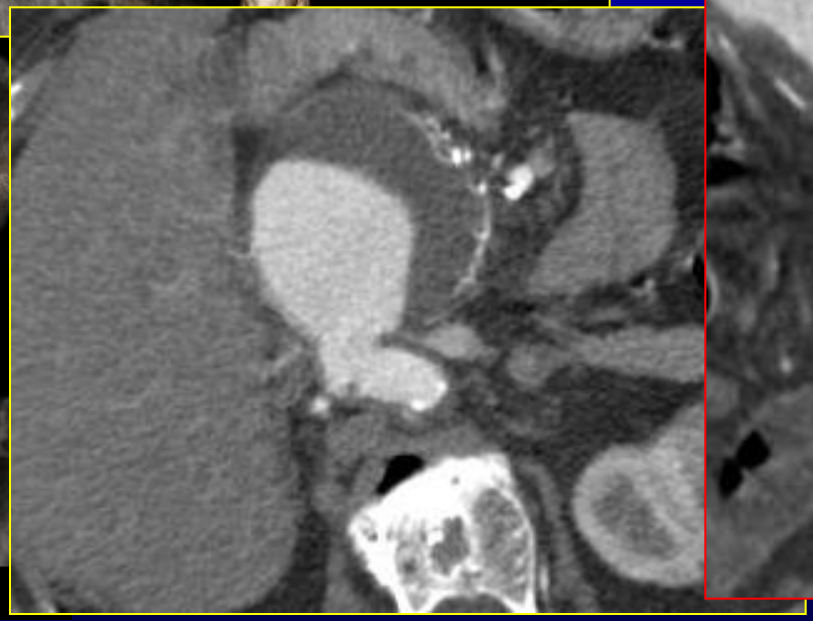


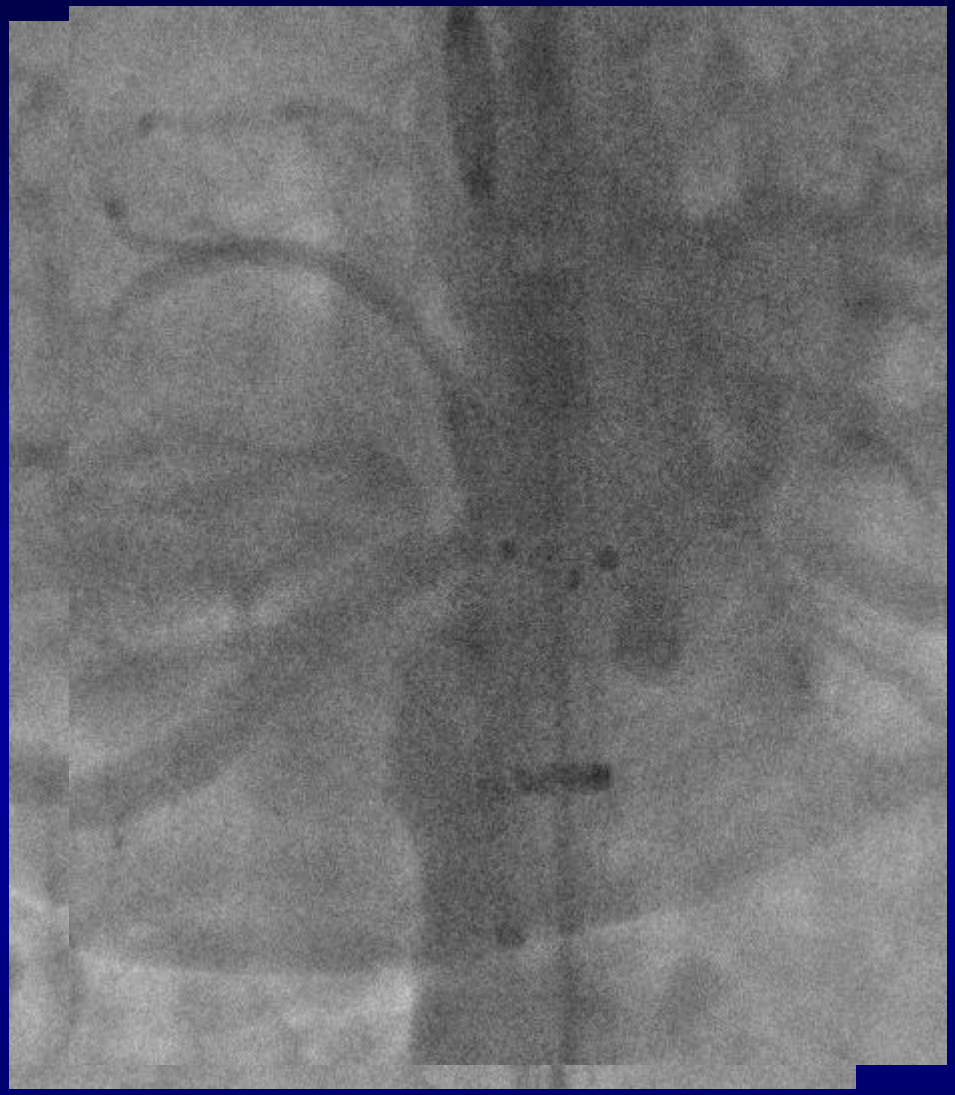

old generation device

new generation device

Female 85y

CAD (previous PTCA)
Hypertension
**ABDOMINAL PAIN**

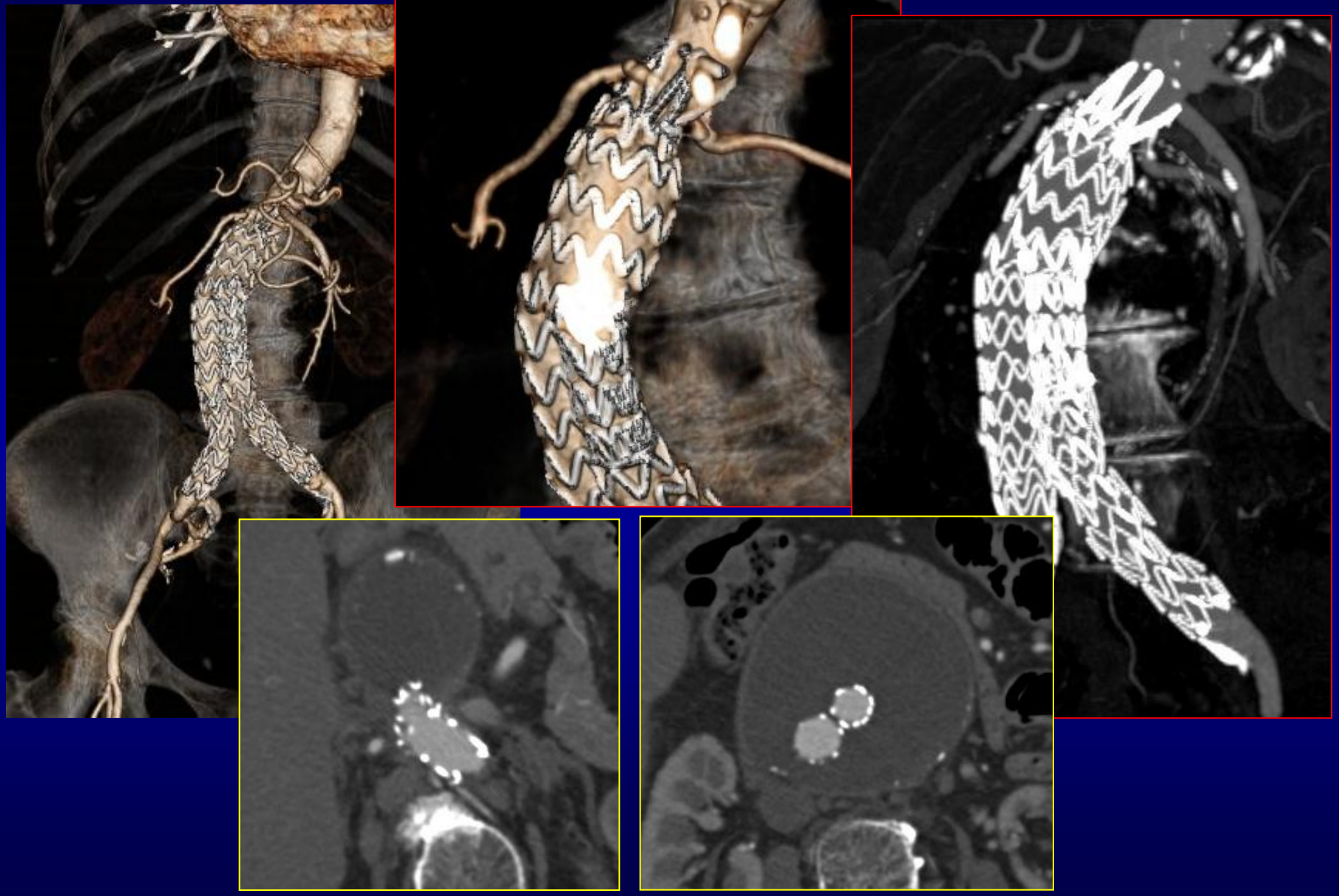




Outside IFU

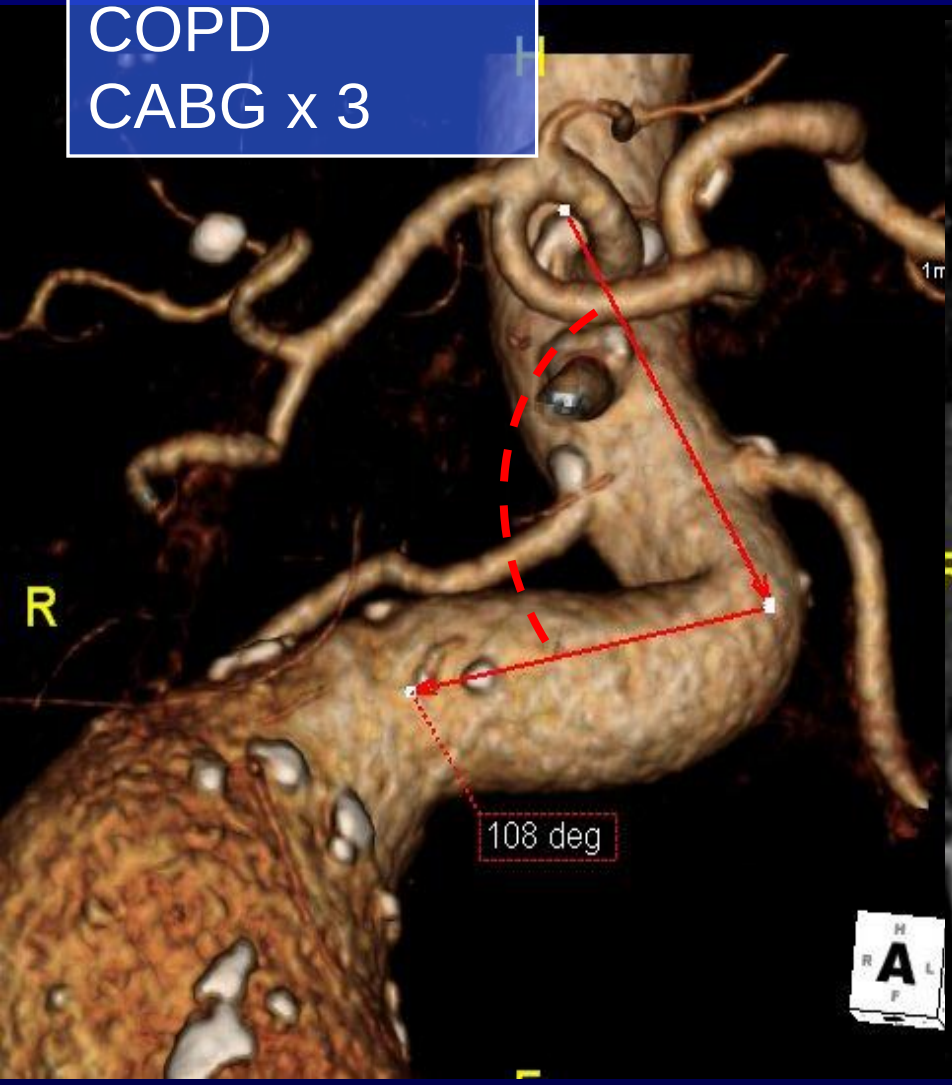
# CT @ 1 week

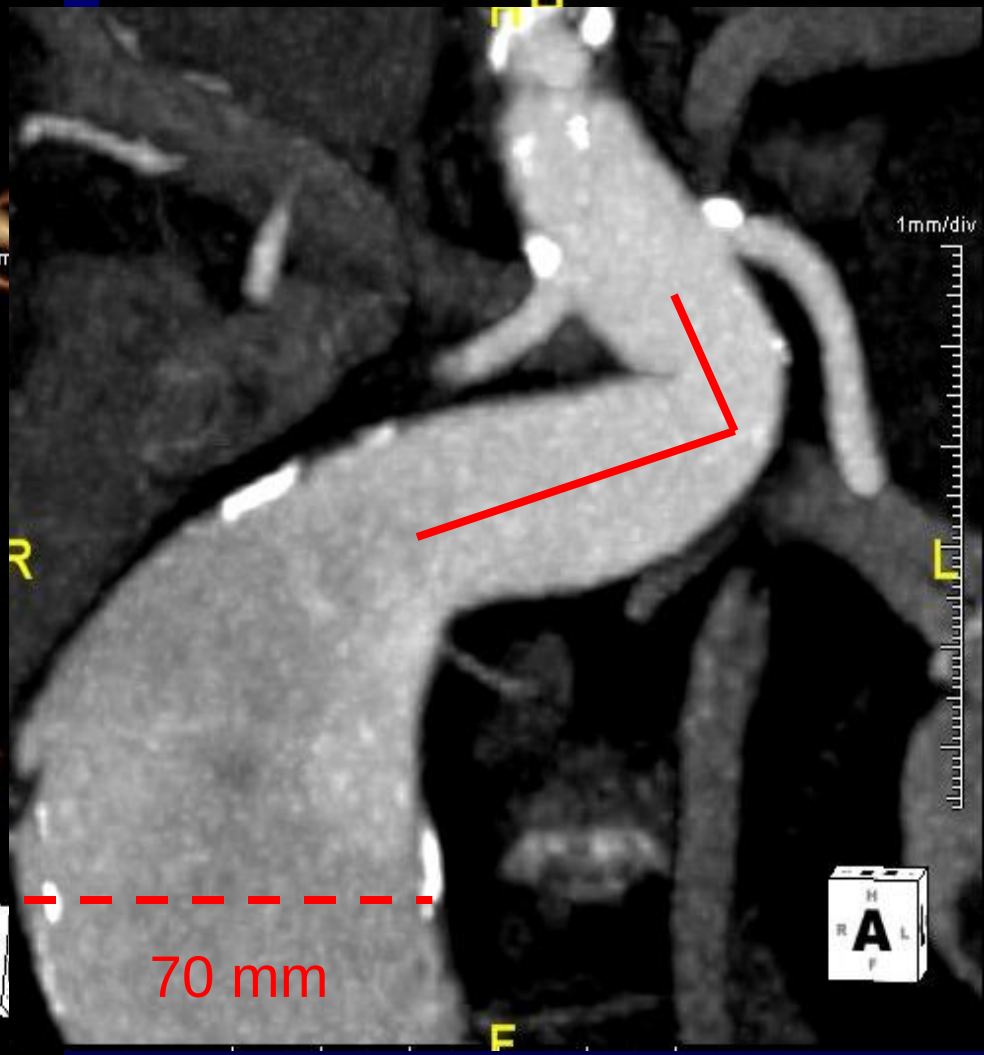


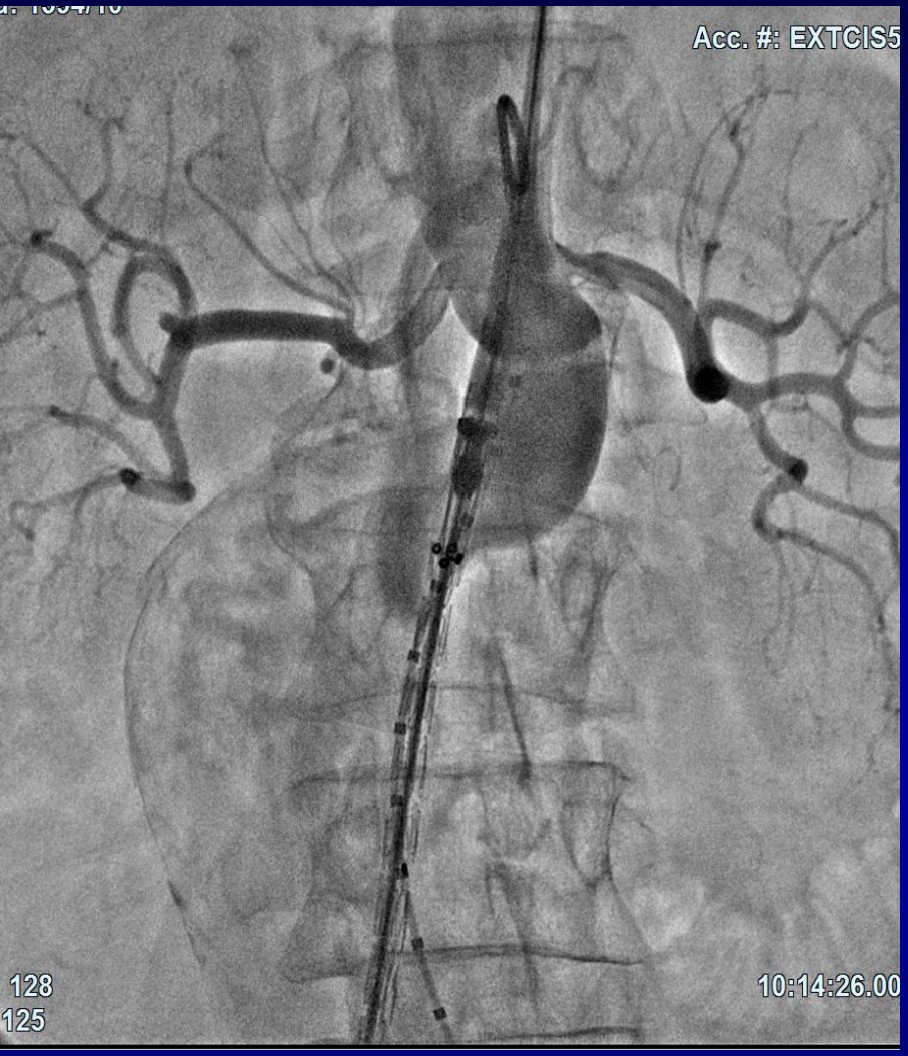


Female 71y

Obesity
COPD
CABG x 3



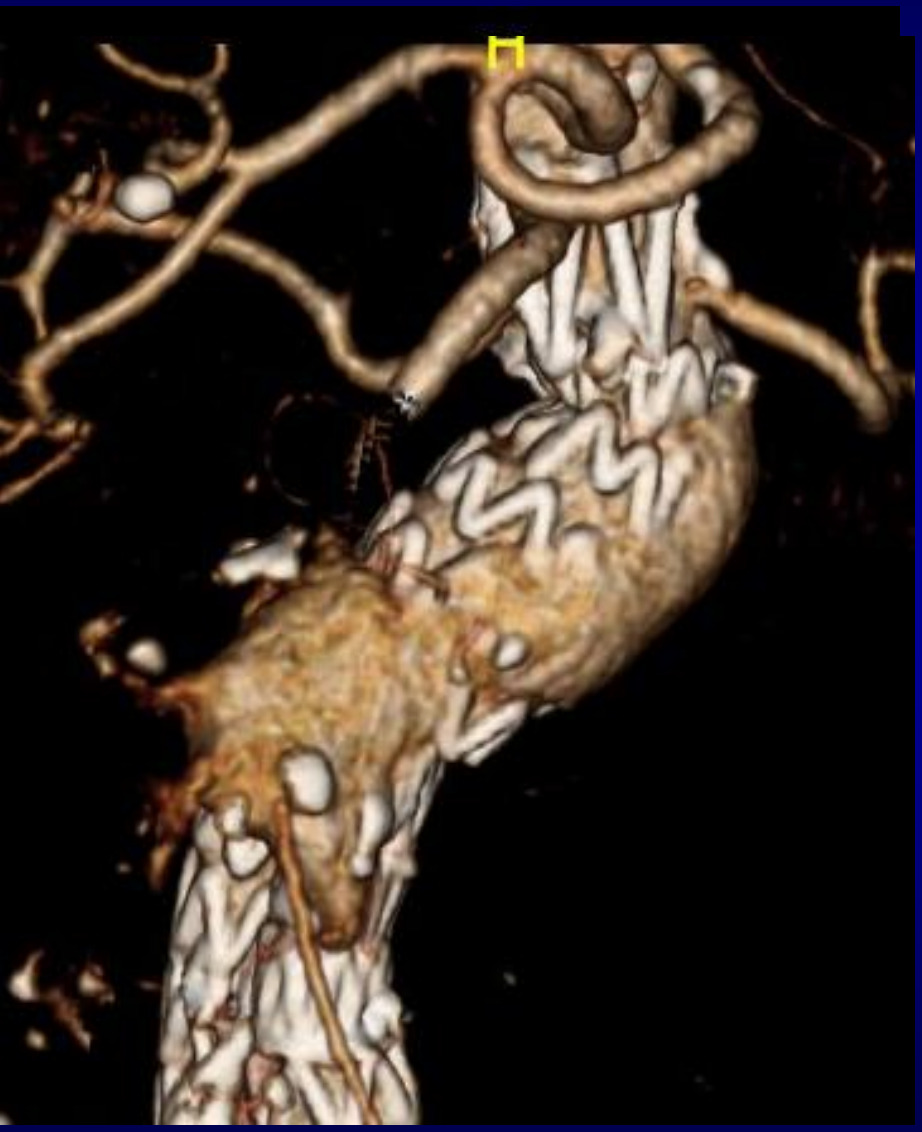


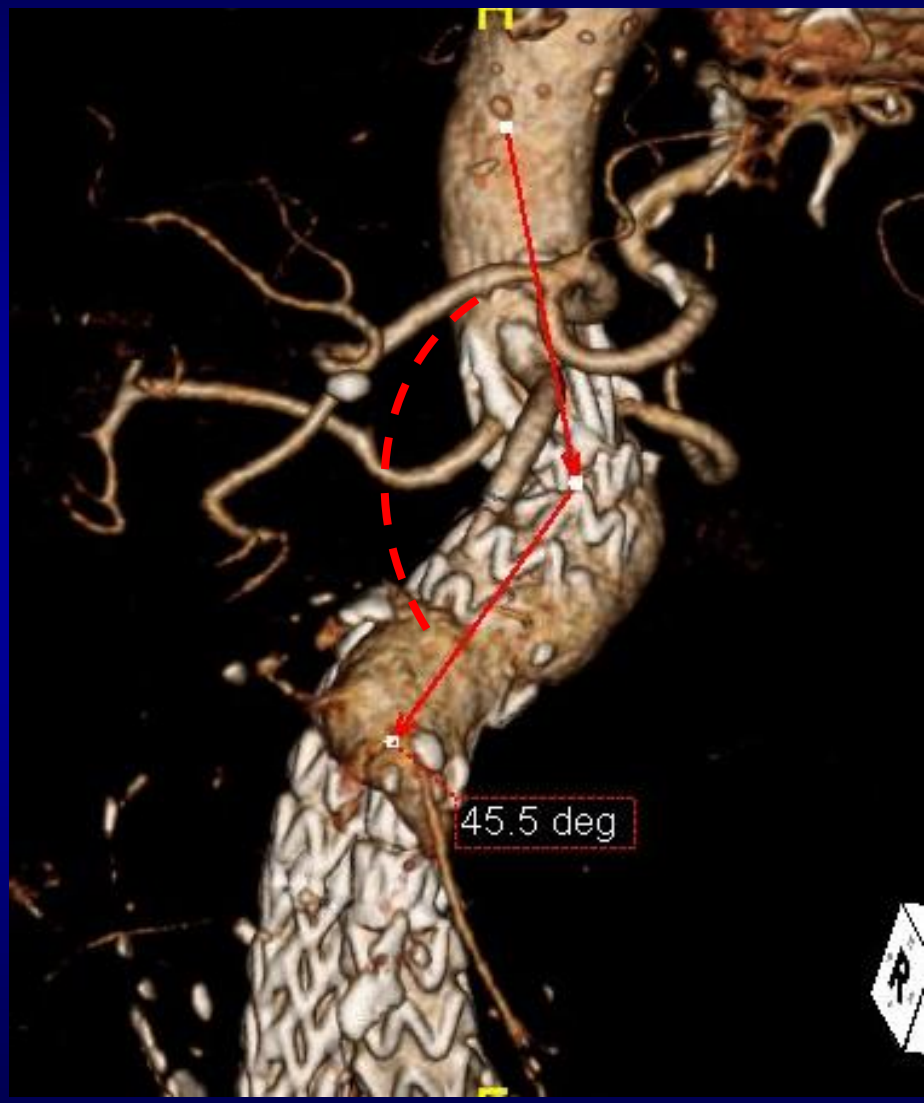


Endurant Medtronic
28-16-170

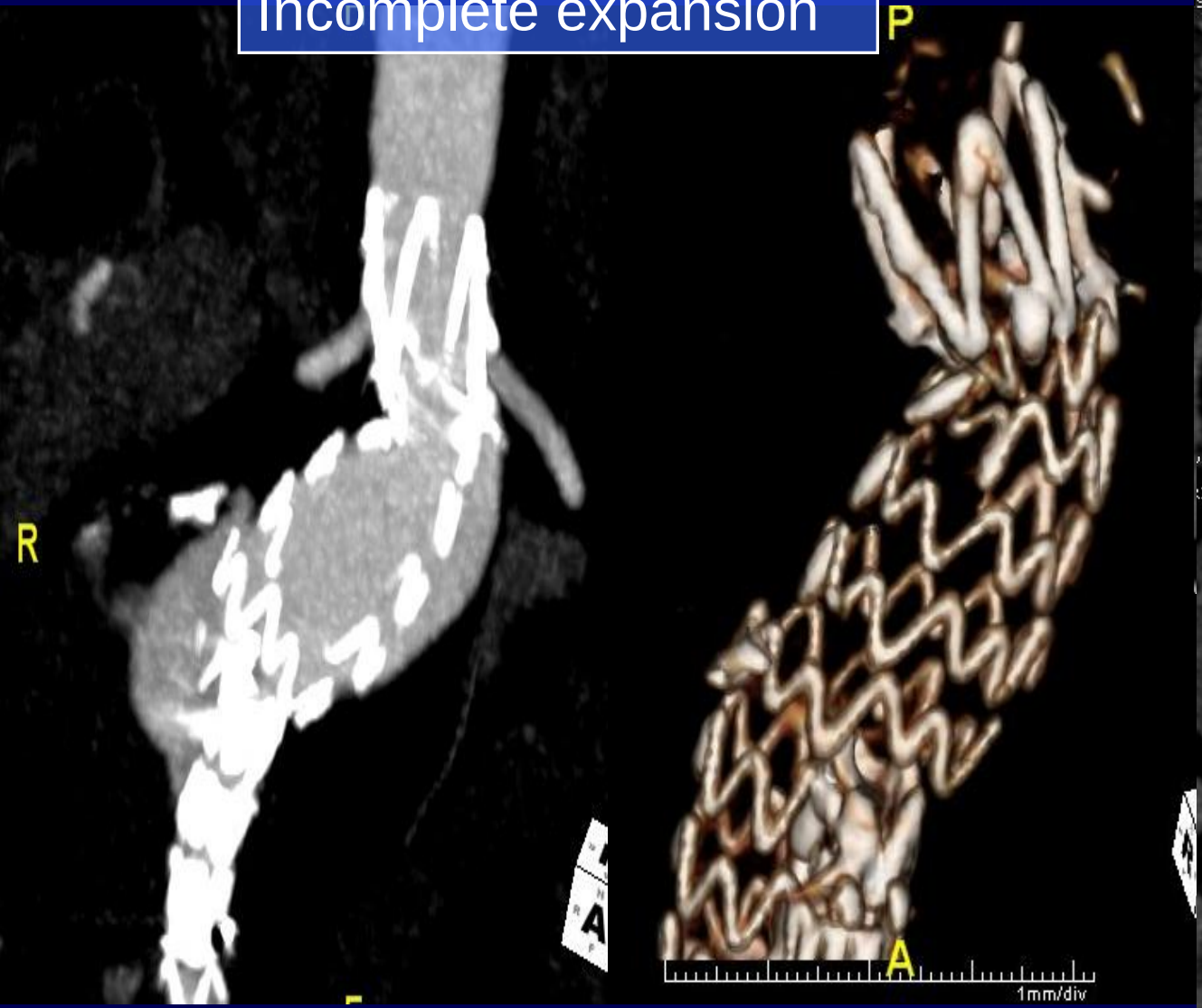
# CT @ 1 m

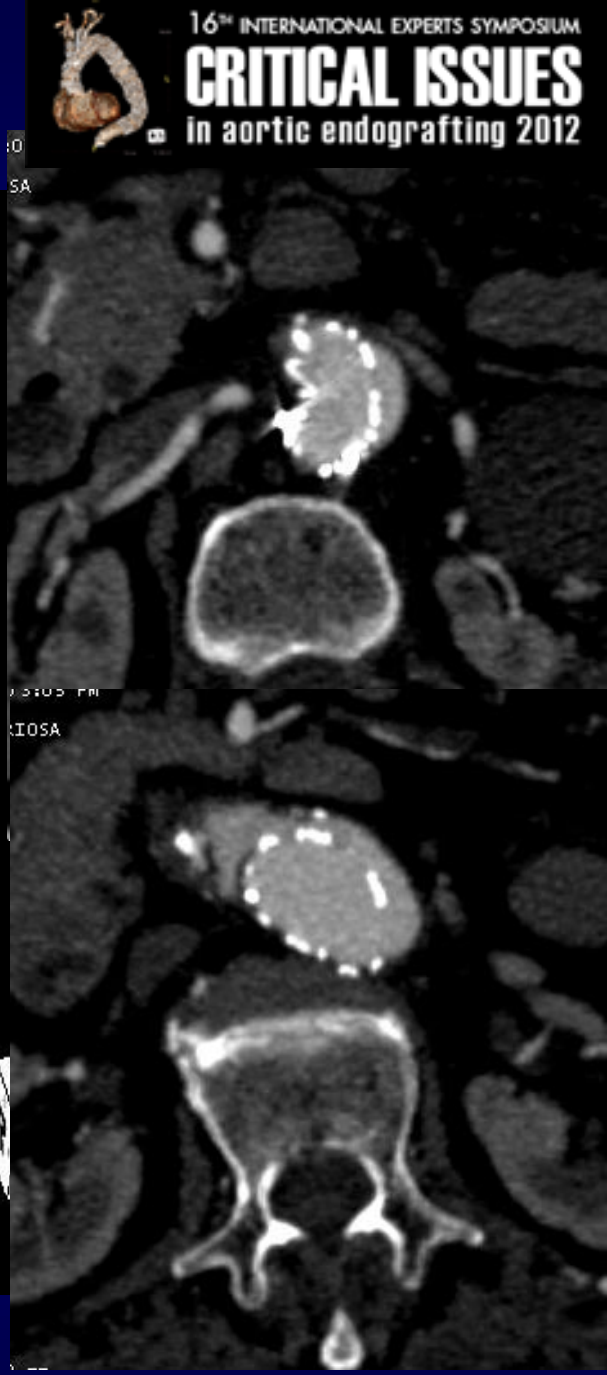






# Incomplete expansion




## Coil embolization

# Roma Experience with Medtronic Endurant (2009-2011)



**n=94**

89 Elective AAA

| | |
|---|---|
| 30-day mortality | 0 |
| Conversion | 0 |
| Migration | 0 |
| **Reinterventions** | **1** |

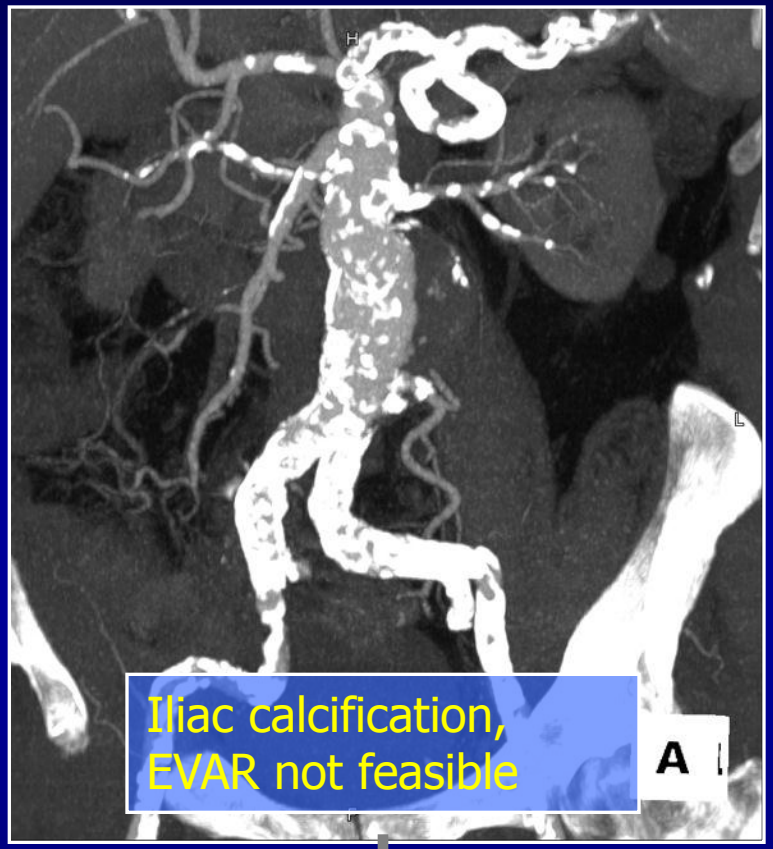
**• CP stent implantation for iliac leg occlusion**

6 out of 31 rAAA
**30-day mortality 20%**

# Meeting unmet needs in abdominal aortic aneurysm treatment



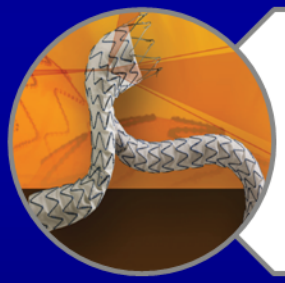
Iliac calcification,
EVAR feasible



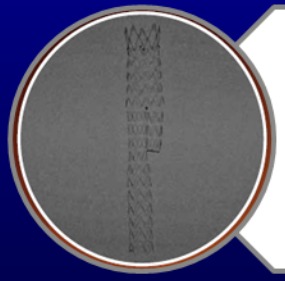

Open Surgery

# Endurant II

Lower profile, hydrophilic delivery system for enhanced access

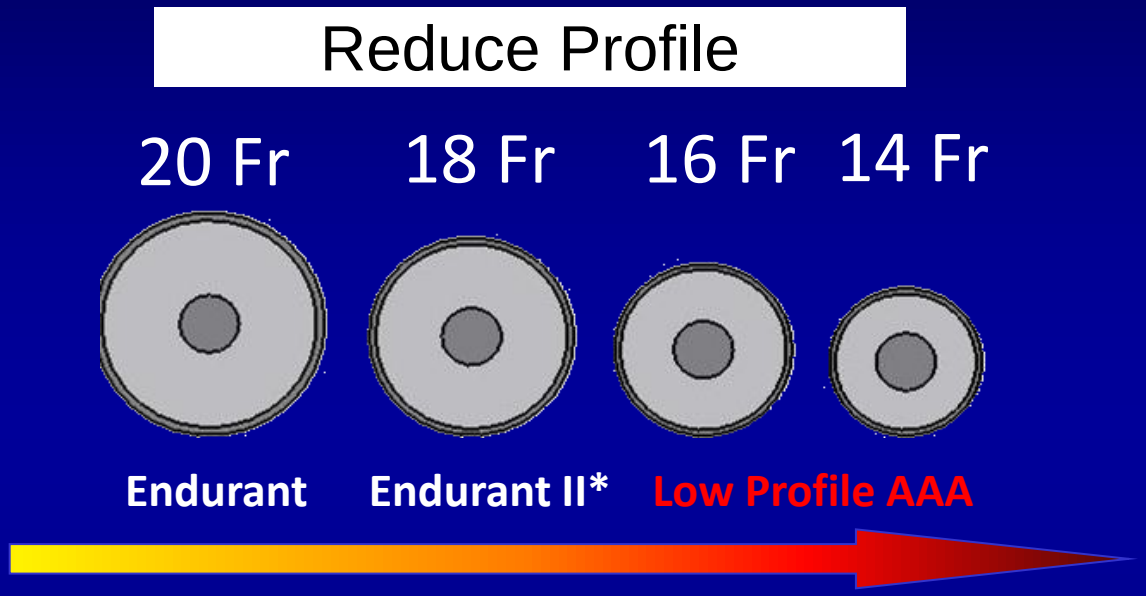


Longer limb lengths offer multiple options to improve ease of use



Improved radiopacity for increased visibility

# Improve vascular access

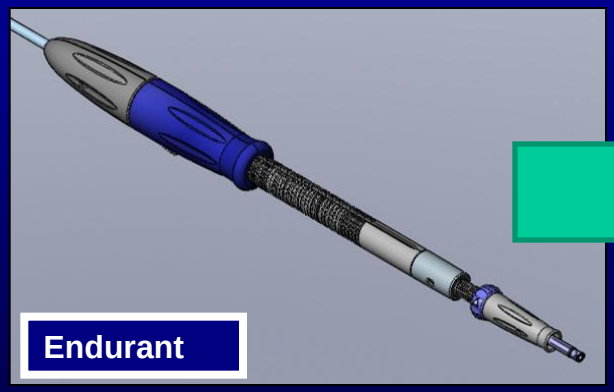



- Bifur profile: 14 – 16 Fr (OD)
- Limb profile: 12 – 14 Fr (OD)

# Low Profile AAA

## simplified delivery system for controlled deployment

- Added flush port for contrast injection to visualize hypogastric artery post bifur deployment
- Eliminated tip re-capture step
- New materials and shapes for improved handling


# Meeting unmet needs in abdominal aortic aneurysm treatment

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Custom made fenestrated device,

non-specific visceral stent

# AAA Branch Stent Graft System

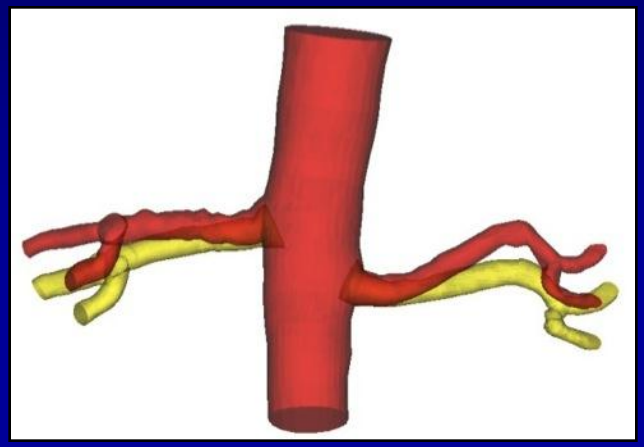


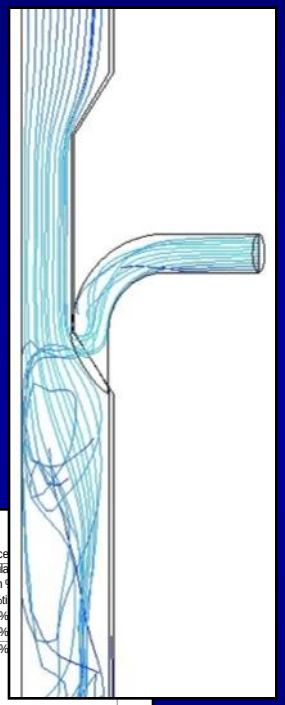
- Efficacy
- Procedure Time
- Ease of Use
- Off the Shelf
- Safety

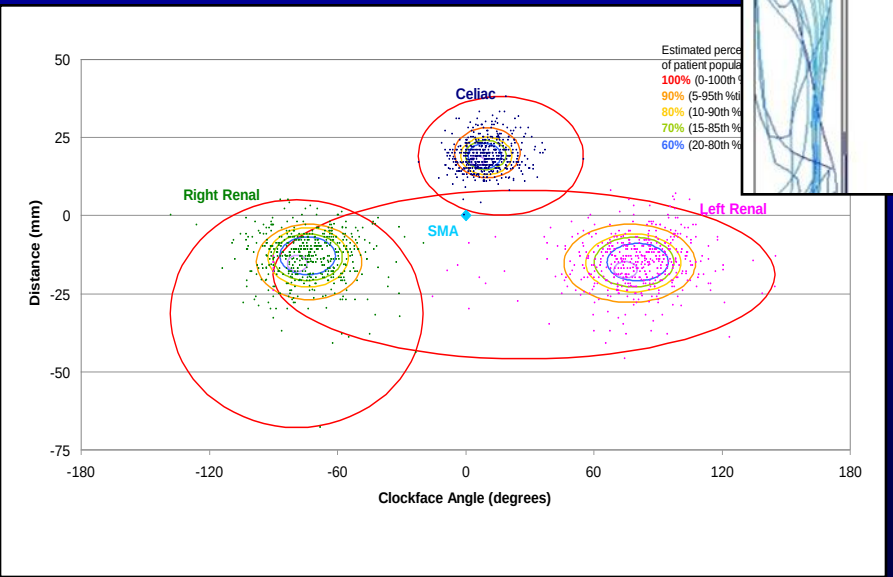
# Design Considerations



Patient Anatomy & Physiology was taken into consideration for design Development








## M2S database

- Determining aneurysm anatomy (infrarenal, juxtarenal, suprarenal)
- Renal takeoff angulations
- Renal, SMA, and celiac ostia height & clockface positions

## Computational Flow Dynamics

- Determine blood flow rates in upward oriented renal branch stent grafts
- Patency in branches
- Bench-top model to confirm CFD analysis

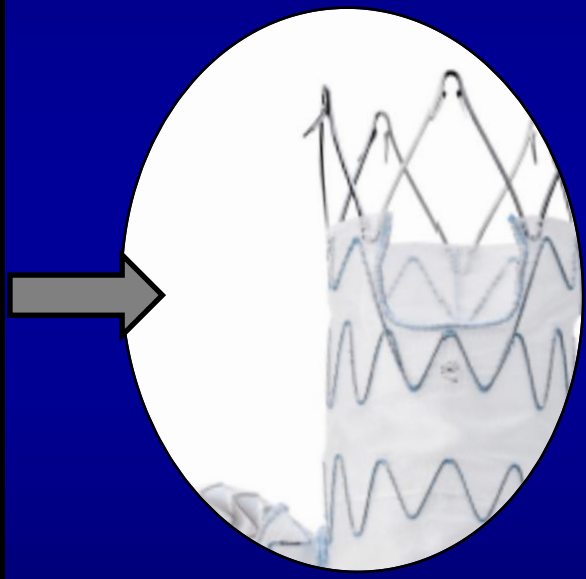
## Renal Motion Analysis

- Respiratory induced renal artery deformation Stanford Study (Christopher Cheng, Ph.D.)
- AAA patient population examined to determine fatigue boundary conditions

# Evolution of the Design Concept



| | Femoral Access | Brachial Access |
|---|---|---|
| Tapered |  |  |
| Full Diameter |  |  |



# Conclusions

- Latest generation endografts seem to perform better in complex anatomies (mid term)
- Critical issues: short proximal necks & small, diseased iliacs
- Future developments eagerly awaited
  - Easy to use, off the shelf devices
  - Durable and effective in the long term