HYBRIDNÍ PŘÍSTUP V LÉČBĚ AORTÁLNÍCH DISEKCÍ S POSTIŽENÍM AORTÁLNÍHO OBLOUKU

Petr Vařejka a kol.

NÚSCH, Bratislava

EACTS/STS Guidelines for Diagnosing and Treating Acute and Chronic Syndromes of the Aortic Organ

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Ascending aorta

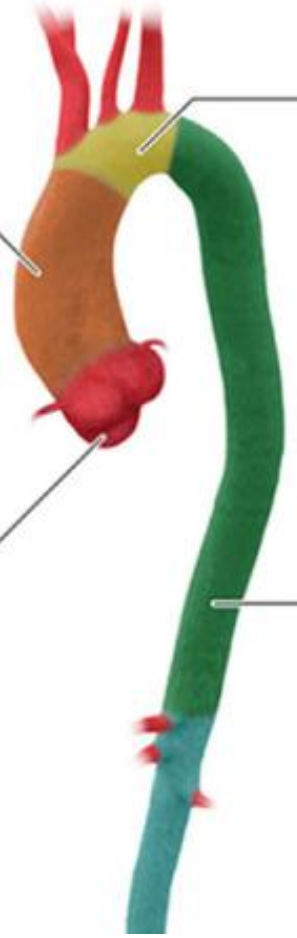
Decreasing order of prevalence/use

Pathologies	Imaging	Treatment
• BAV	• CT	• Surgical
• Idiopathic MD	• TTE	• (Endovascular)
• Atherosclerosis	• TOE	
• Iatrogenic injury	• MRI	

Aortic root

Decreasing order of prevalence/use

Pathologies	Imaging	Treatment
• HTAD	• TTE	• Surgical
• Idiopathic MD	• TOE	
• BAV	• CT	
• Iatrogenic injury	• MRI	



Aortic arch

Decreasing order of prevalence/use

Pathologies	Imaging	Treatment
• Atherosclerosis	• CT	• Surgical
• Idiopathic MD	• MRI	• Hybrid
• Inflammatory	• TOE	• Endovascular
• Kommerell diverticulum		

Descending thoracic aorta

Decreasing order of prevalence/use

Pathologies	Imaging	Treatment
• Atherosclerosis	• CT	• Endovascular
• Post-dissection aneurysm	• TOE	• Surgical
• Coarctation	• MRI	
• Traumatic injury		
• Inflammatory		

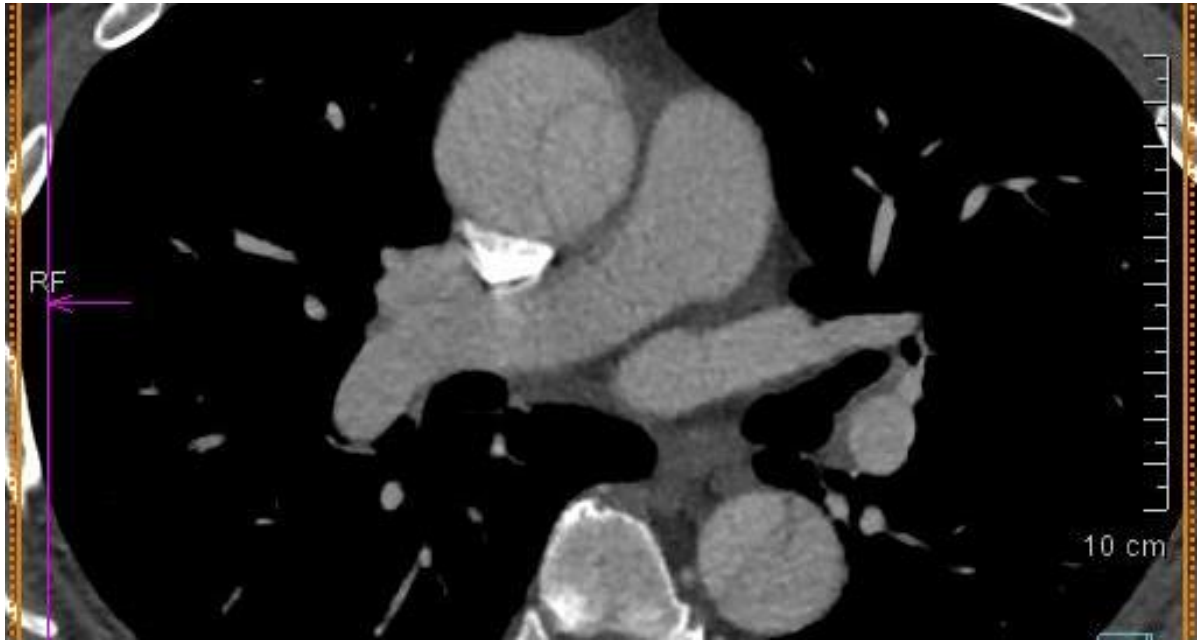
HYBRIDNÍ PŘÍSTUP

HYBRIDNÍ PŘÍSTUP

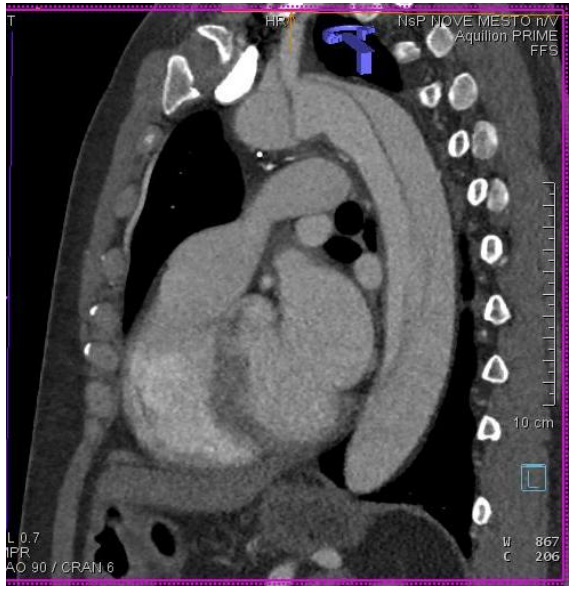
- Kombinace metod „klasické“ otevřené chirurgie a endovaskulárních technik
- Simultánně
- Sekvenčně
- Maximální využití výhod jednotlivých technik
- Výsledný efekt kvalitativně převyšuje součet jednotlivých technik použitých izolovaně

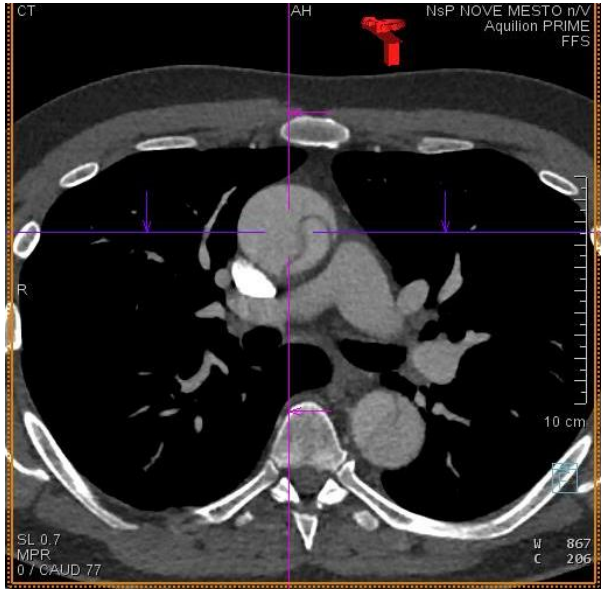

SL 0.7
MPR
0 / CRAN 13

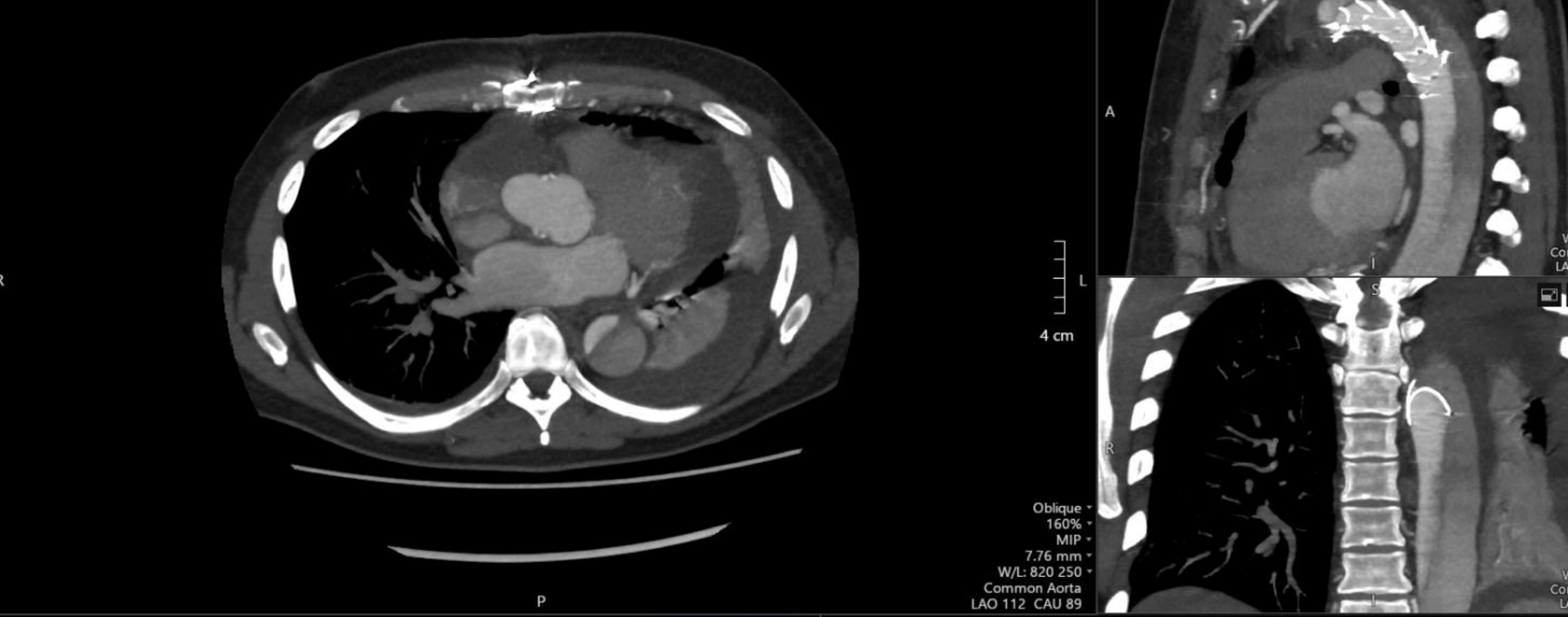

W 867
C 206

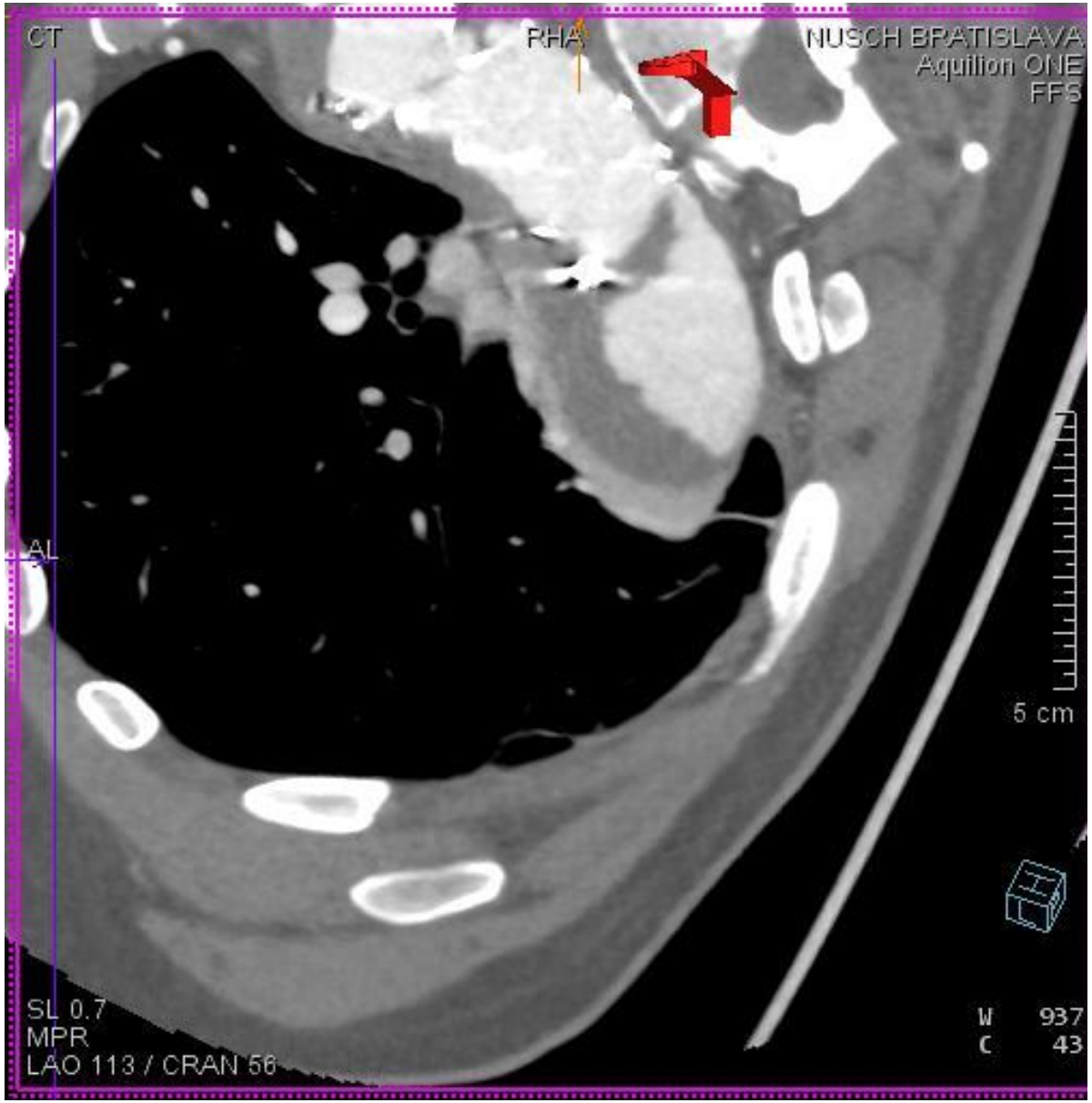

RF
10 cm

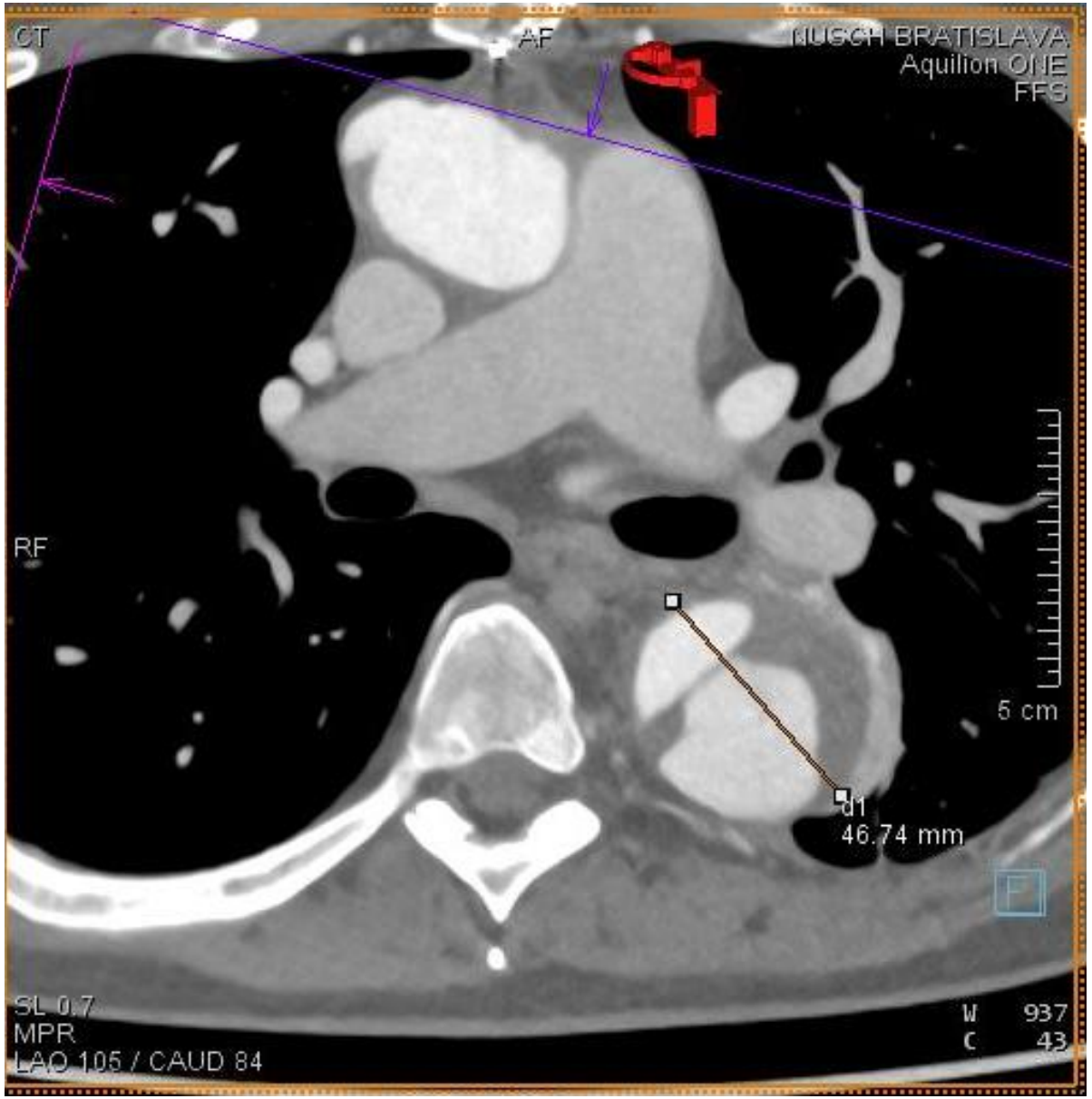

HP
NsP NOVE MESTO n/V
Aquilion PRIME
10 cm

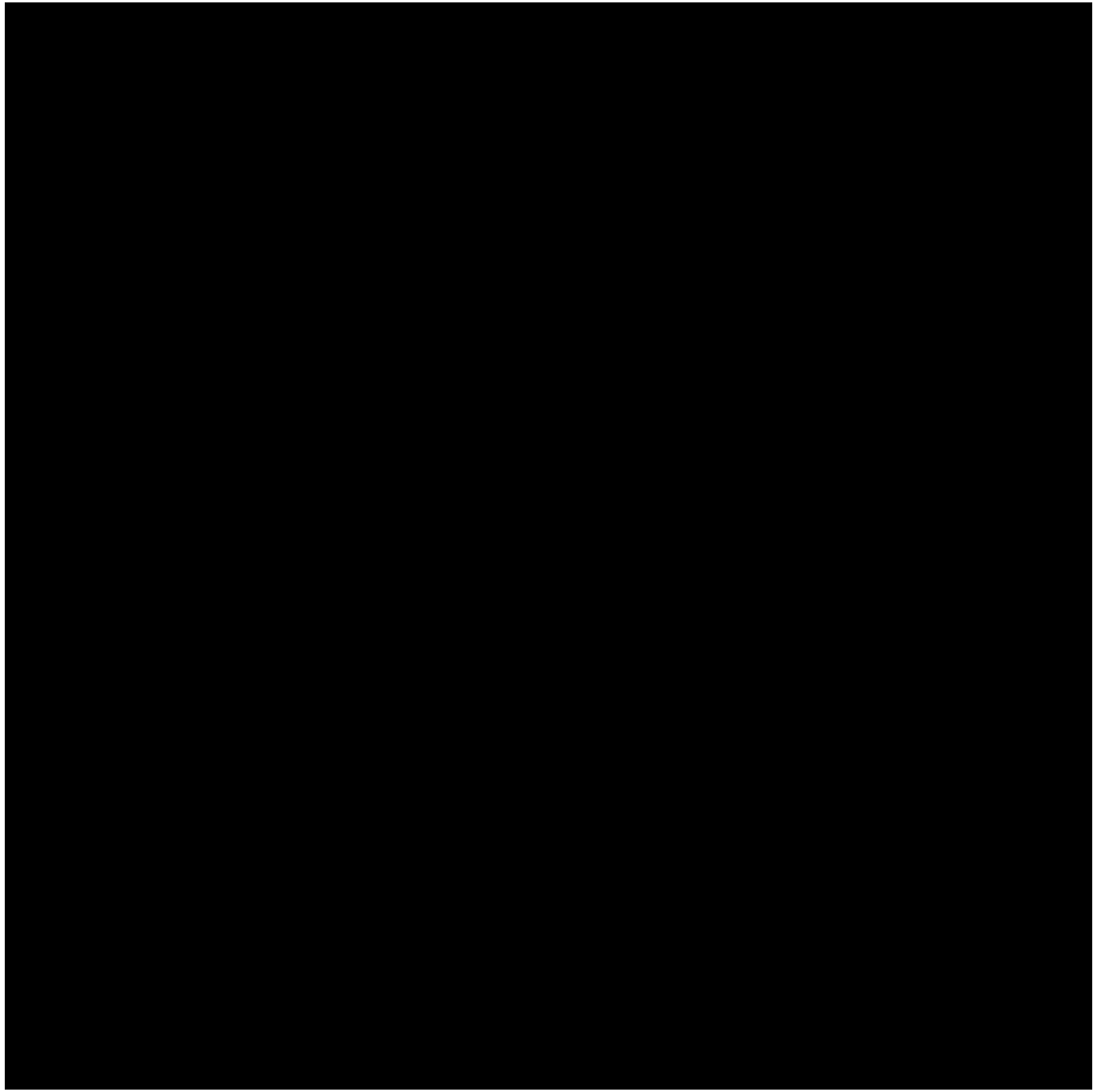

HP
NsP NOVE MESTO n/V
Aquilion PRIME
FFS
10 cm

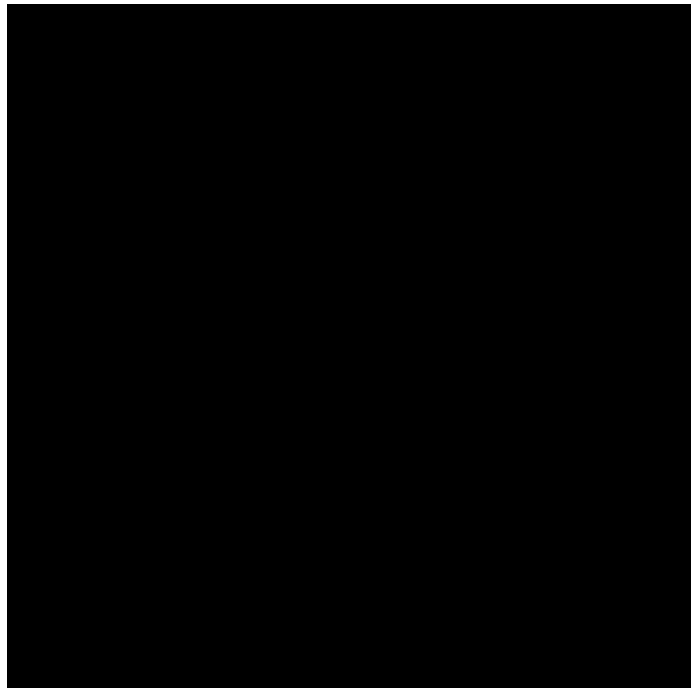

CT
AH
NsP NOVE MESTO n/V
Aquilion PRIME
FFS
10 cm

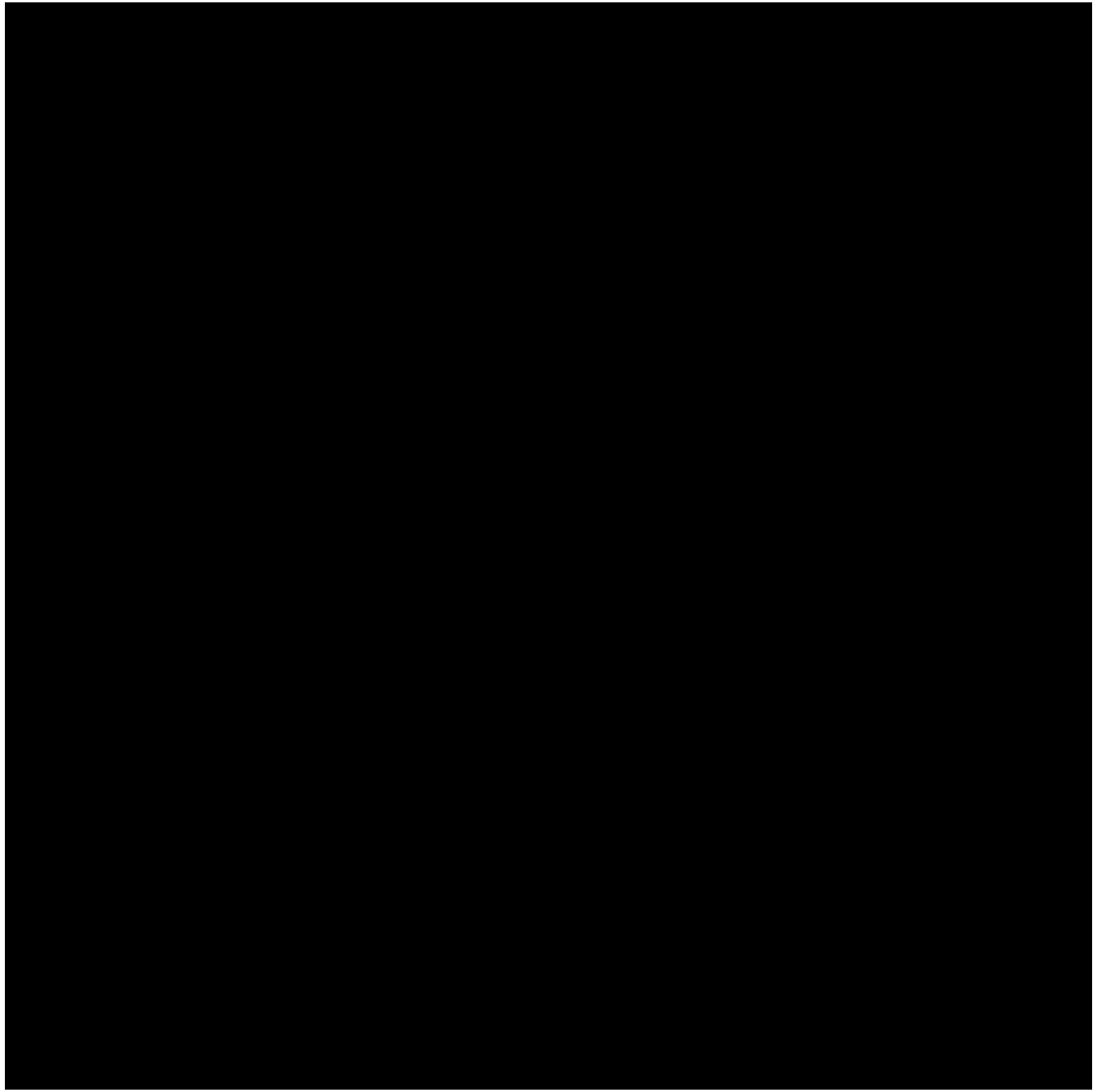

A
I
L
4 cm
S
R
I
Oblique
160%
MIP
7.76 mm
W/L: 820 250
Common Aorta
LAO 112 CAU 89
P
S
A
354mm²
26.1 mm
15.7mm
R
L
+259
P
P
Standard 3D
241%
Volume Render
W/L: 106 159 Vessels
VR: Vessel and Thrombus
R
L
S
W/L: 106
VR: Vessel and

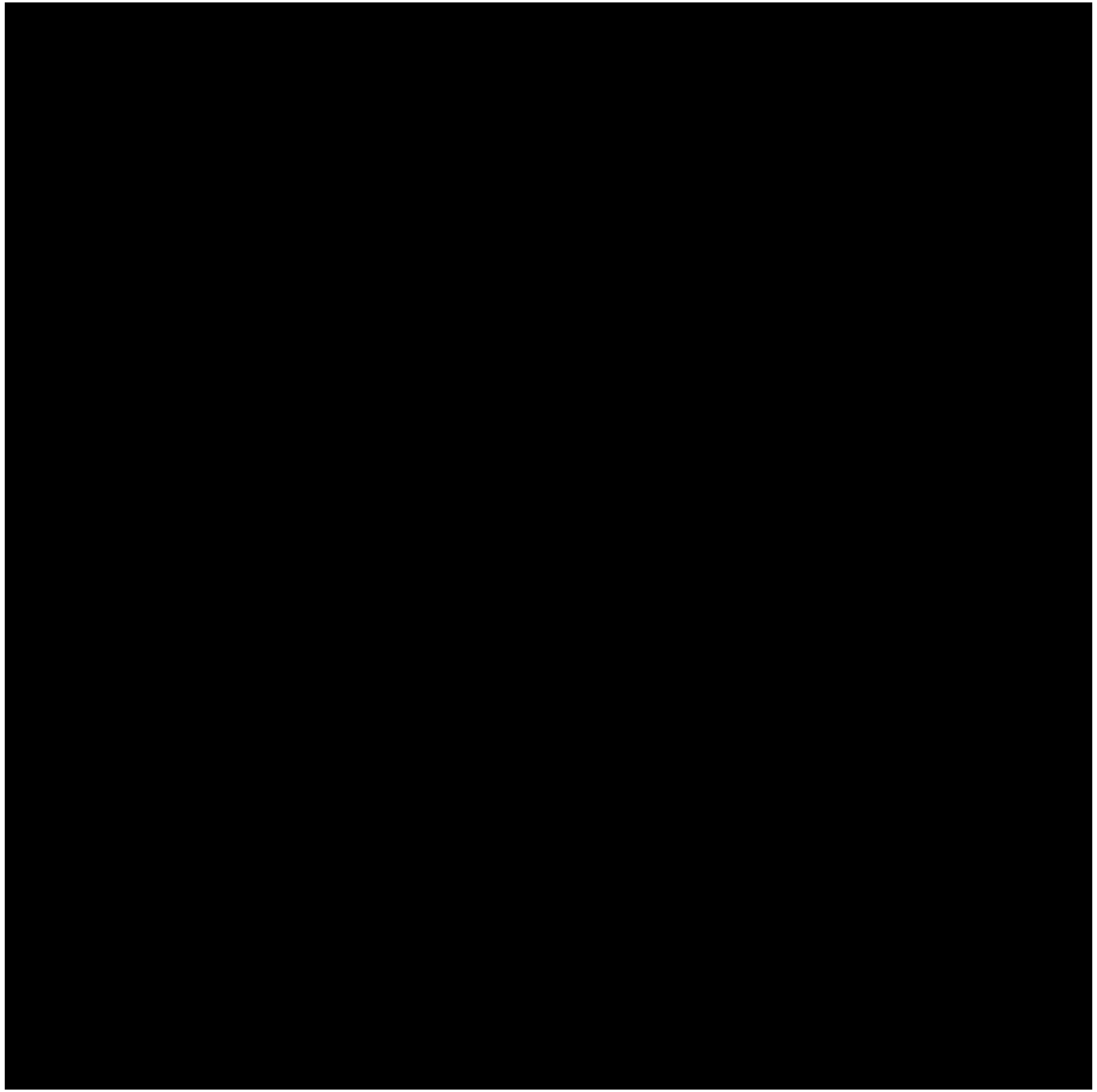

CT
RHA
NUSCH BRATISLAVA
Aquilion ONE
FFS
AL
5 cm
SL 0.7
MPR
LAO 113 / CRAN 56
W 937
C 43

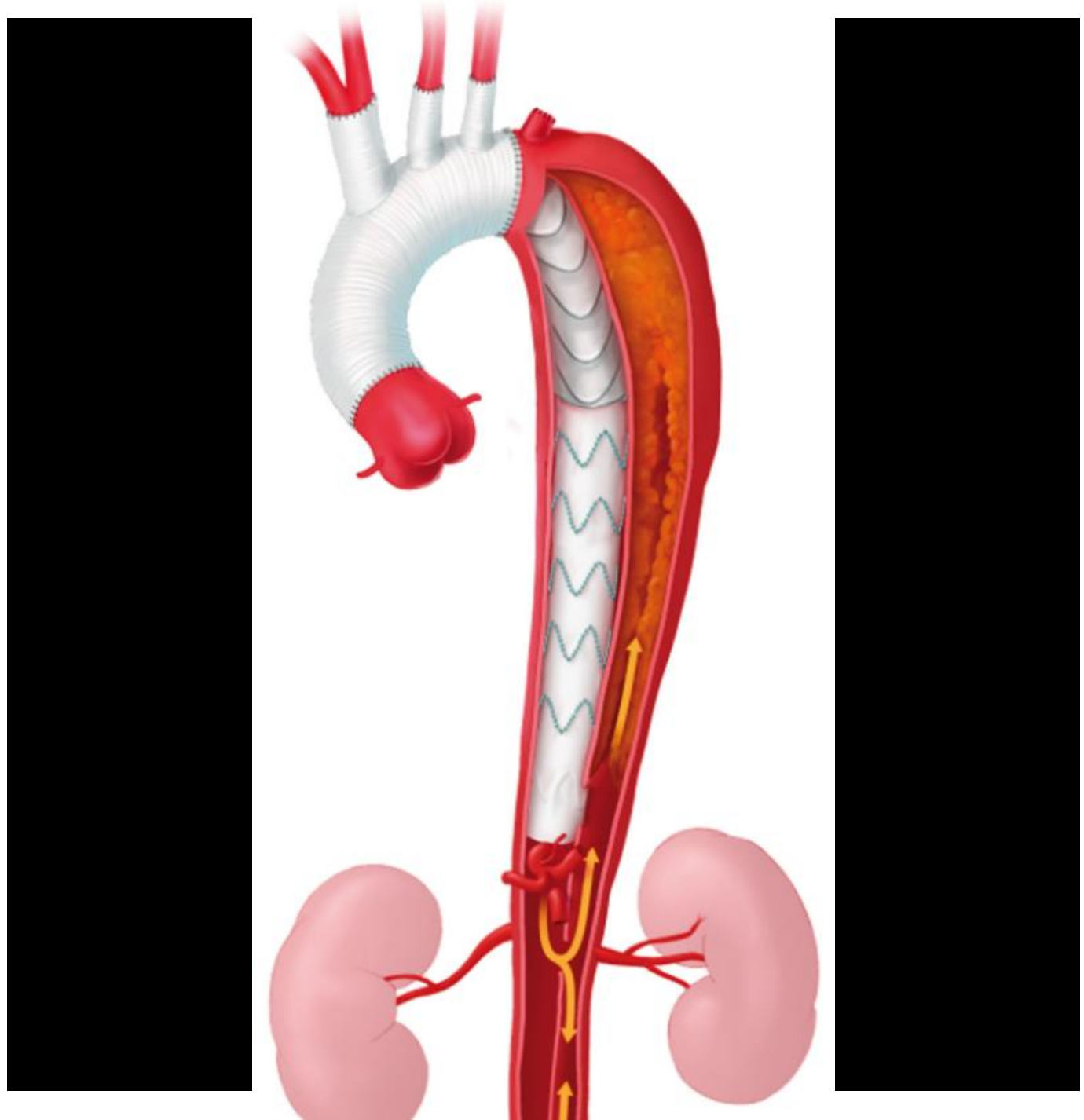

CT
AF
NUSCH BRATISLAVA
Aquilion ONE
FFS
RF
5 cm
d1
46.74 mm
SL 0.7
MPR
LAO 105 / CAUD 84
W 937
C 43



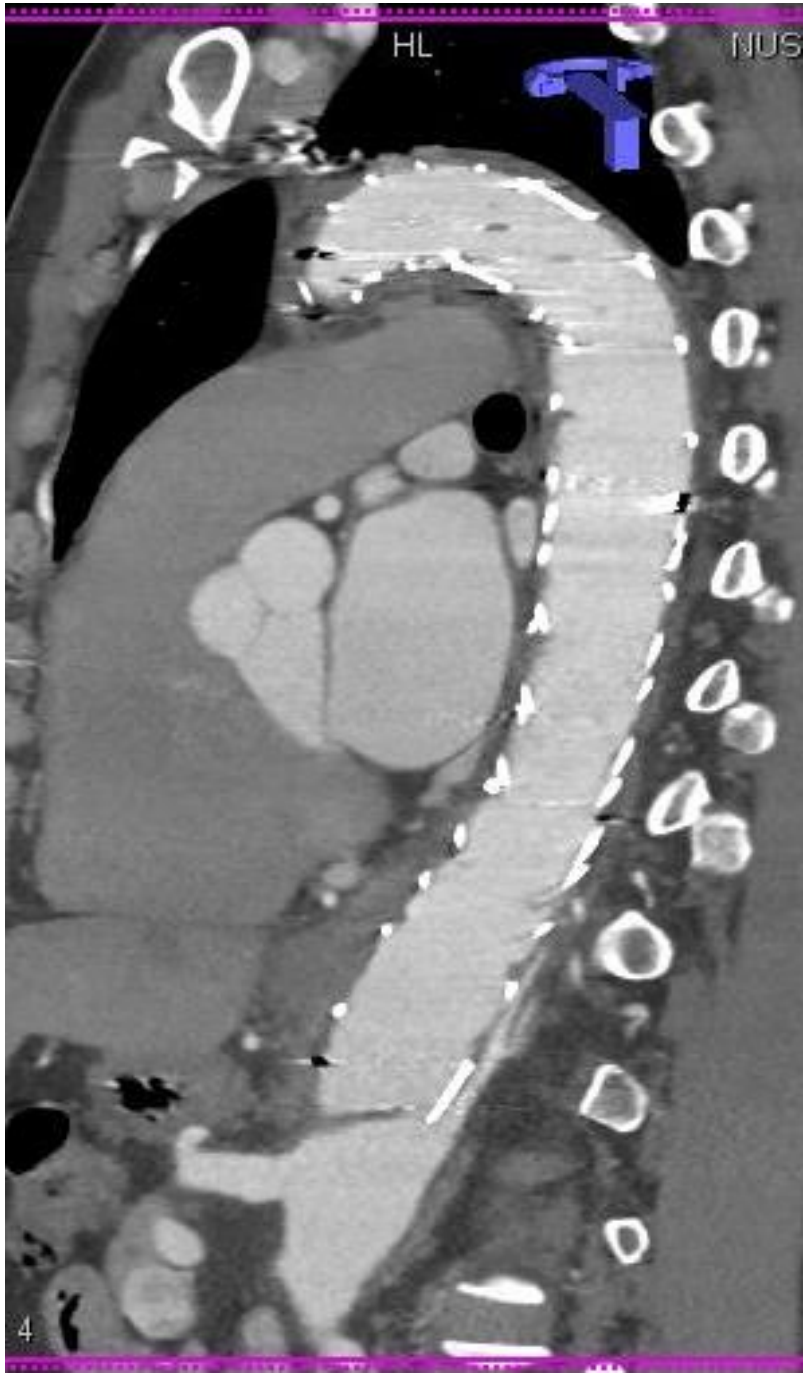


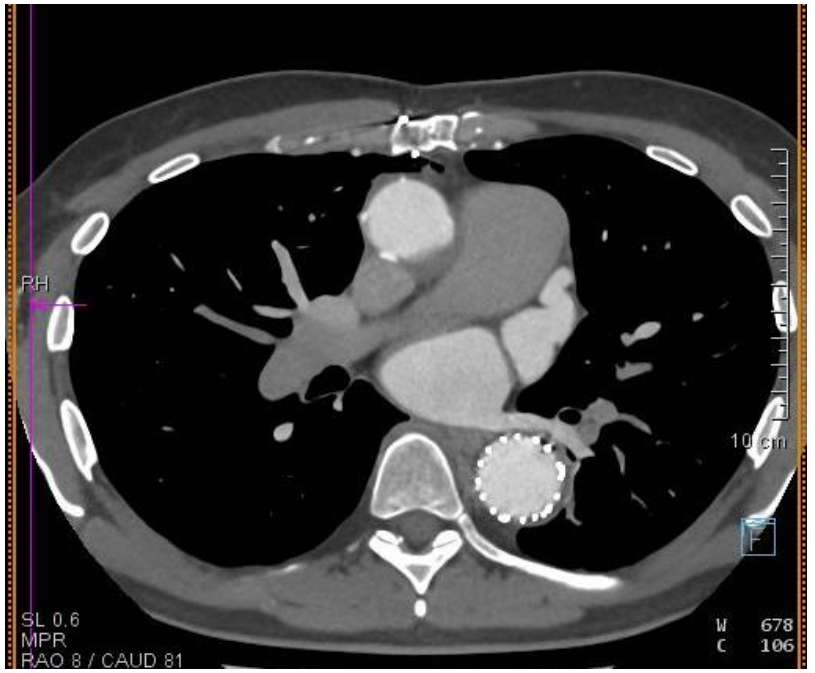


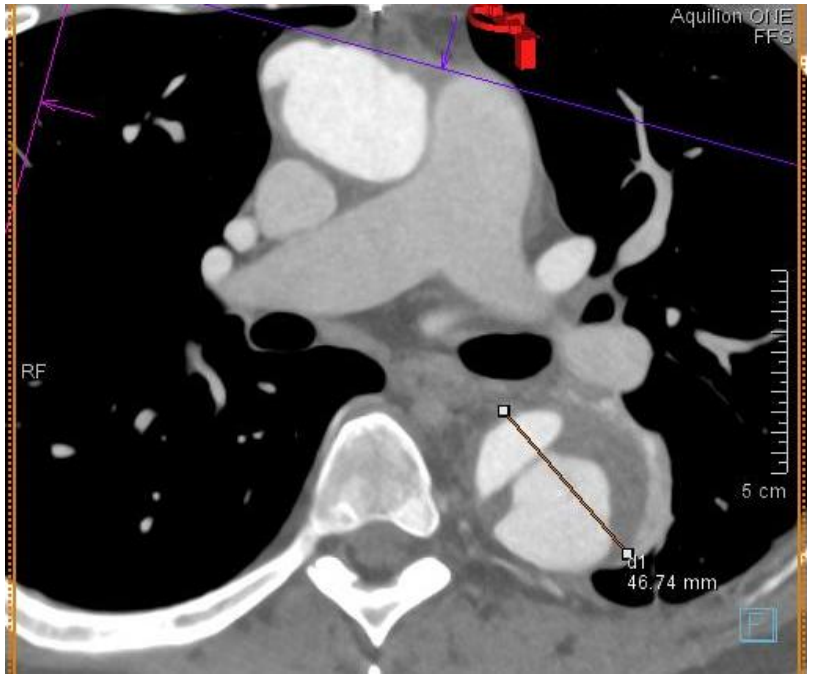





HAR
NUS


HL
NUS

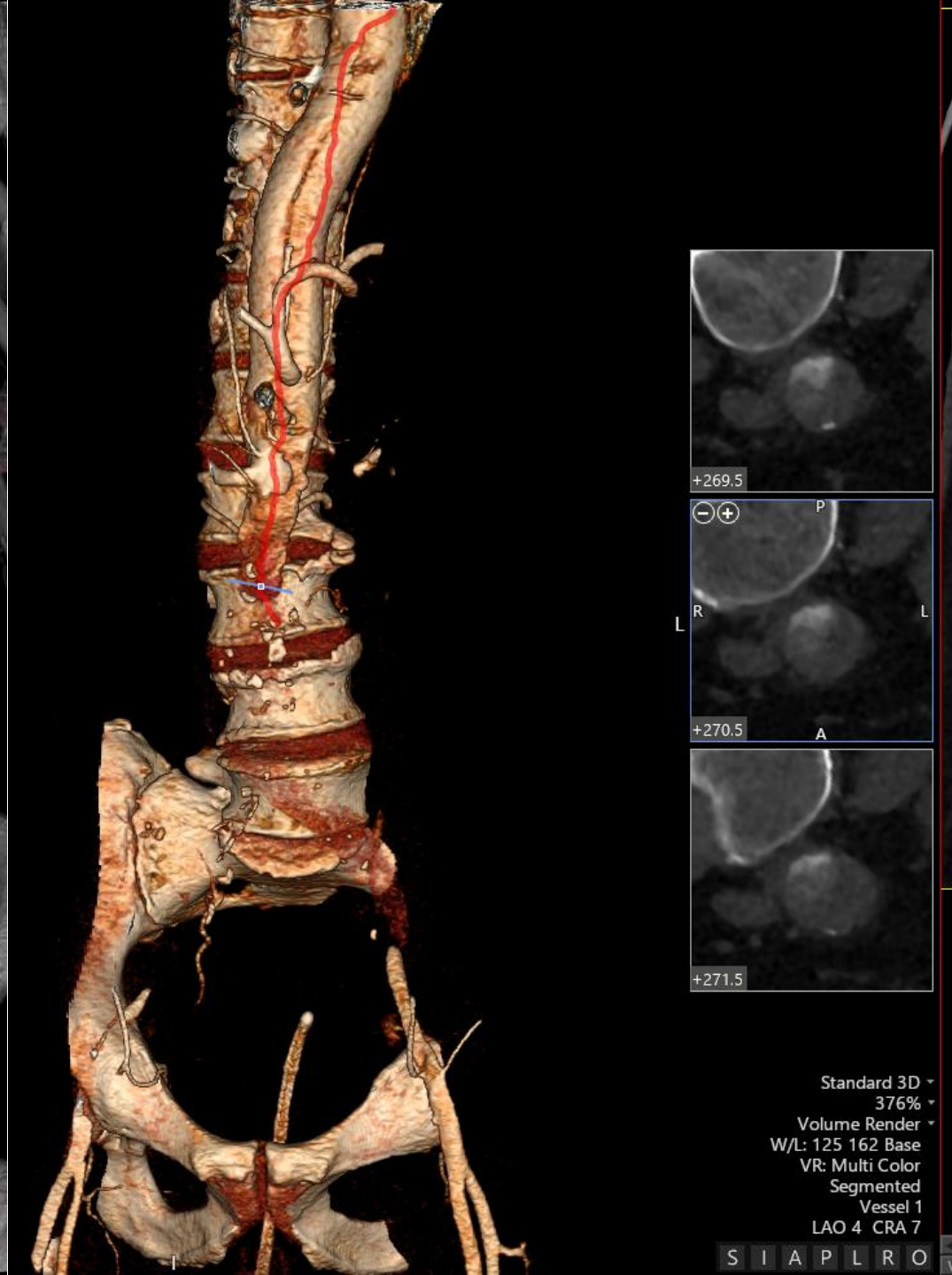

RH
10 cm
SL 0.6
MPR
RAO 8 / CAUD 81
W 678
C 106


Aquilion ONE
FFS
RF
5 cm
46.74 mm

HYBRIDNÍ (OPTIMÁLNÍ) PŘÍSTUP

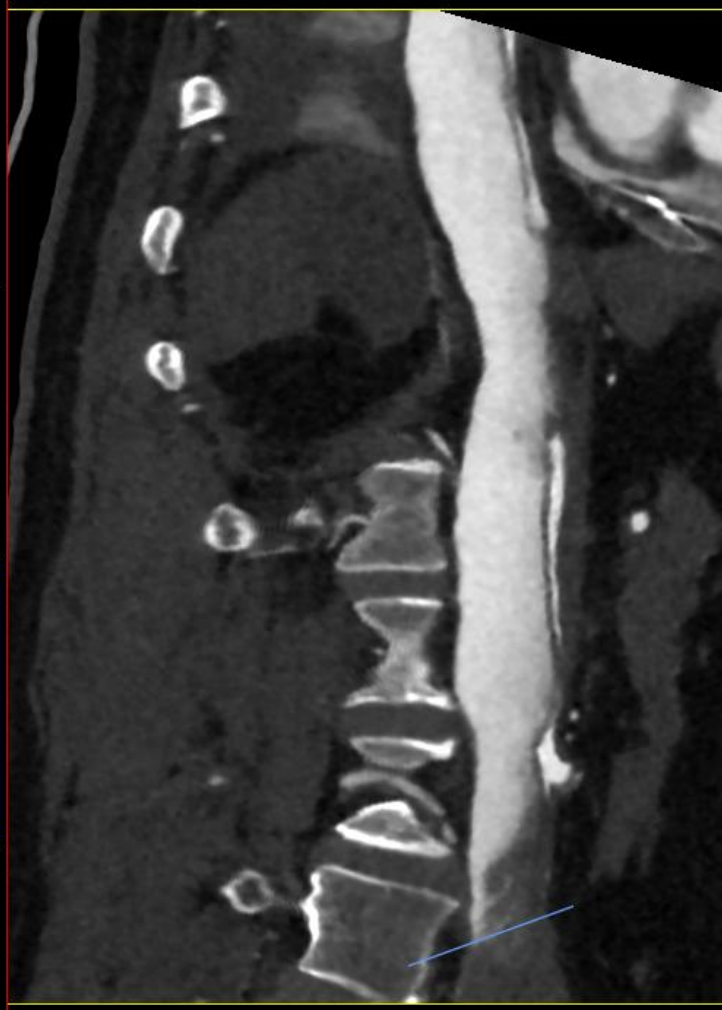
- Řešení život ohrožující situace (TAR+FET)

- Současně vytvořit prostor pro následný endovaskulární výkon
  - Ischemie (CNS, vnitřních orgánů, končetin)
    - pokračující disekce, kolaps pravého lumen

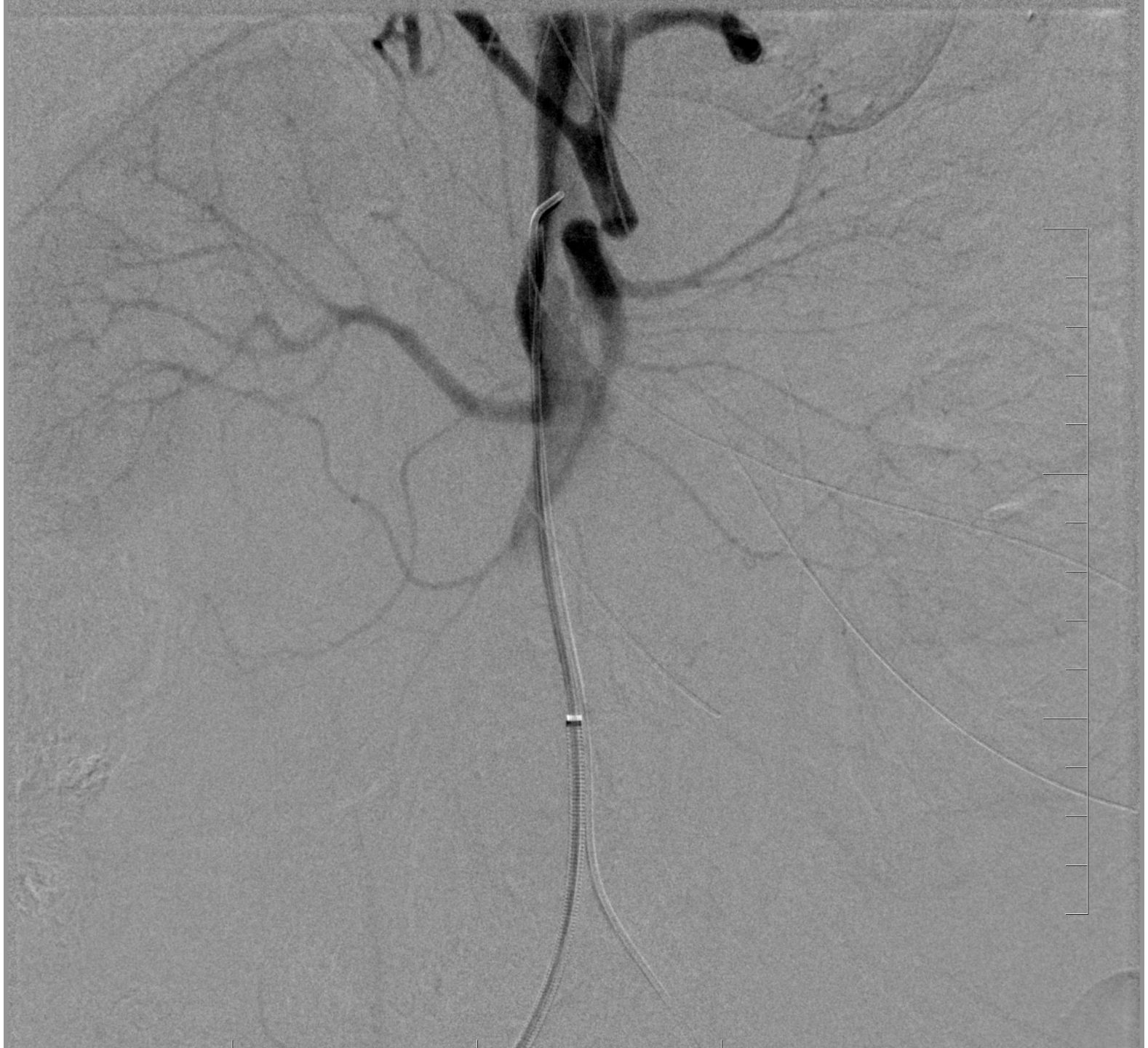


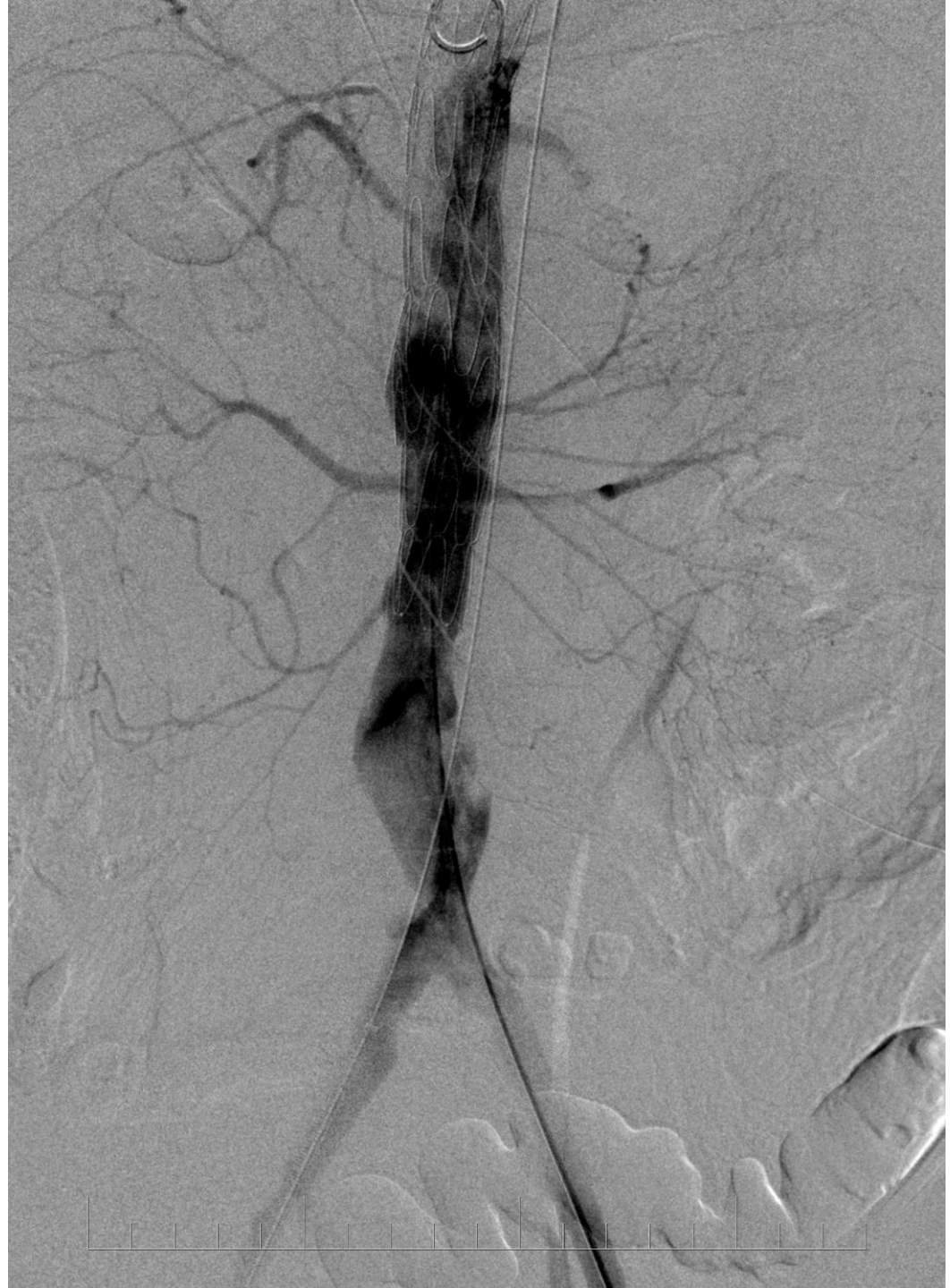
Standard 3D
376%
Volume Render
W/L: 125 162 Base
VR: Multi Color
Segmented
Vessel 1
LAO 4 CRA 7

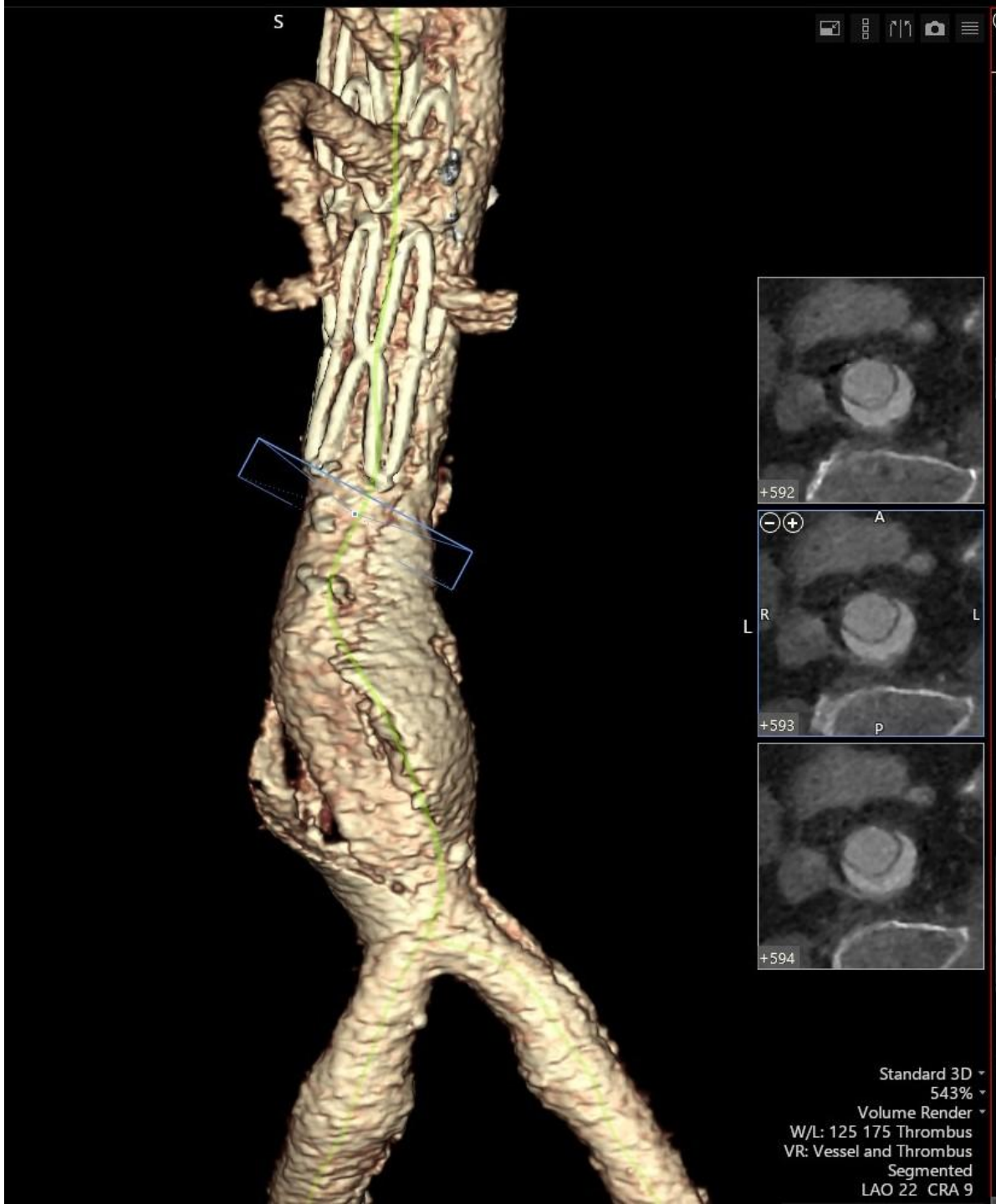
S I A P L R O



Vol. Rend. 0.3







Standard 3D
543%
Volume Render
W/L: 125 175 Thrombus
VR: Vessel and Thrombus Segmented
LAO 22 CRA 9

H JP

- Řešen
- Souča výkon
  - Isch
    - p
  - Neg

TABLE 3 High-Risk Features in Acute Type B Aortic Dissection

Morphologic Criteria
Primary entry >10 mm[261,264]
Primary entry at the inner curvature[264]
Primary entry located <20 mm in relation to the left subclavian artery[261]
False lumen diameter >22 mm[264,265]
Descending thoracic aortic diameter >40 mm[261,264]
High systolic antegrade flow volume in the false lumen with significant diastolic retrograde flow assessed by MRI[263]
Clinical Criteria
Persistent pain[266,267]
Uncontrollable HTA[266,267]

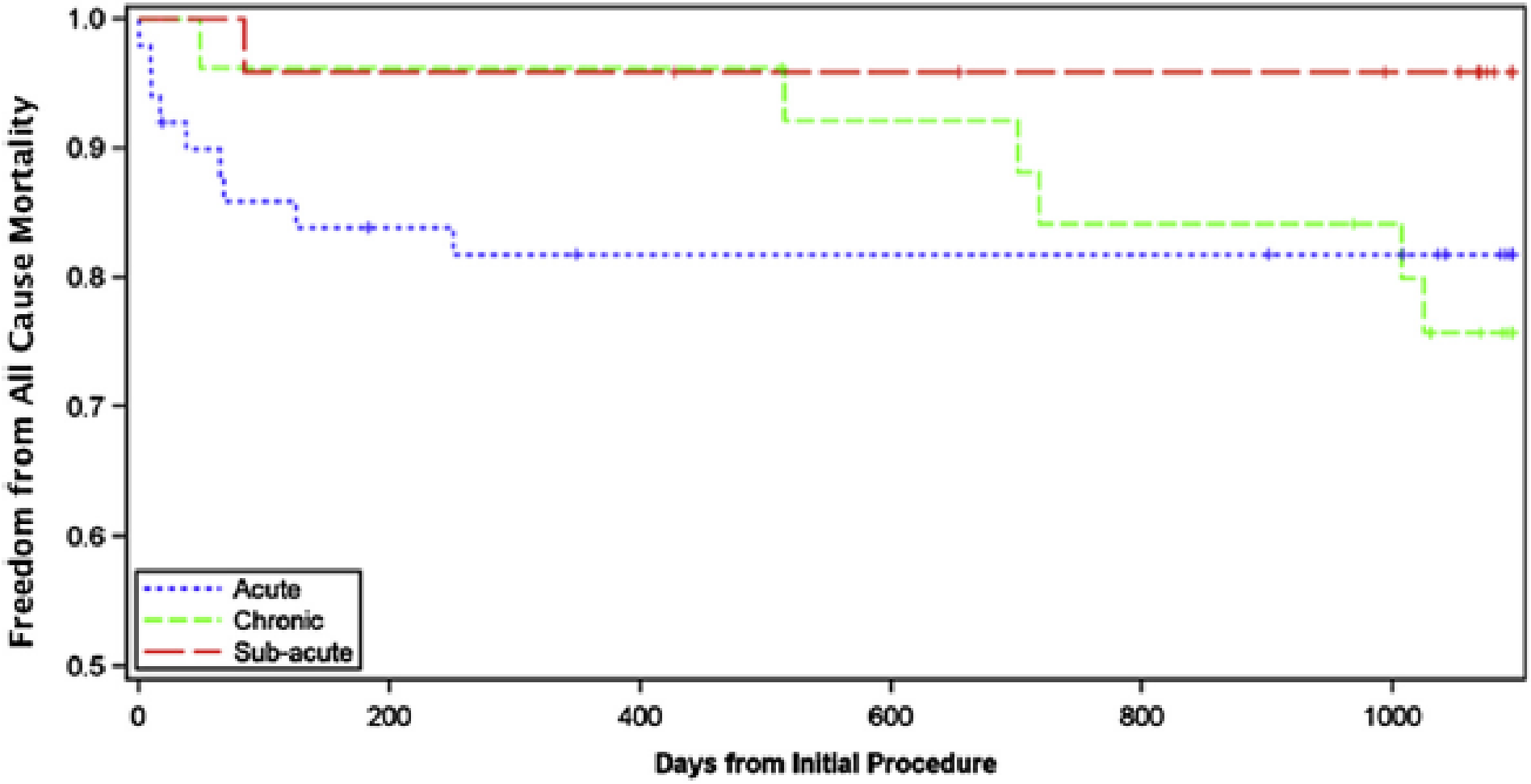
HTA, hypertension arterialis; MRI, magnetic resonance imaging.

NAČASOVÁNÍ TEVAR

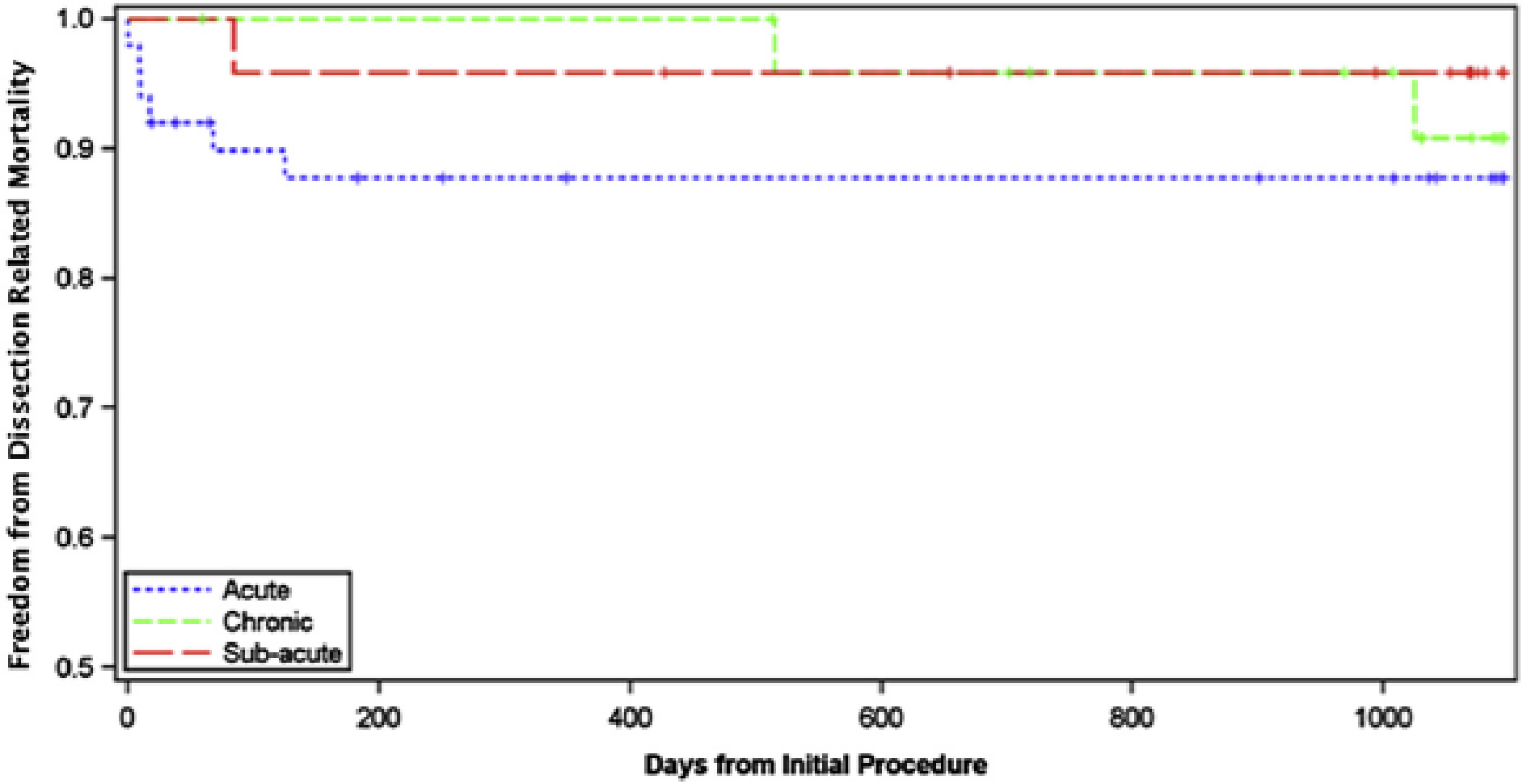
- VIRTUE registr
  - n. 100 s AD typu B, léčení VALIANT stentgraftem
  - Komplikovaná akutní disekce < 15 dnů, (n. 50)
  - Subakutní disekce 15 – 92 dnů, (n. 24)
  - Chronická disekce >92 dnů, (n. 26)

VIRTUE registr, Eur J Vasc Endovasc Surg; 2014, 48(4); 363-71

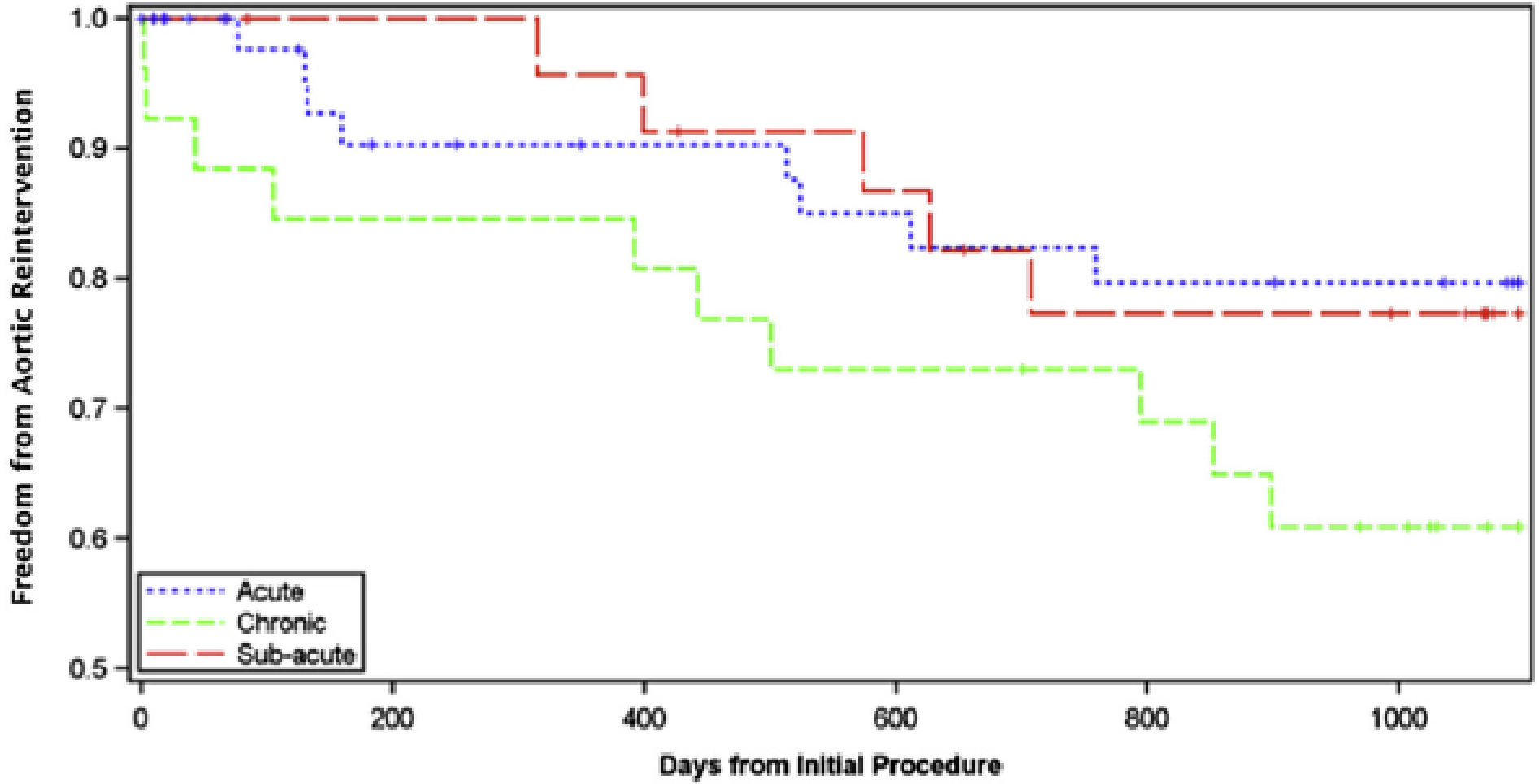
VIRTUE - celková mortalita



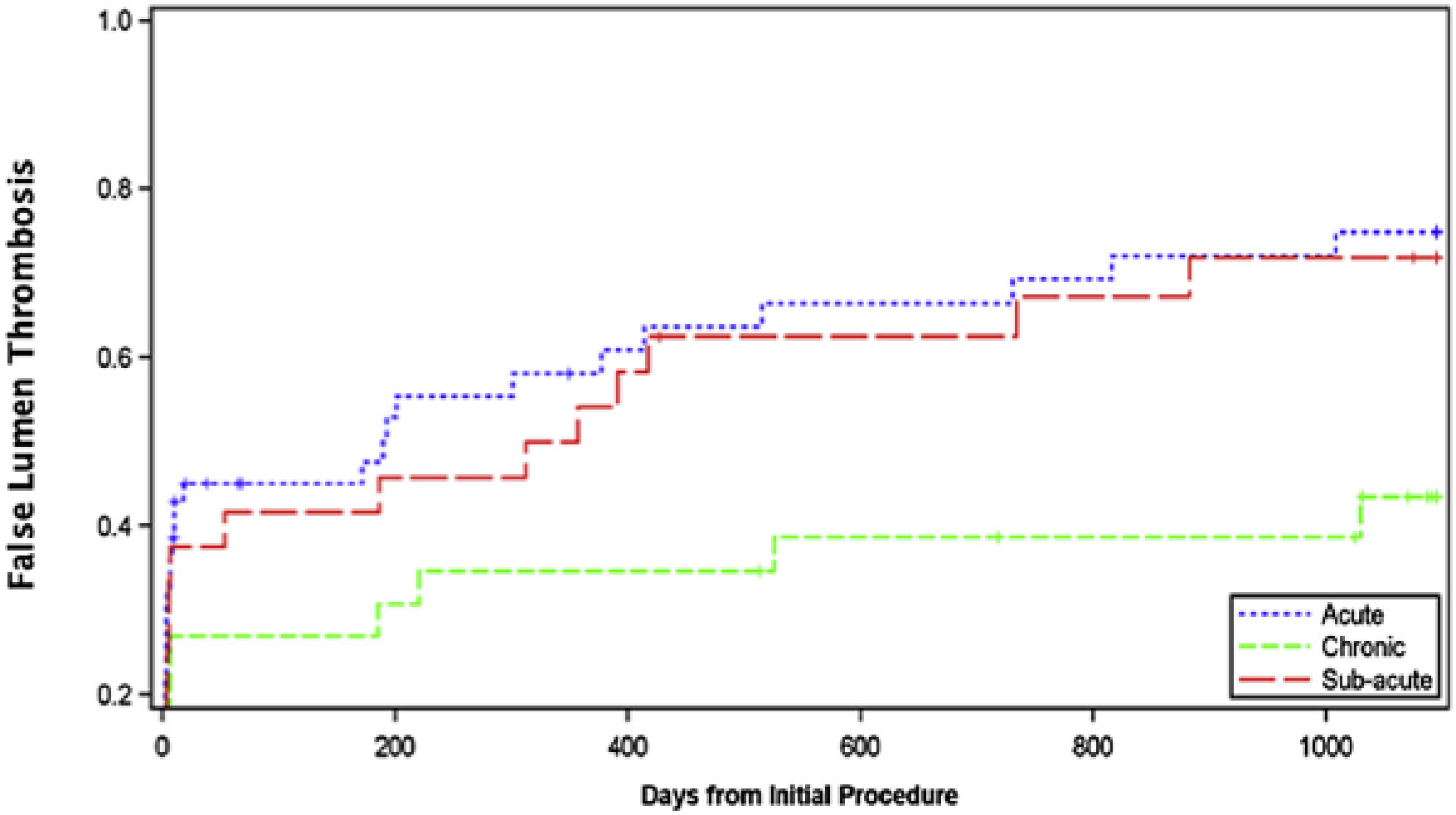
VIRTUE - mortalita spojená s AD



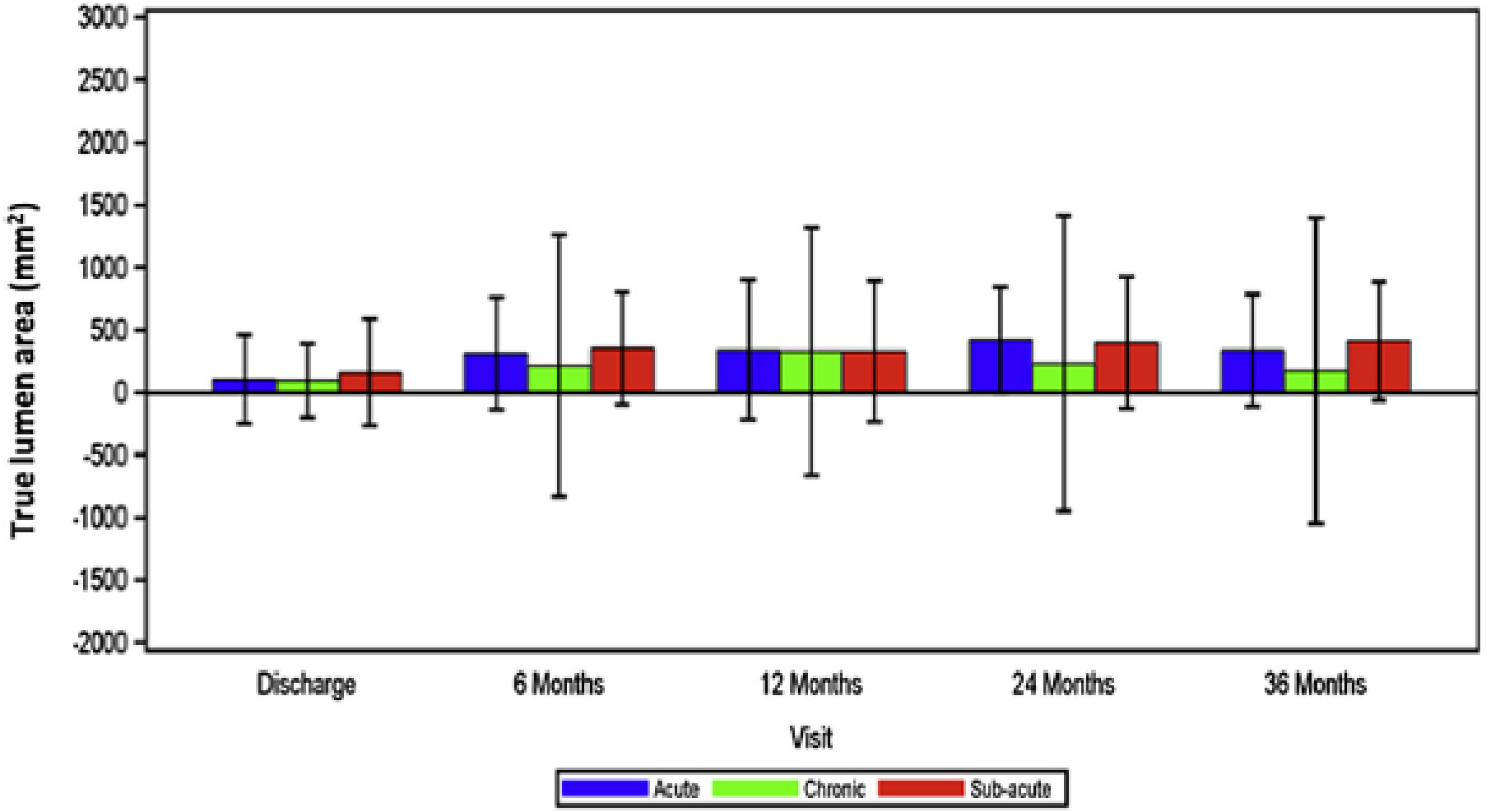
VIRTUE - reintervence



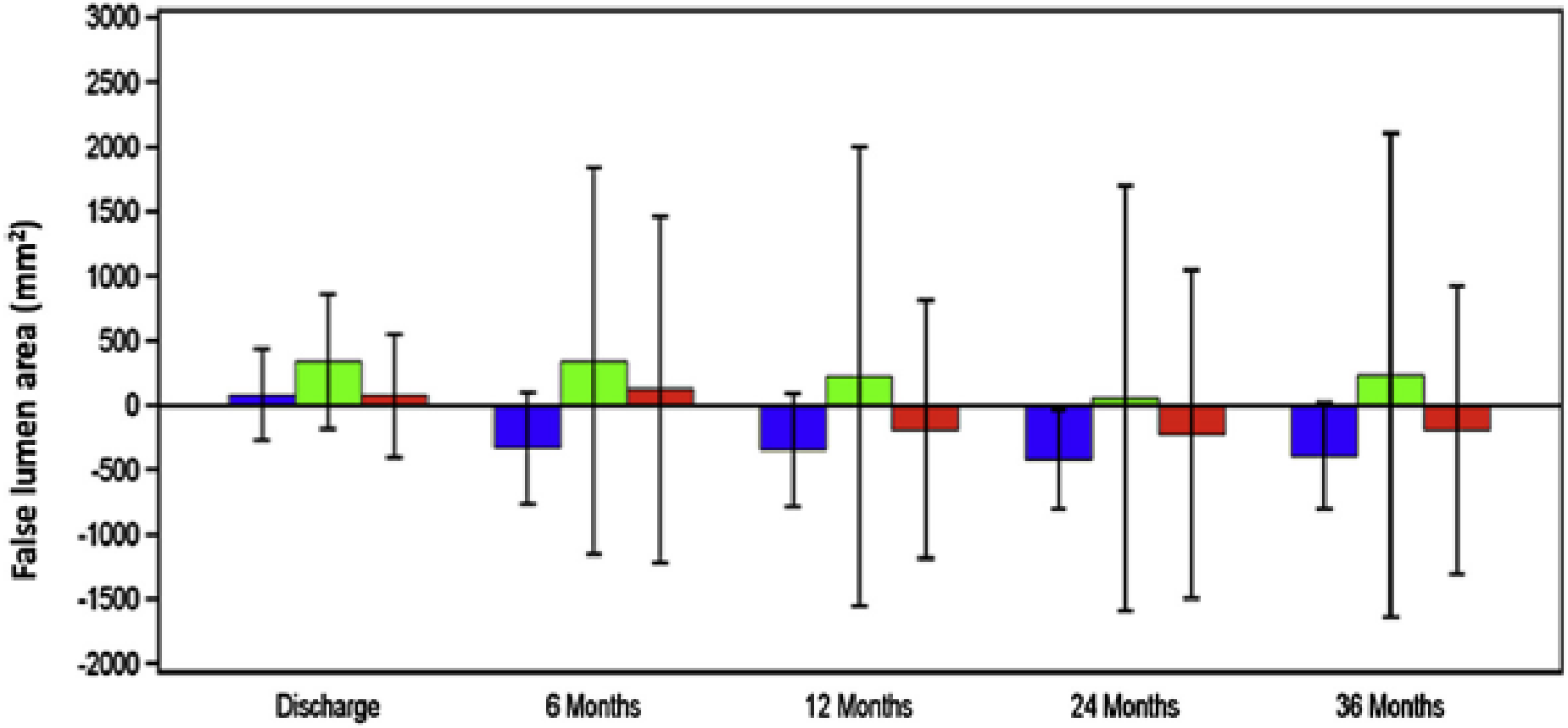
VIRTUE – trombotizace FL



VIRTUE - velikost TL



VIRTUE - velikost FL



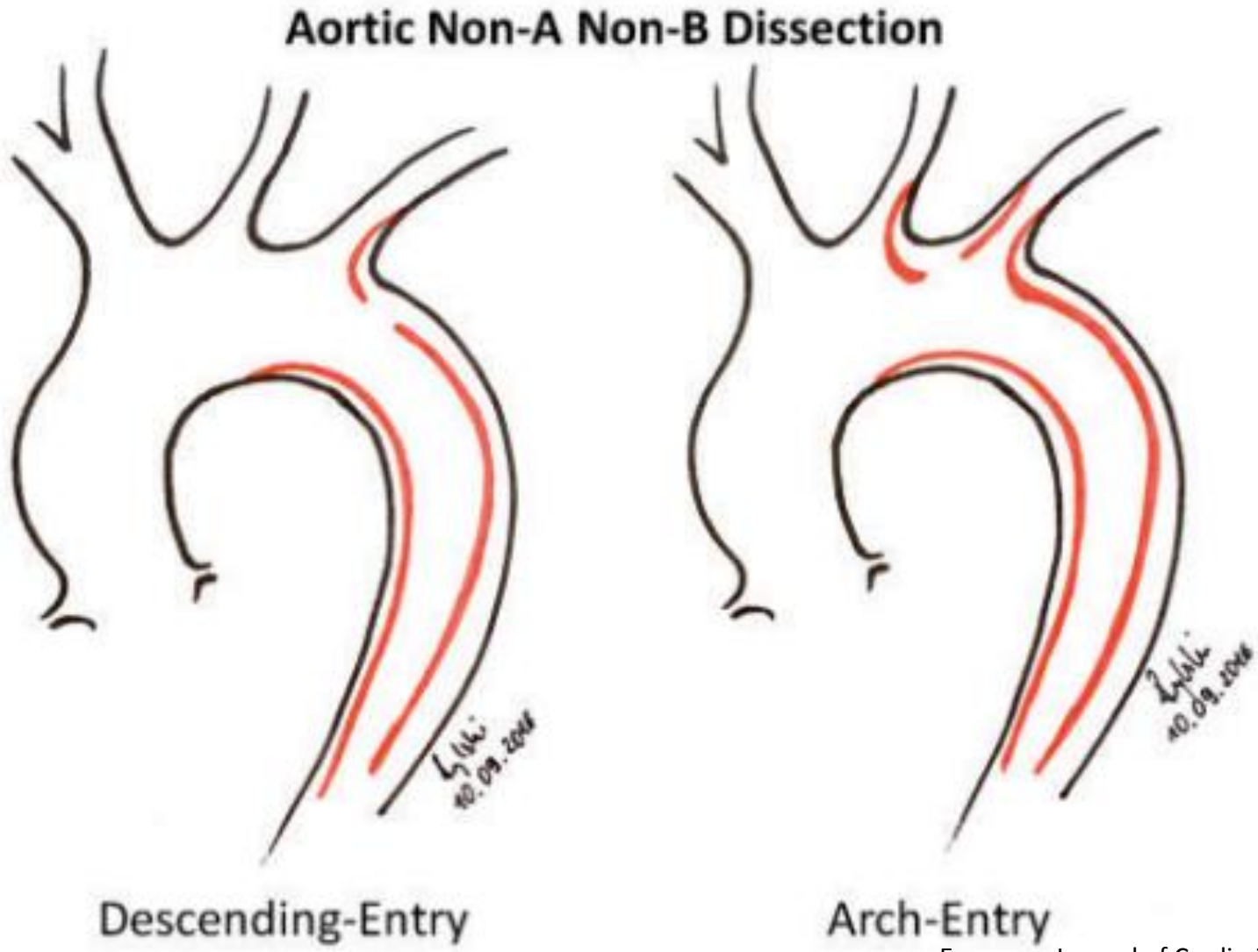
OPTIMÁLNÍ NAČASOVÁNÍ

- Ve skupině akutních a subakutních AD obdobný stupeň pozitivní aortální remodelace po TEVAR

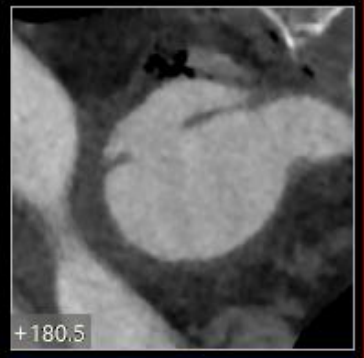
- Aorta si uchovává schopnost plasticity, expanze pravého a zhojení falešného lumen po dobu přibližně 92 dnů
- Intervence v subakutním stádiu s nižším rizikem retrográdní disekce (!VALIANT CAPTIVIA!)

VIRTUE registr, Eur J Vasc Endovasc Surg; 2014, 48(4); 363-71

DISEKCE AORTY „Non A - Non B“



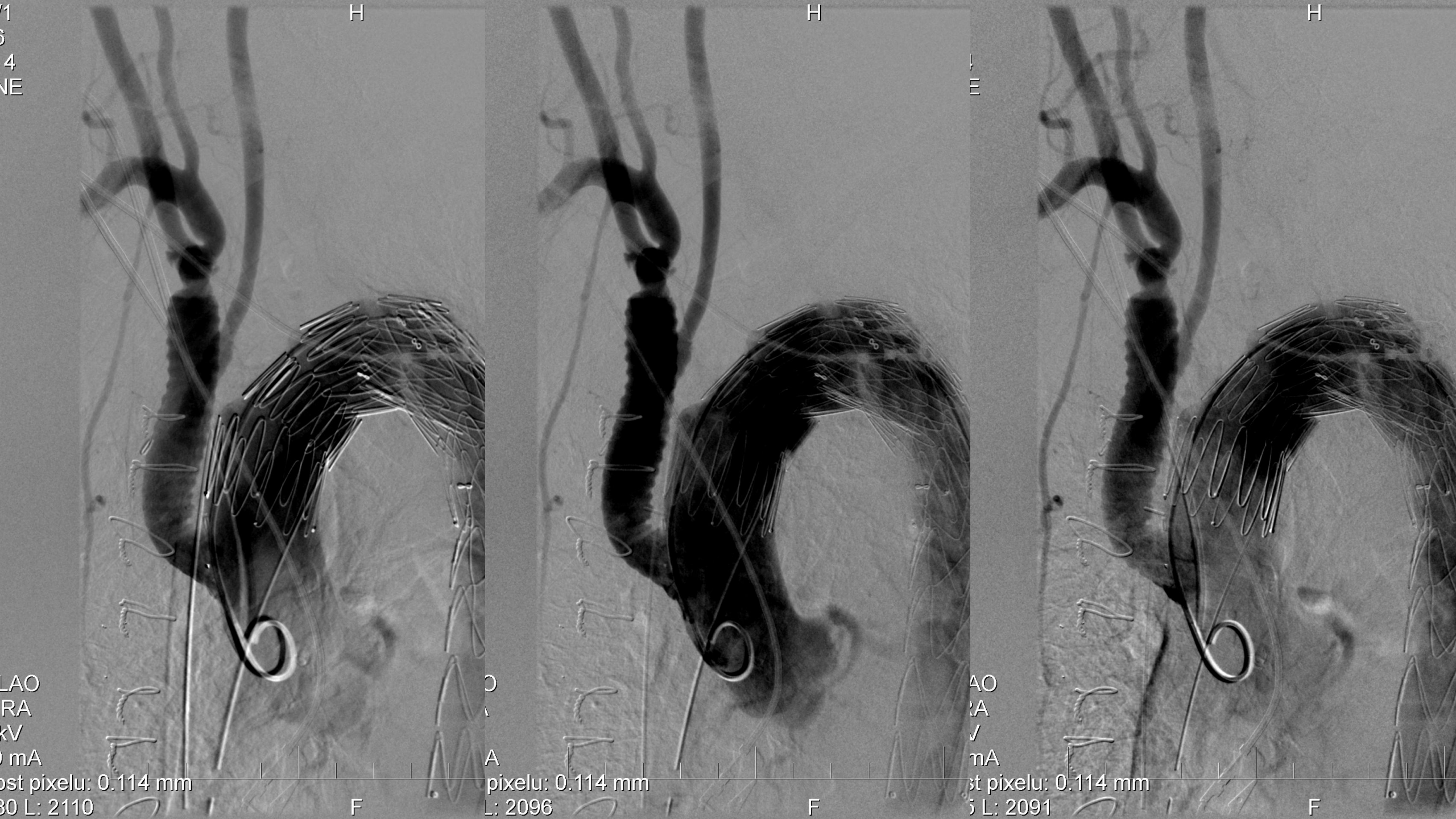
European Journal of Cardio-Thoracic Surgery 52 (2017) 1111–1117

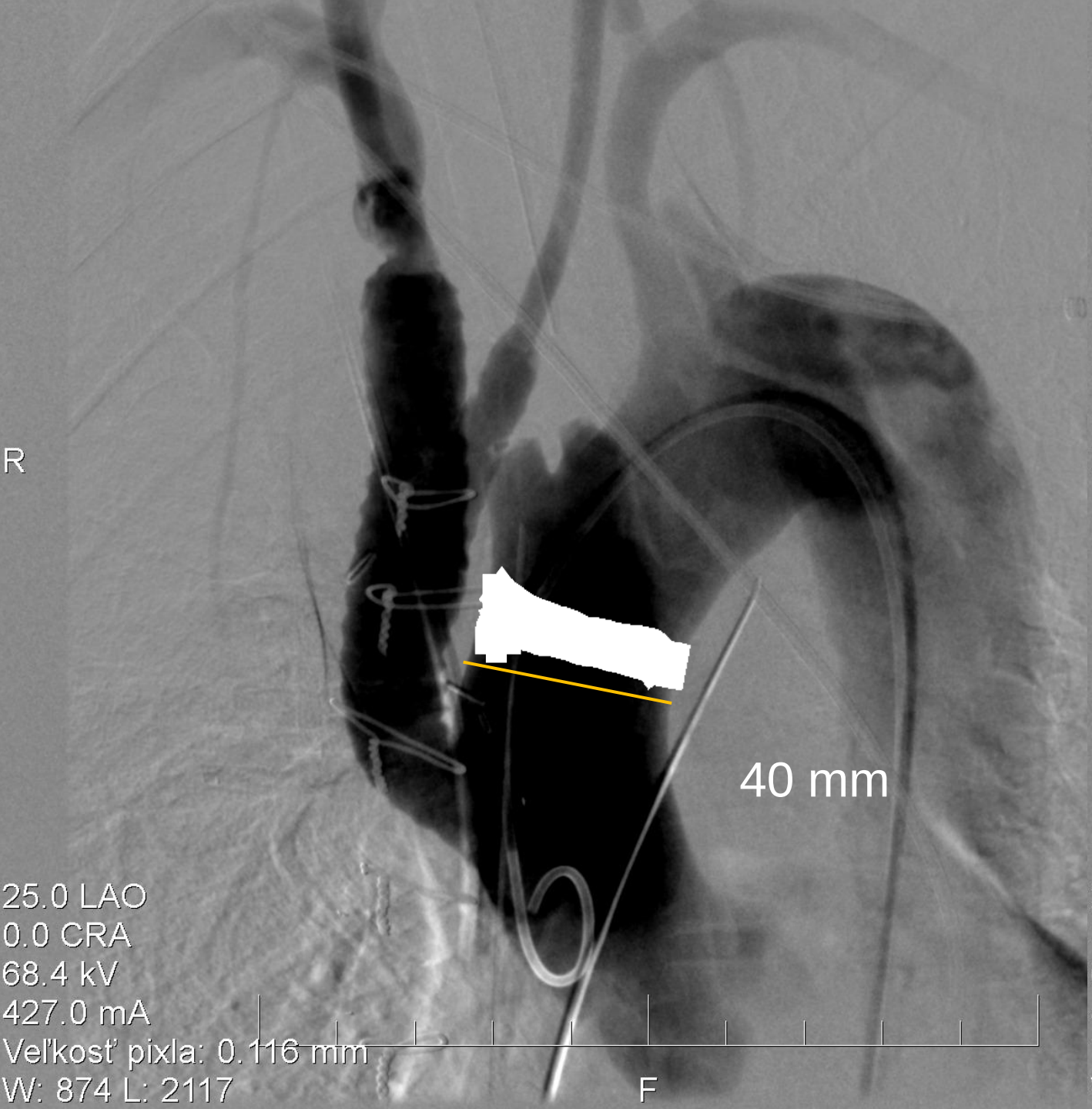


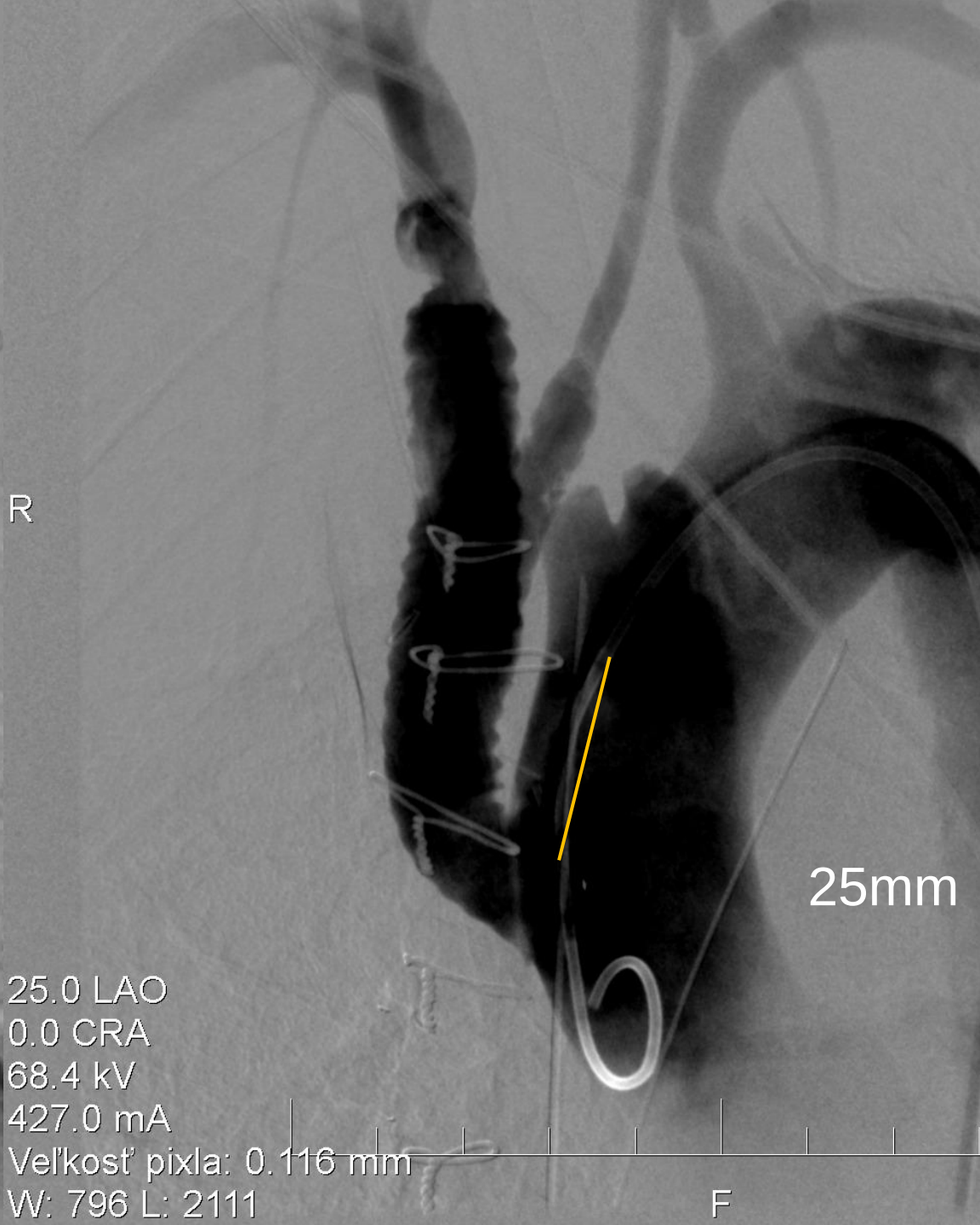
L

Standard 3D
218%
Volume Render
W/L: 149 130 Vessels
VR: Vessel and Thrombus Segmented

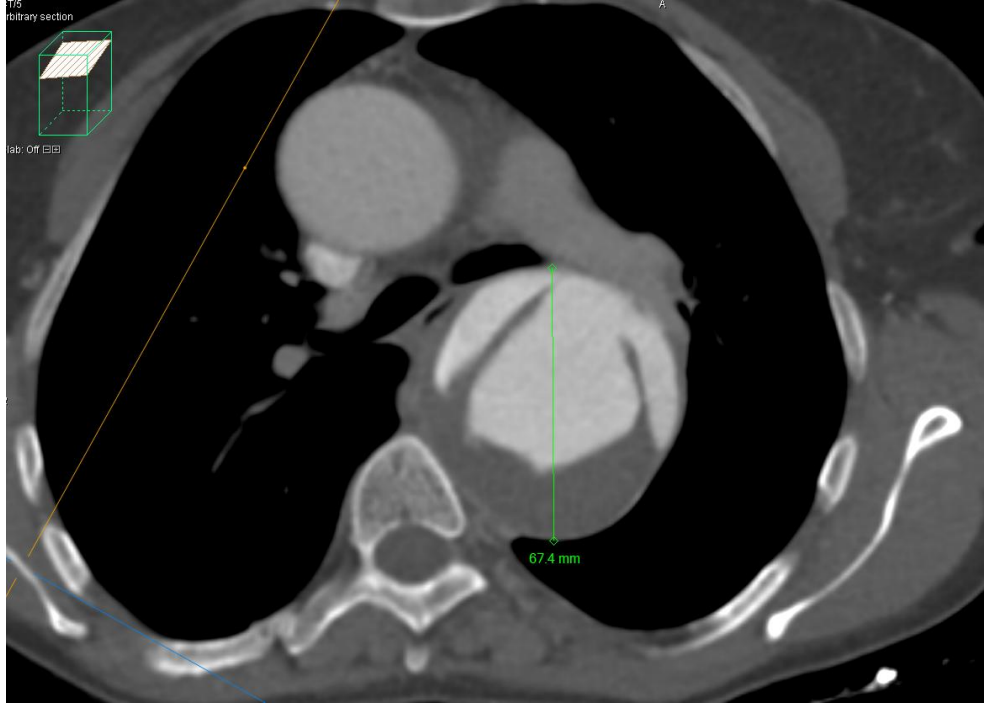

L
R
ZONE 0
25.0 LAO
0.0 CRA
68.4 kV
427.0 mA
Veľkosť pixla: 0.116 mm
W: 874 L: 2117
F
796 L: 2111
F

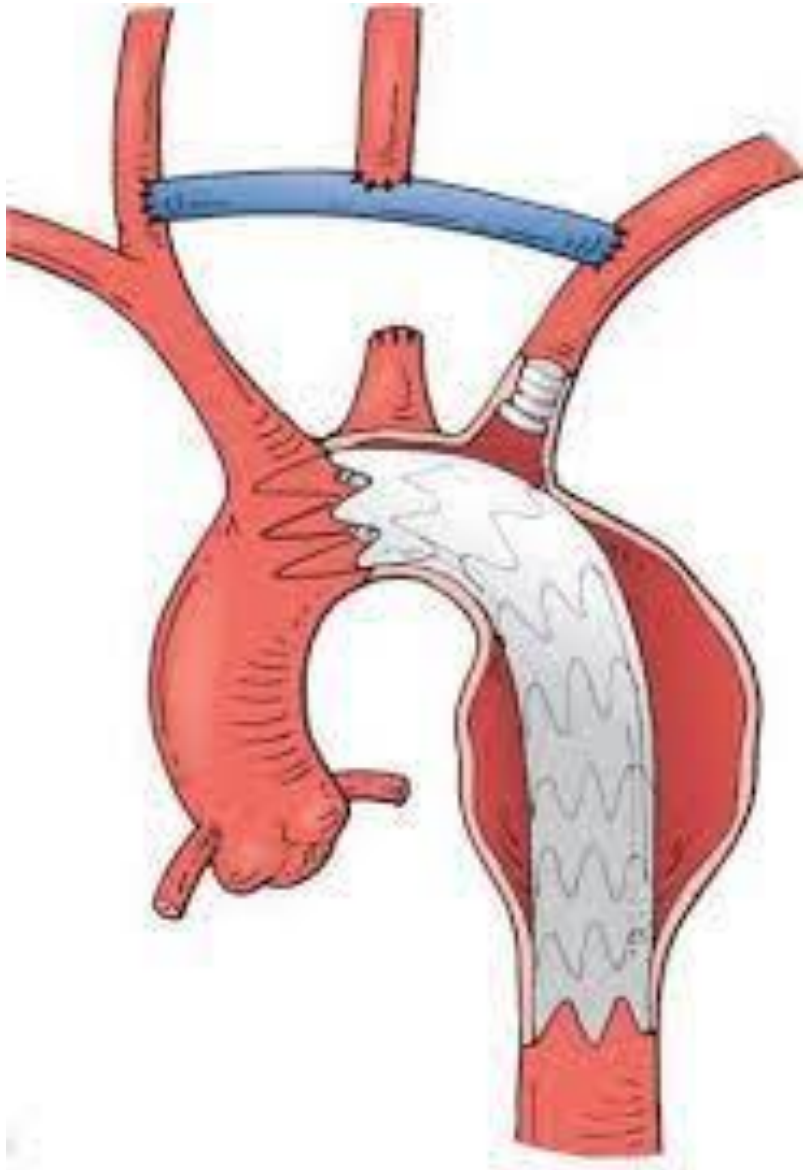

H
LAO
RA
kV
mA
ost pixelu: 0.114 mm
80 L: 2110
F
H
pixelu: 0.114 mm
L: 2096
F
H
AO
A
mA
t pixelu: 0.114 mm
L: 2091
F

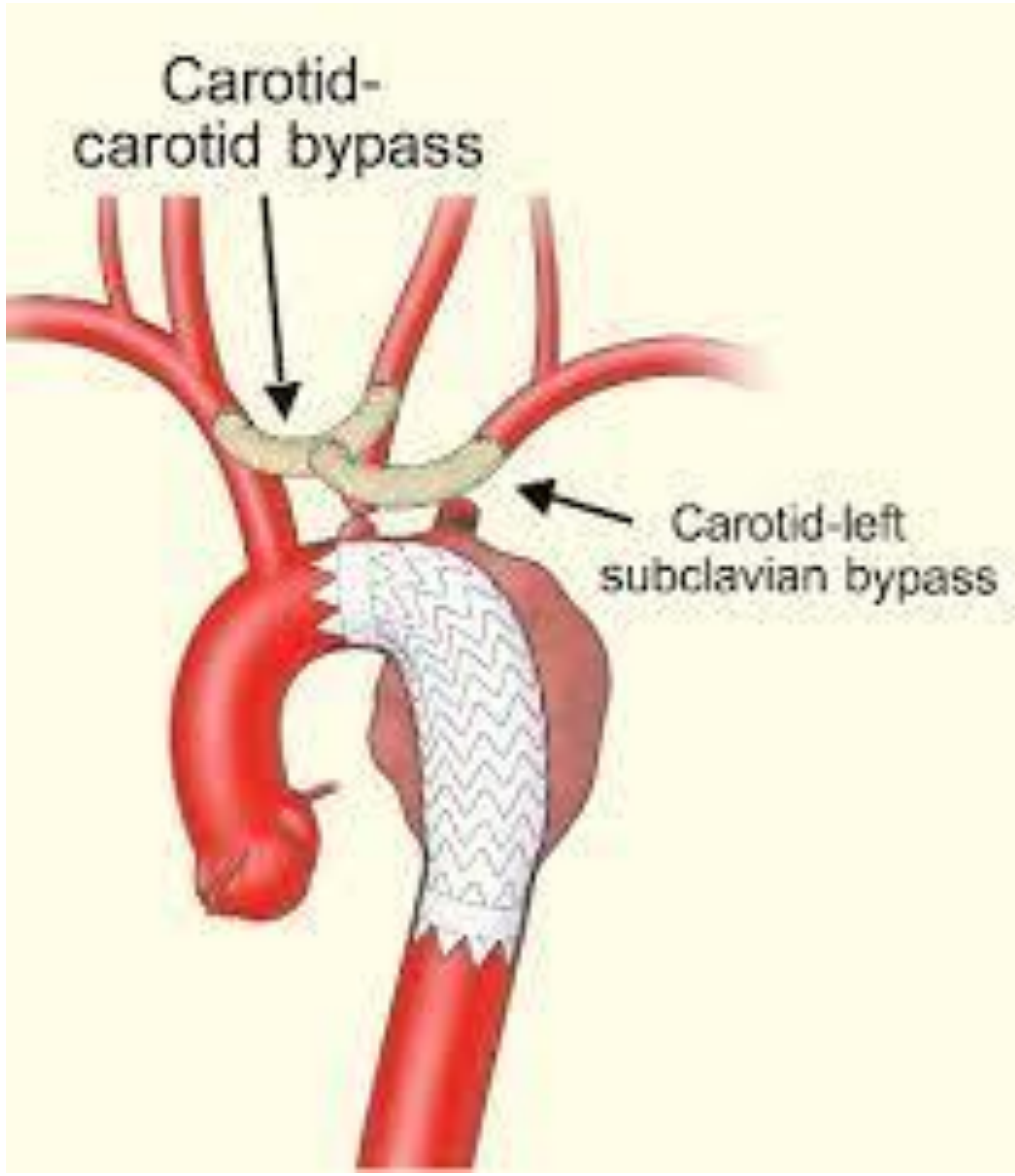

R
40 mm
25.0 LAO
0.0 CRA
68.4 kV
427.0 mA
Veľkosť pixla: 0.116 mm
W: 874 L: 2117
F

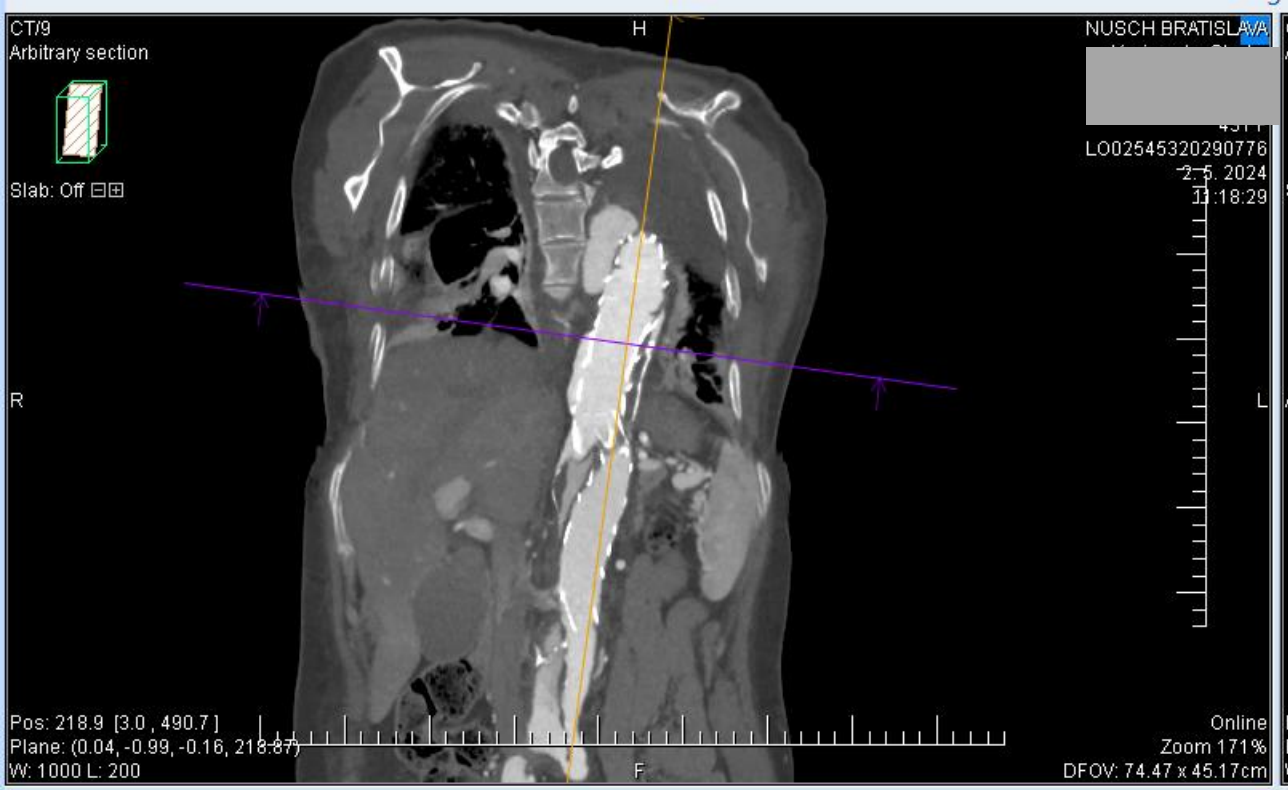

R
25mm
25.0 LAO
0.0 CRA
68.4 kV
427.0 mA
Veľkosť pixla: 0.116 mm
W: 796 L: 2111
F

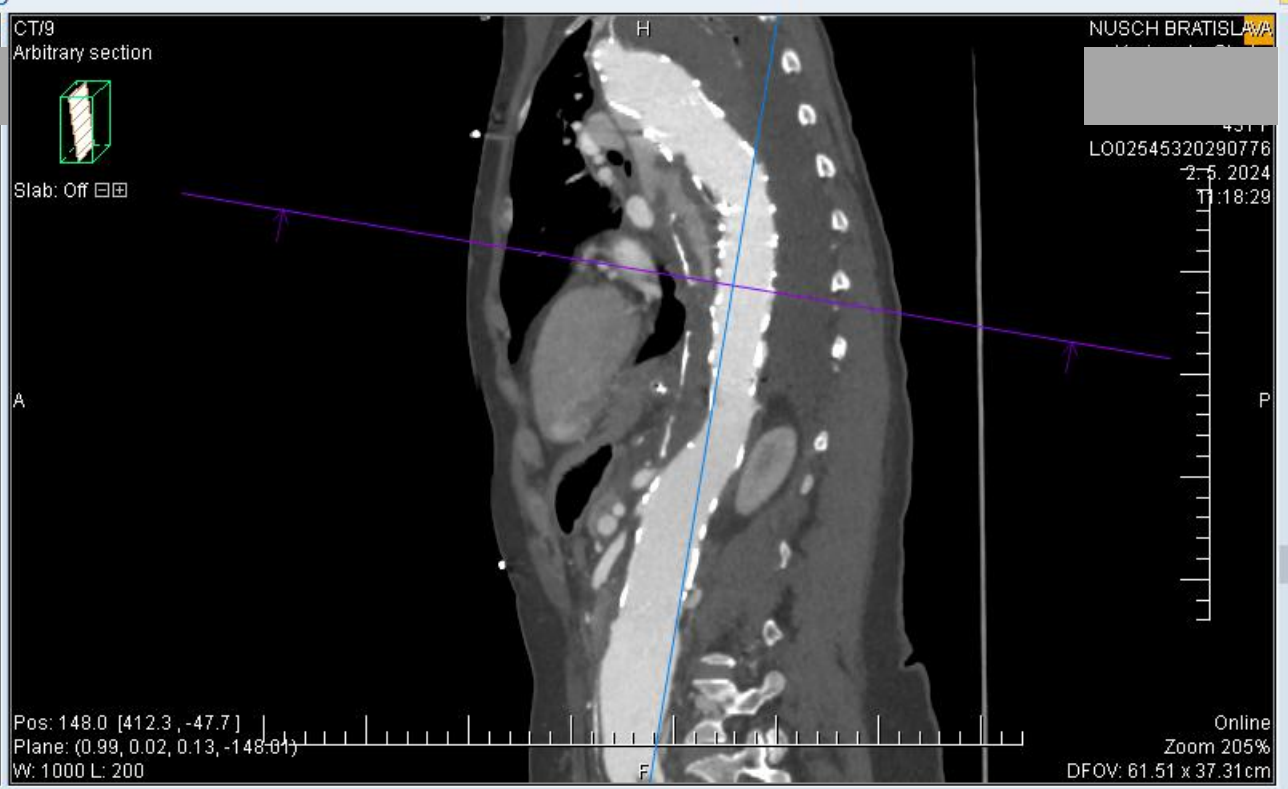

ZONE 1

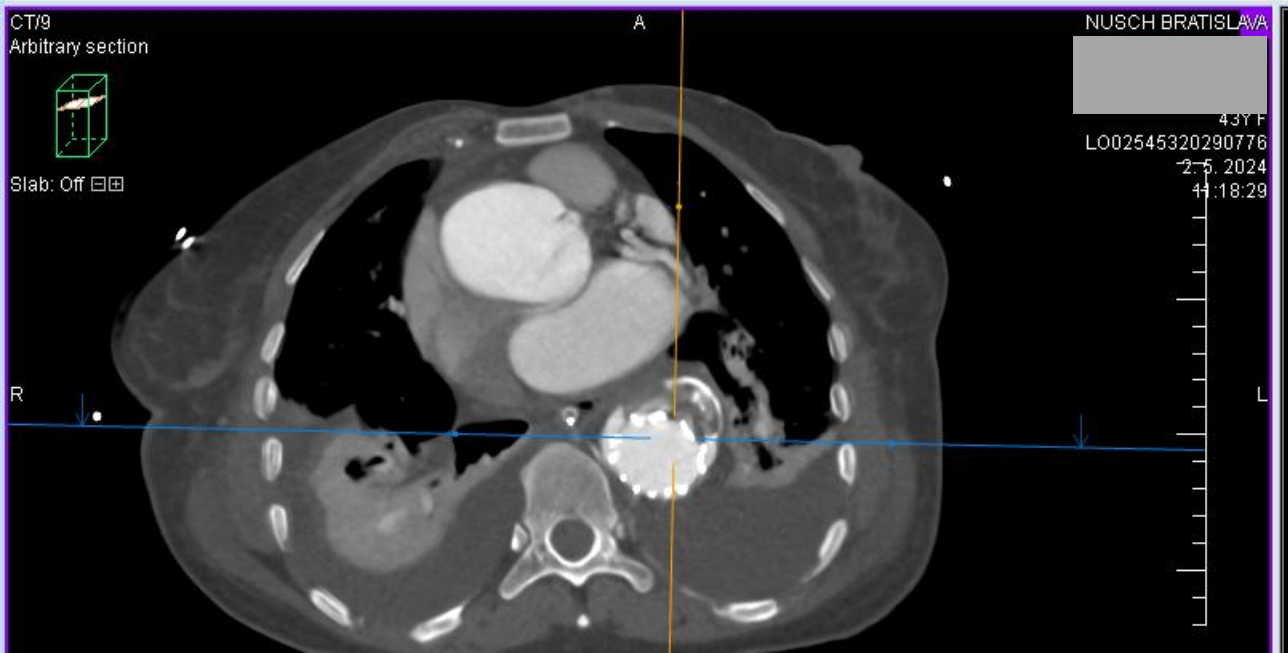

67.4 mm



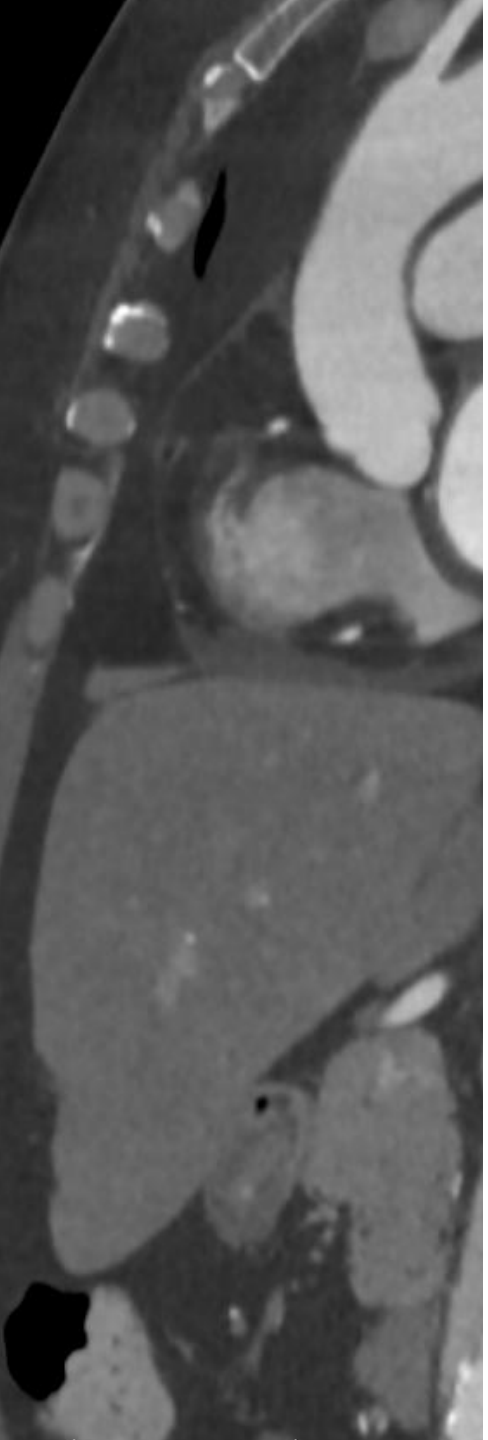

Carotid-
carotid bypass
Carotid-left
subclavian bypass

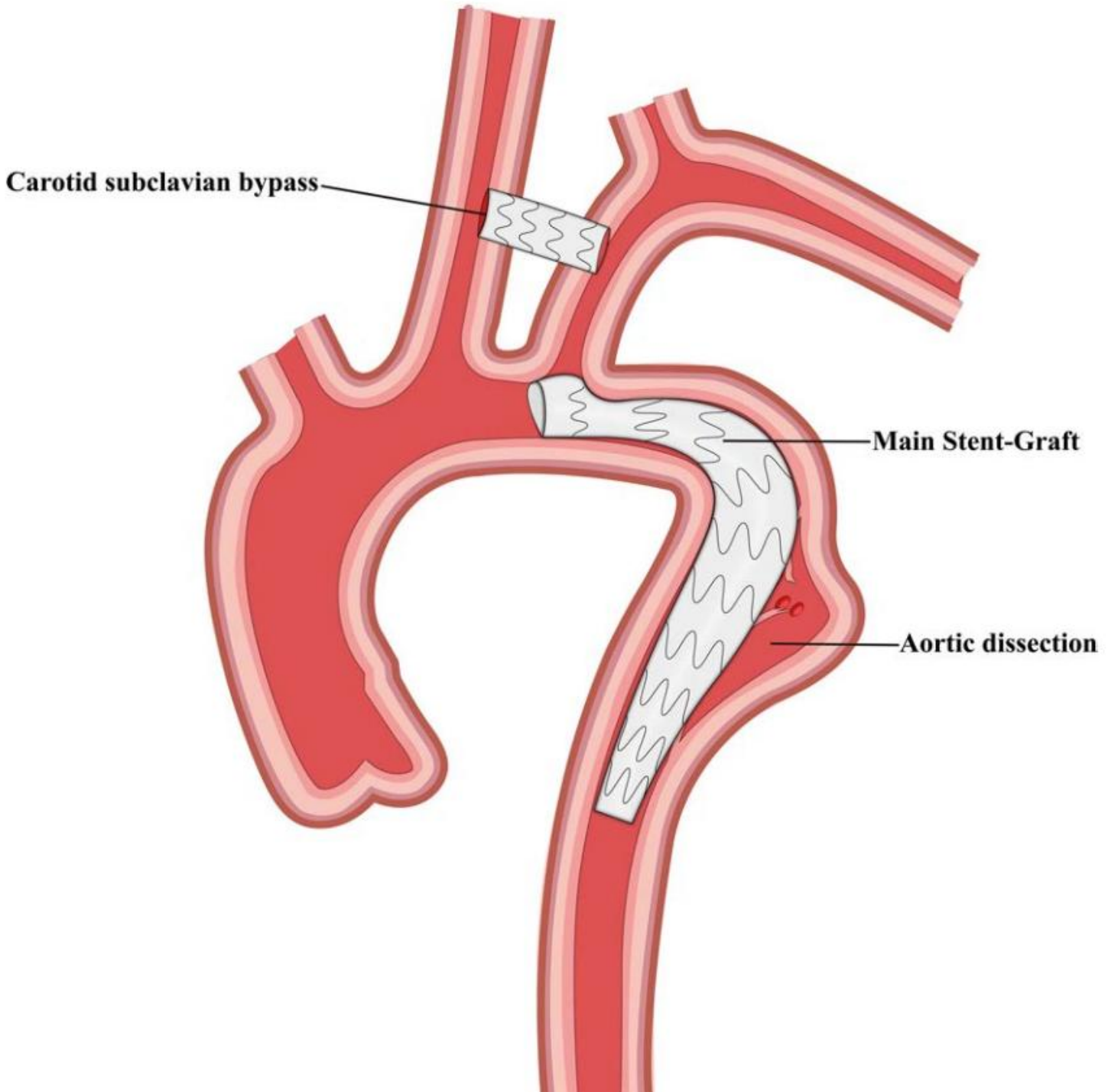


CT/9
Arbitrary section
Slab: Off
H
R
L
F
NUSCH BRATISLAVA
LO02545320290776
2. 5. 2024
11:18:29
Pos: 218.9 [3.0 , 490.7]
Plane: (0.04, -0.99, -0.16, 218.87)
W: 1000 L: 200
Online
Zoom 171%
DFOV: 74.47 x 45.17cm

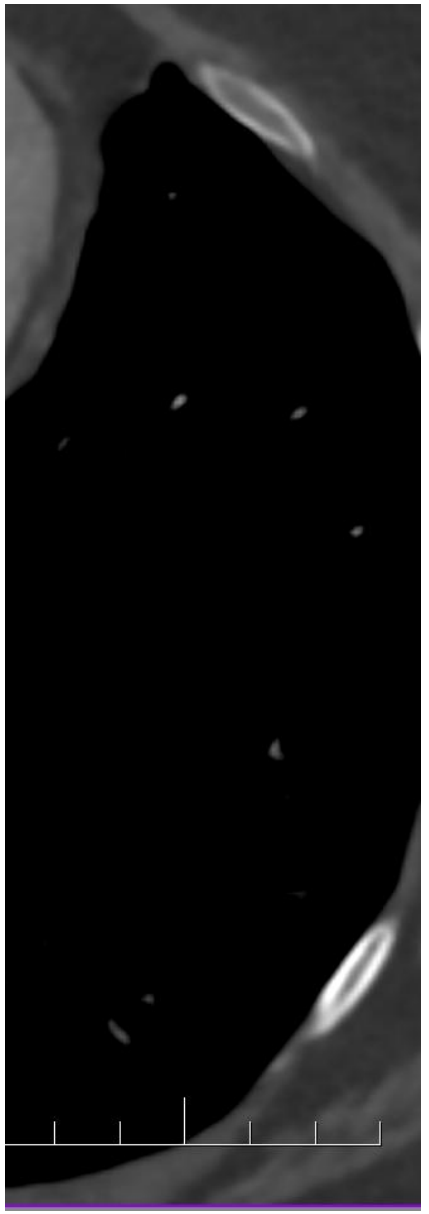

CT/9
Arbitrary section
Slab: Off
H
A
P
F
NUSCH BRATISLAVA
LO02545320290776
2. 5. 2024
11:18:29
Pos: 148.0 [412.3 , -47.7]
Plane: (0.99, 0.02, 0.13, -148.01)
W: 1000 L: 200
Online
Zoom 205%
DFOV: 61.51 x 37.31cm

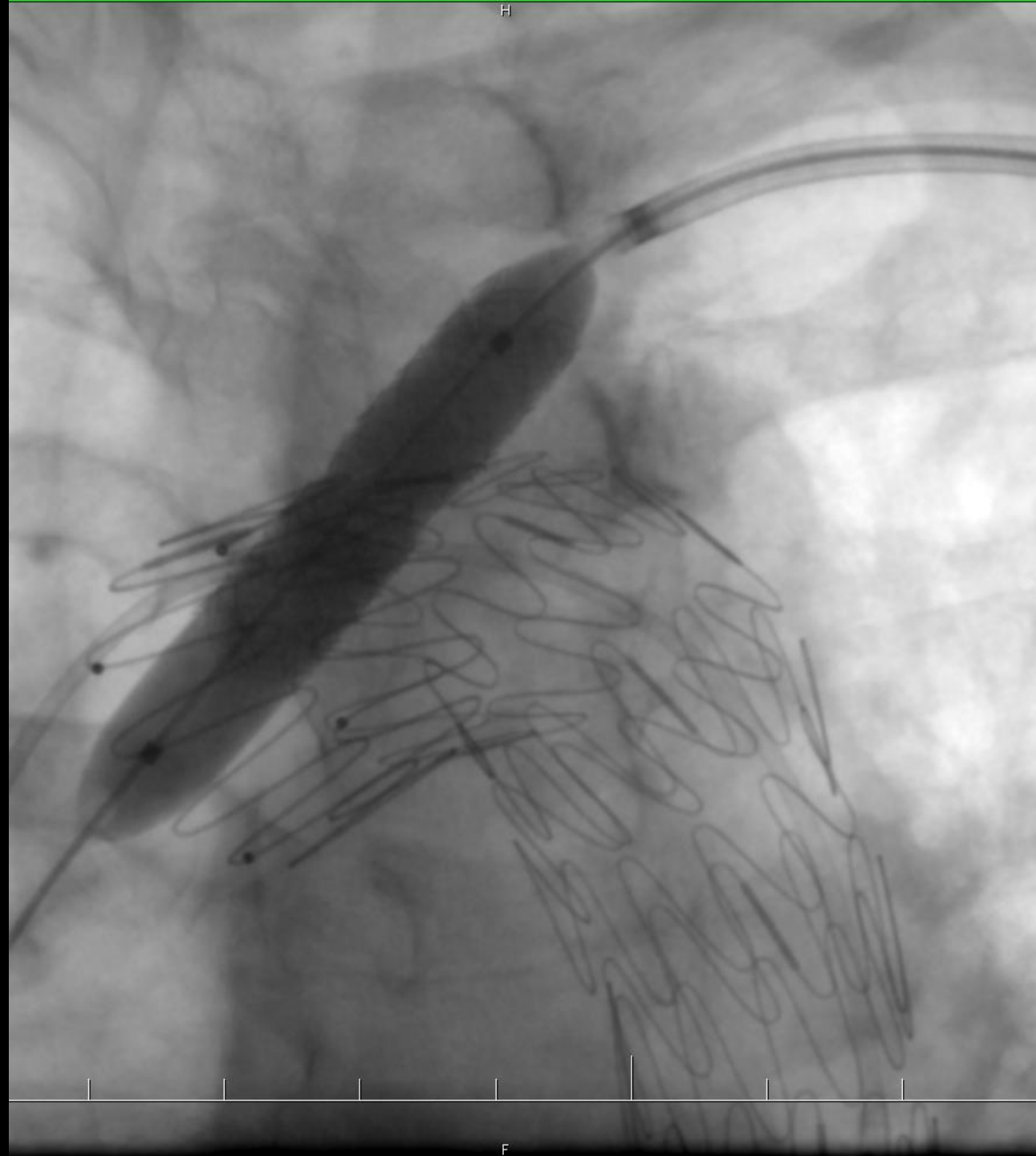

CT/9
Arbitrary section
Slab: Off
A
R
L
NUSCH BRATISLAVA
LO02545320290776
2. 5. 2024
11:18:29

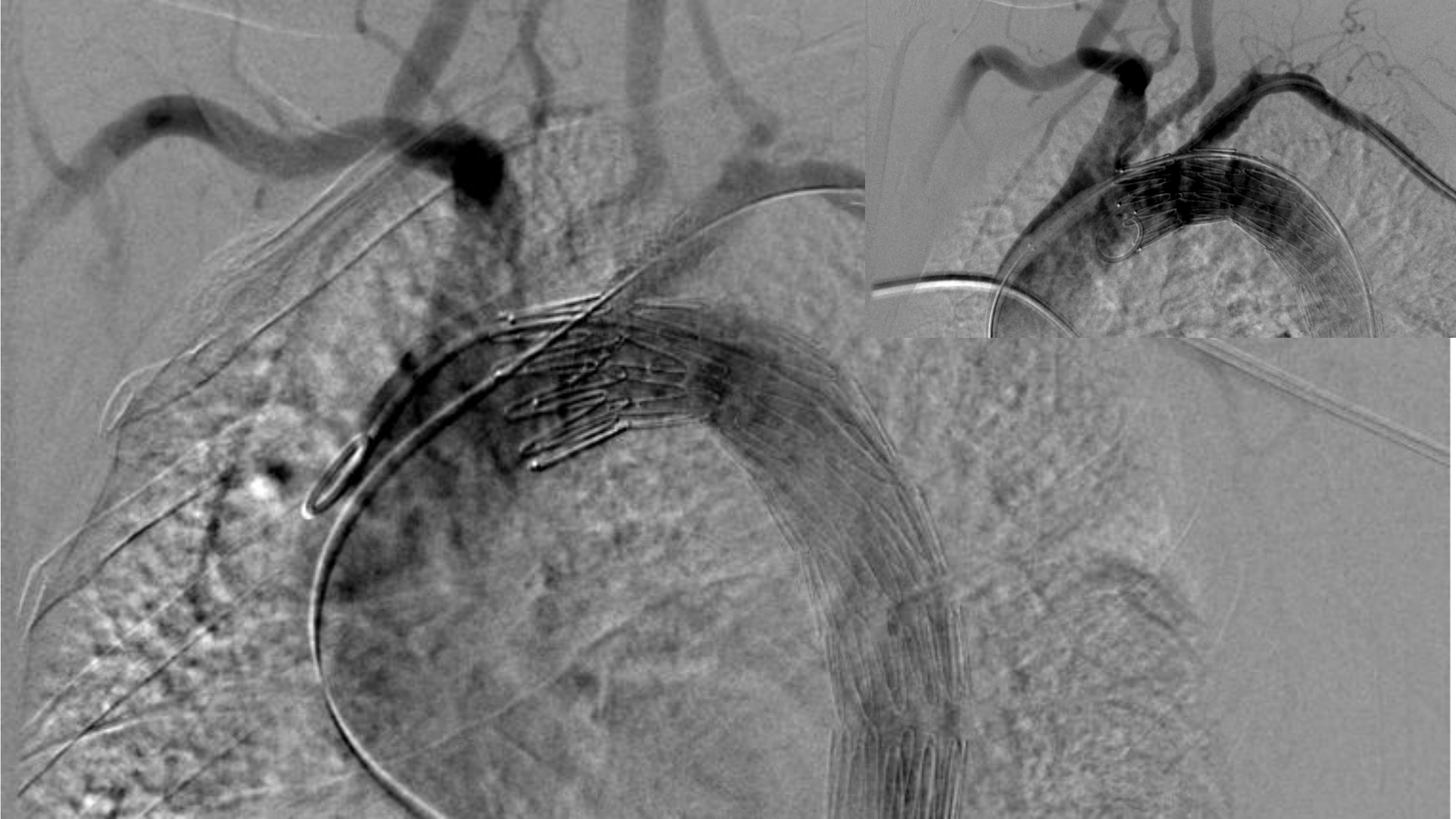
NO IMAGE




Carotid subclavian bypass
Main Stent-Graft
Aortic dissection





HYBRIDNÍ PŘÍSTUP K POSTIŽENÍM OBLOUKU AORTY

- Multidisciplinární tým, péče soustředěná do aortálního centra
  - Obecně platné optimální řešení není, individualizace péče
  - Všechno je o proximální landing zone
- Komplexní TAAD
  - TAR + FET
  - AAR + centrální debranching (pozice centrální anastomózy, označení)
- Non A – Non B AD
  - Zone 0
    - Průměr, délka, typ oblouku (nativní aorta x protéza)
  - Zone 1
    - Typ debranchingu, preference end-end anastomóz
  - Zone 2
    - Kompletně endovaskulární přístup