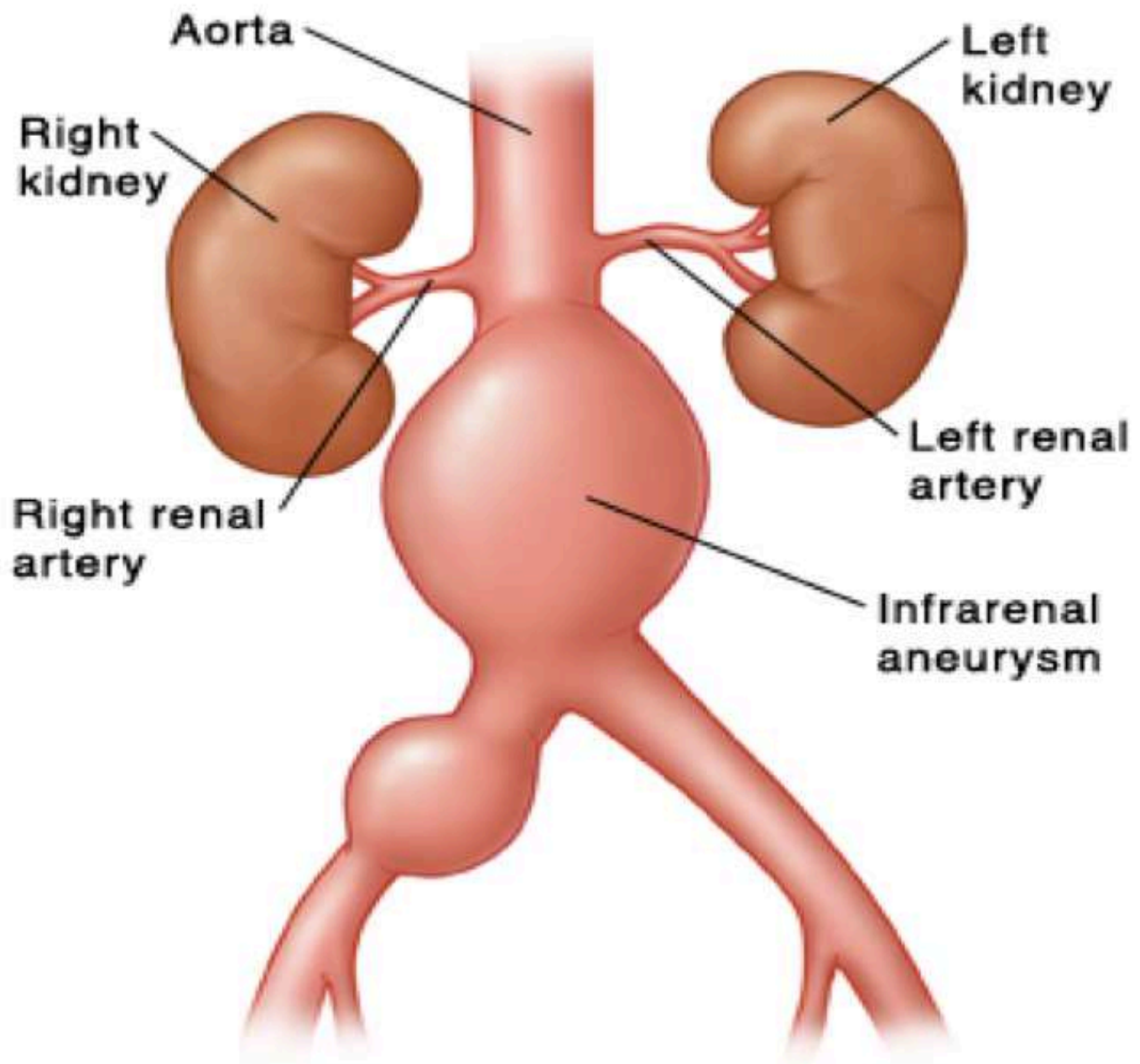


Endoleaks, Velocity Peaks, and Sac Size Tweaks

O. William Brown, MD, JD
Chief, Division of Vascular Surgery
William Beaumont Hospital
Professor of Surgery
Oakland University/William Beaumont SOM
Adjunct Professor of Law
Michigan State University College of Law

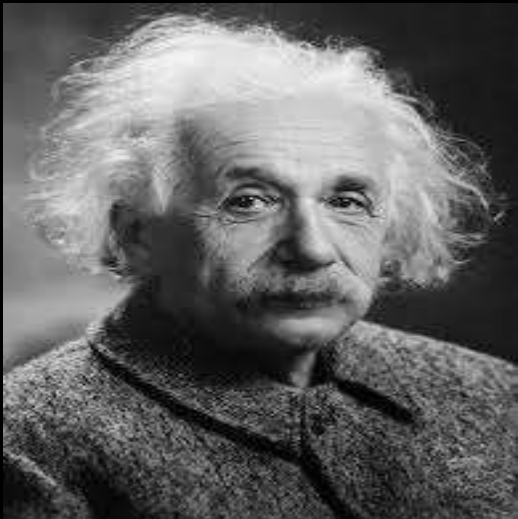
No Financial Disclosures



AAA Prevalence

- Most AAA's are Never Detected.
Approximately 70% to 80% of AAA Patients are asymptomatic at Initial Diagnosis
- Nearly 200,000 people in the U.S. are diagnosed with AAA annually
- Incidence in general population may be as high as one million people

These people all died of AAA



Risk Factors

- Smoking
- Family history
- Hypertension
- High cholesterol

AAA Symptoms

- A pulsing feeling in the abdomen, similar to a heartbeat
- Severe, sudden pain in the abdomen or lower back. (aneurysm may be about to rupture)
- On rare occasions, feet may develop pain, discoloration, or soreness because of material shed from the aneurysm



AAA visible

AAA Screening Tests

- Abdominal aortic aneurysms are most often found when a physician is performing an imaging test, such as an ultrasound, for another condition.
- Recommend tests:
 - Abdominal ultrasound
 - Computed Tomography (CT) Scan
 - Magnetic Resonance Imaging (MRI)

Risk of Rupture

- 0.3% per year for AAA < 3.9 cm
- 1.5% per year for AAA 4 to 4.9 cm
- 6.5% per year for AAA 5 to 5.9 cm
- 10% per year for AAA 6.0 – 6.9 cm

Treatment options

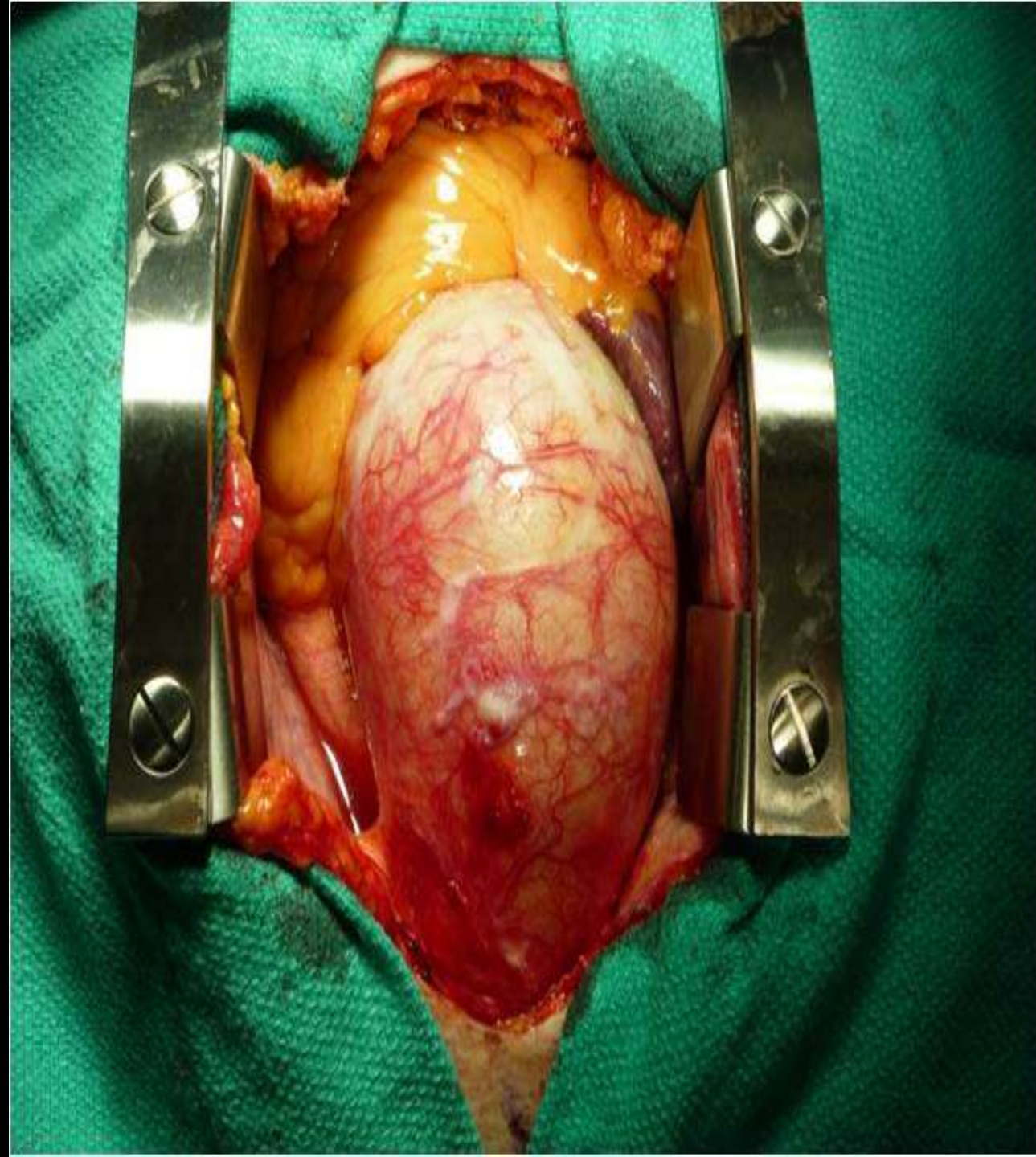
- Observation
- Open Surgery
- Endovascular stent graft

Open Surgery

- Anatomy unsuitable for stent graft
- Age
- Large abdominal incision
- 5 to 7 days in the hospital
- Return to work in 4 to 6 weeks



JOHNNY
HAWKINS





Op



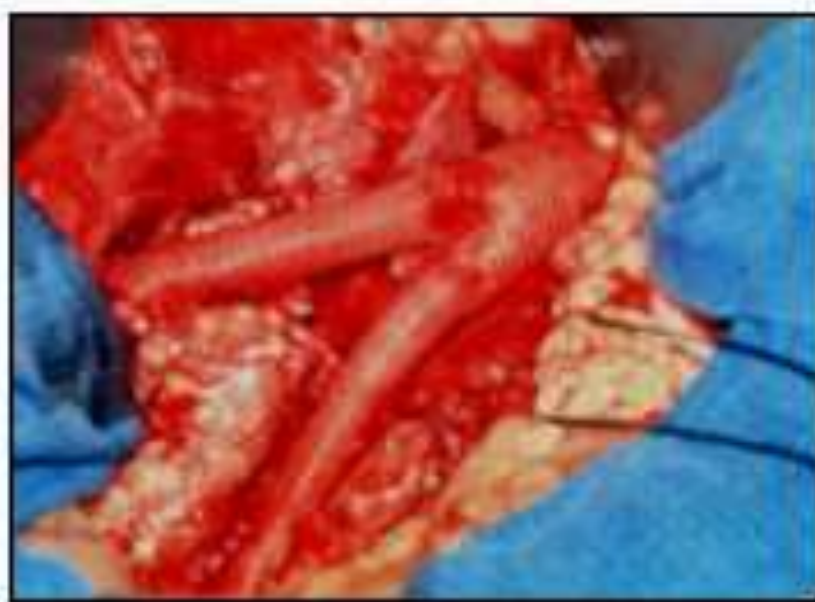
▶ ABDOMINAL INCISION



▶ ABDOMINAL AORTIC ANEURYSM



▶ OPENING THE ANEURYSM SAC



▶ SUTURING SURGICAL GRAFT

Endovascular Treatment of AAA

Aortic Neck

> 10-15 mm

18-32 mm

Neck Angulation
< 45-60°

CIA

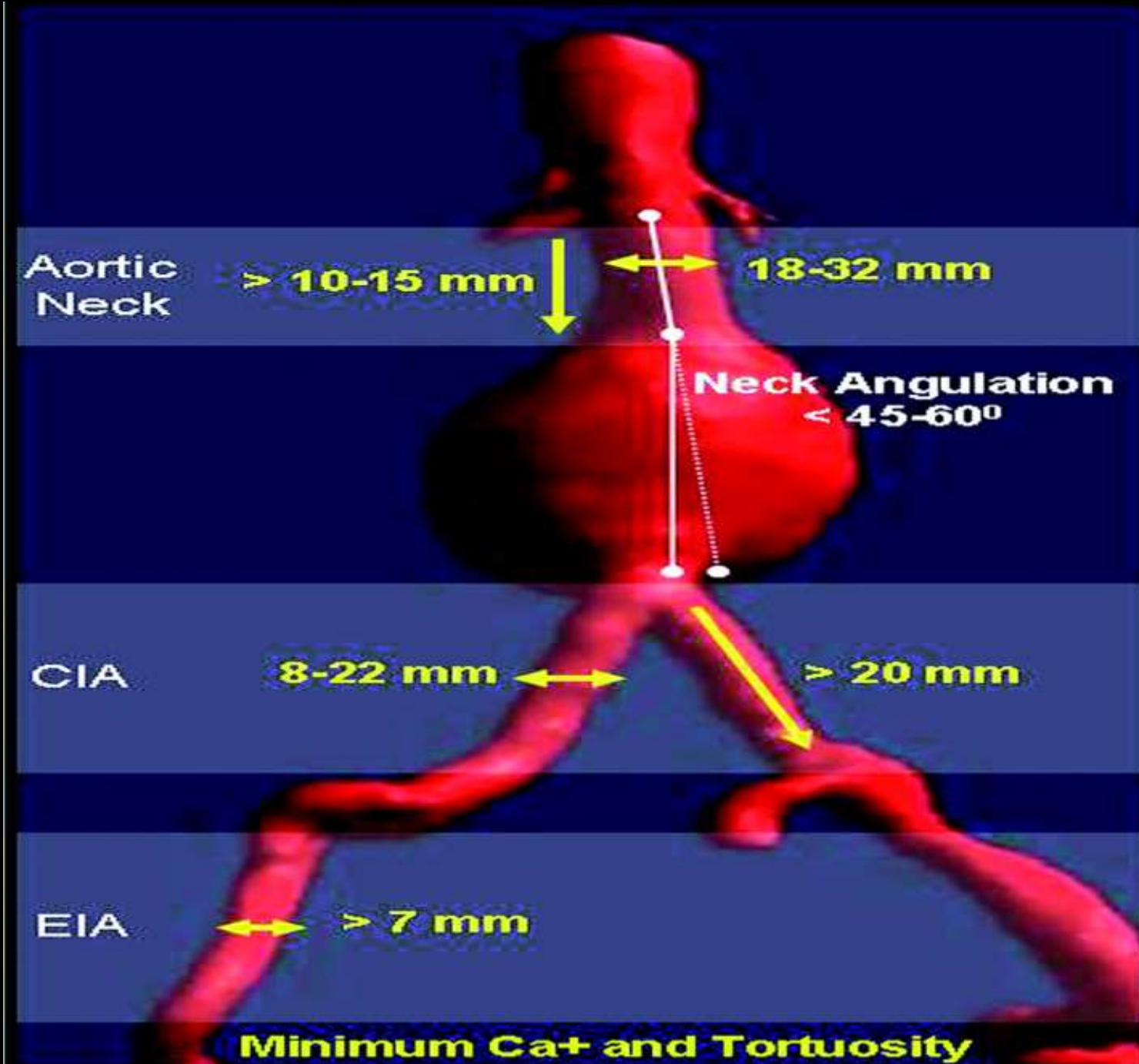
8-22 mm

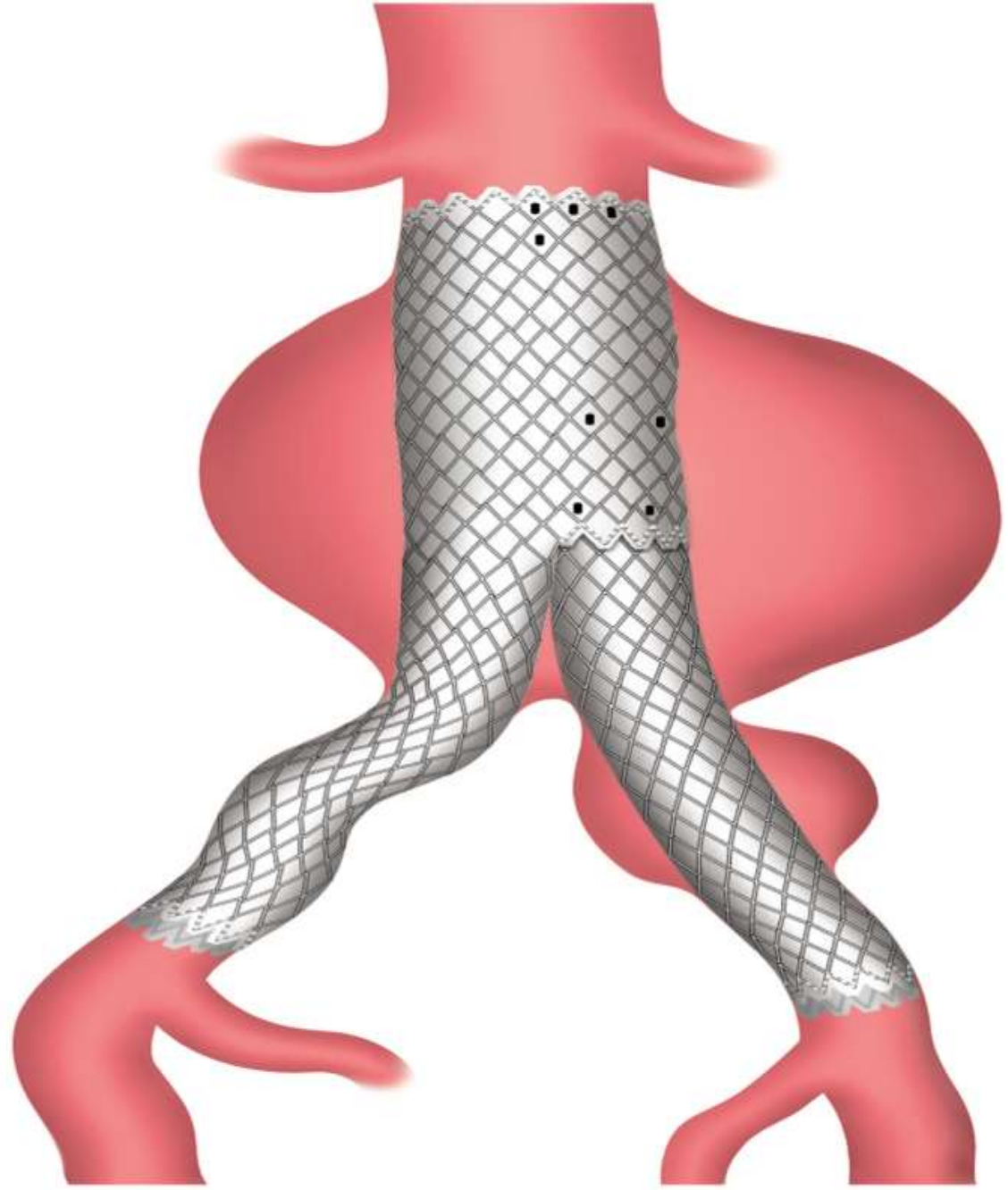
> 20 mm

EIA

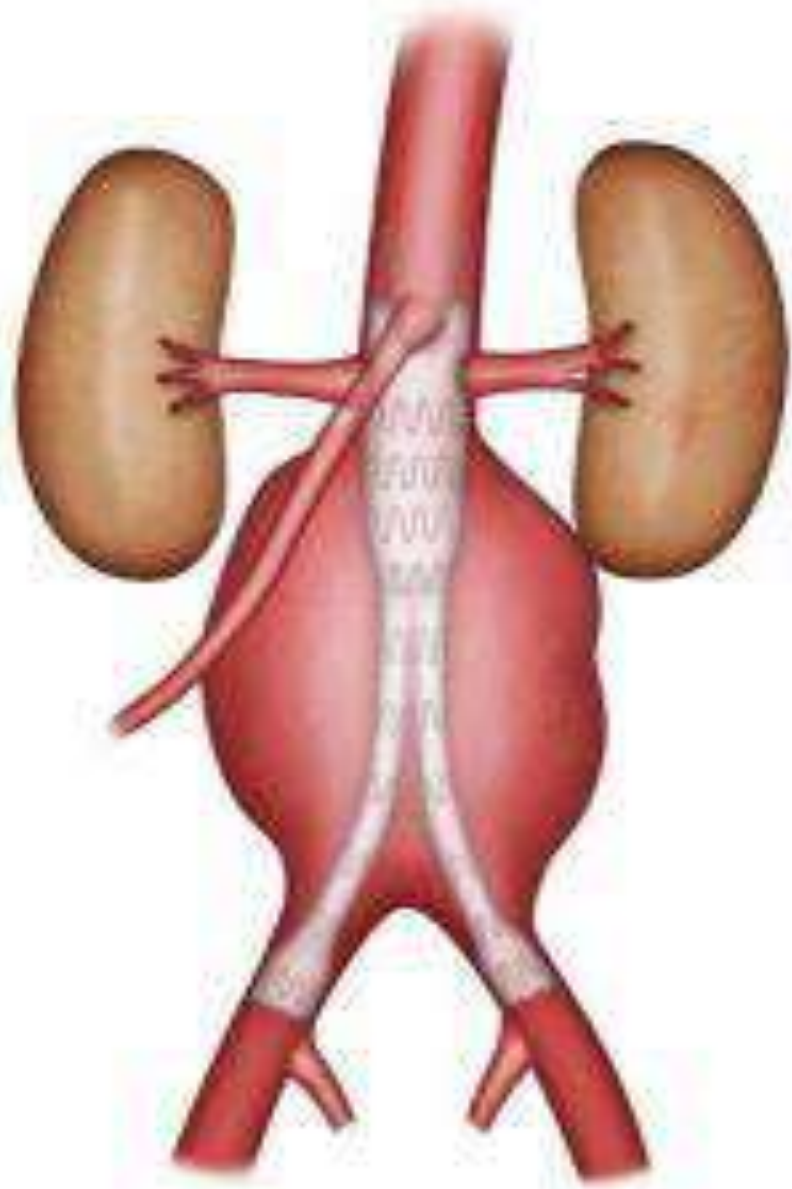
> 7 mm

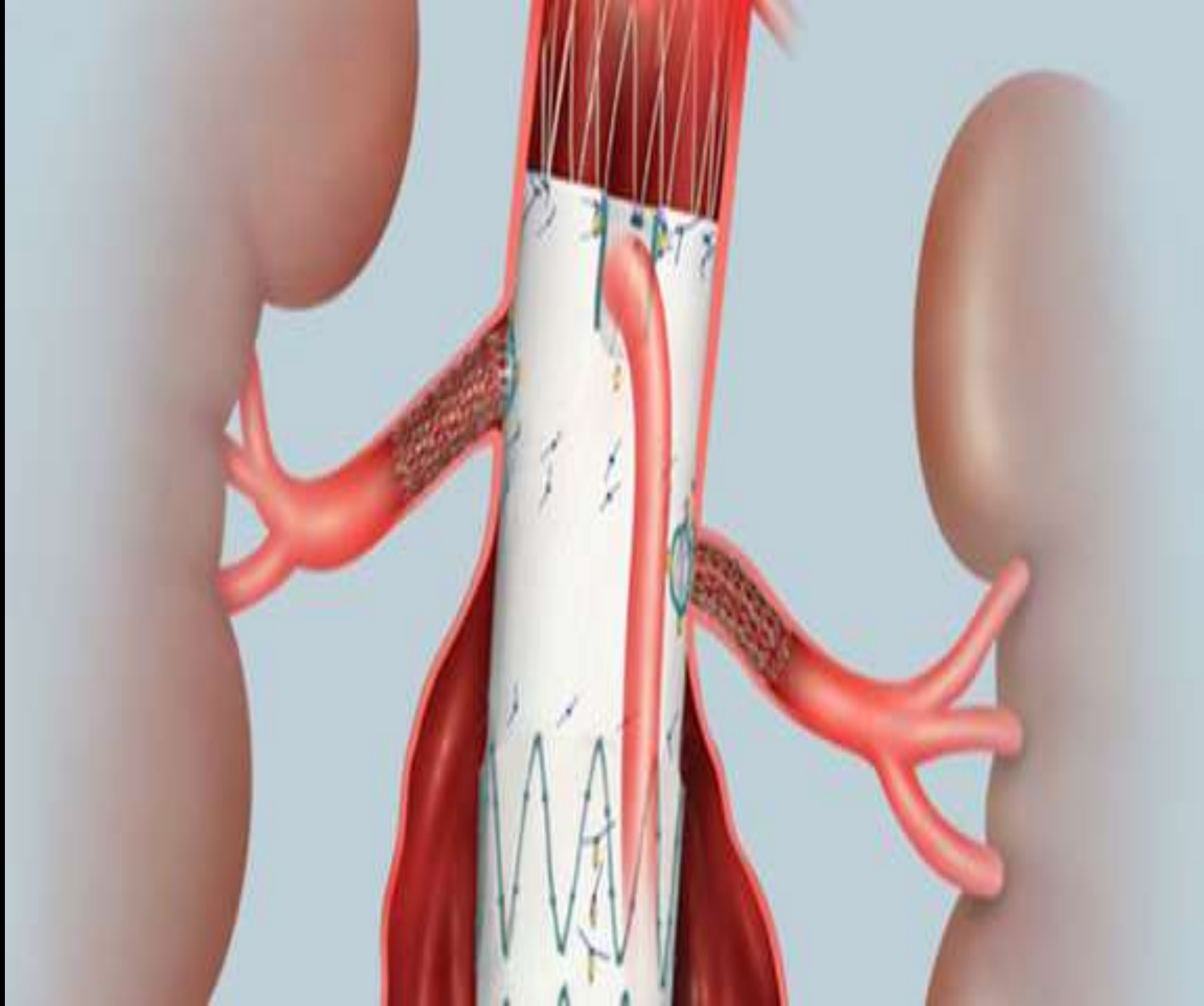
Minimum Ca⁺ and Tortuosity

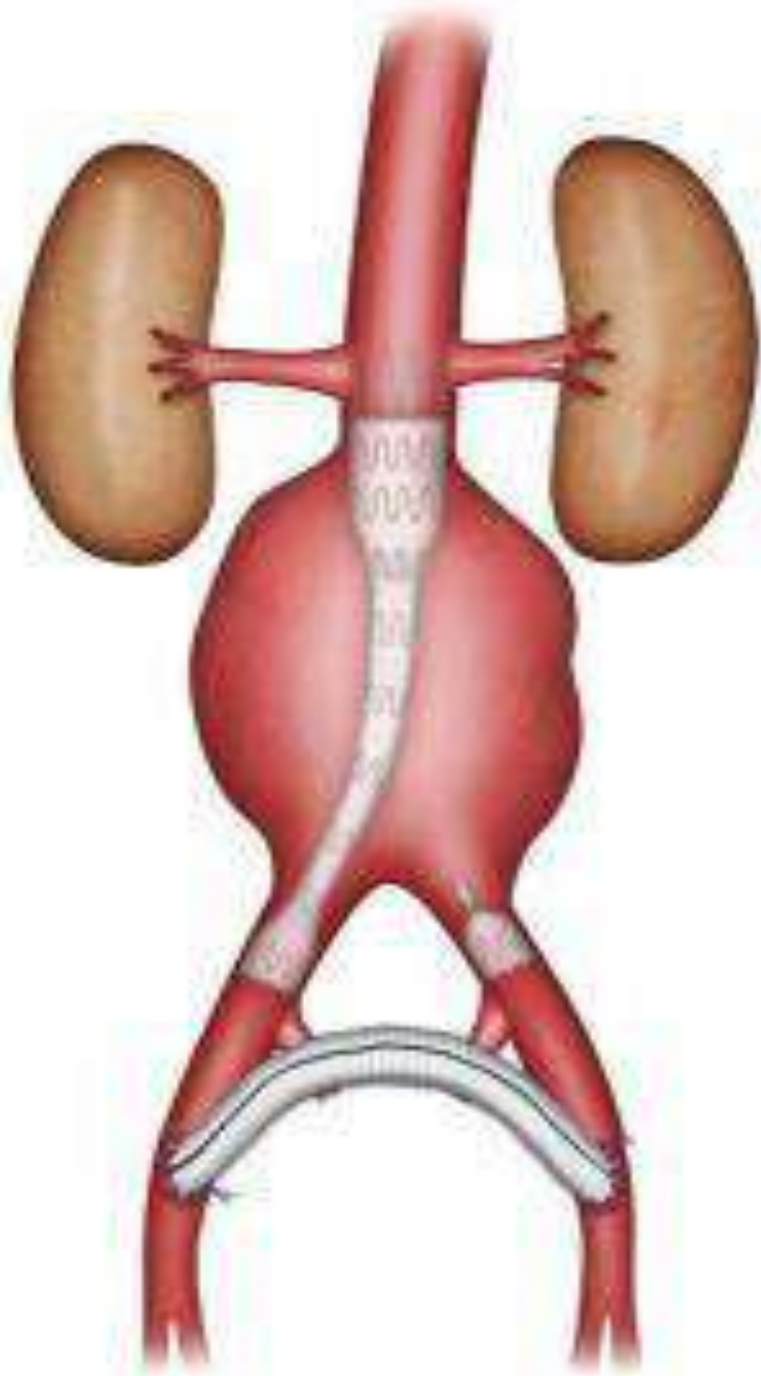




Stent Graft in Aneurysm





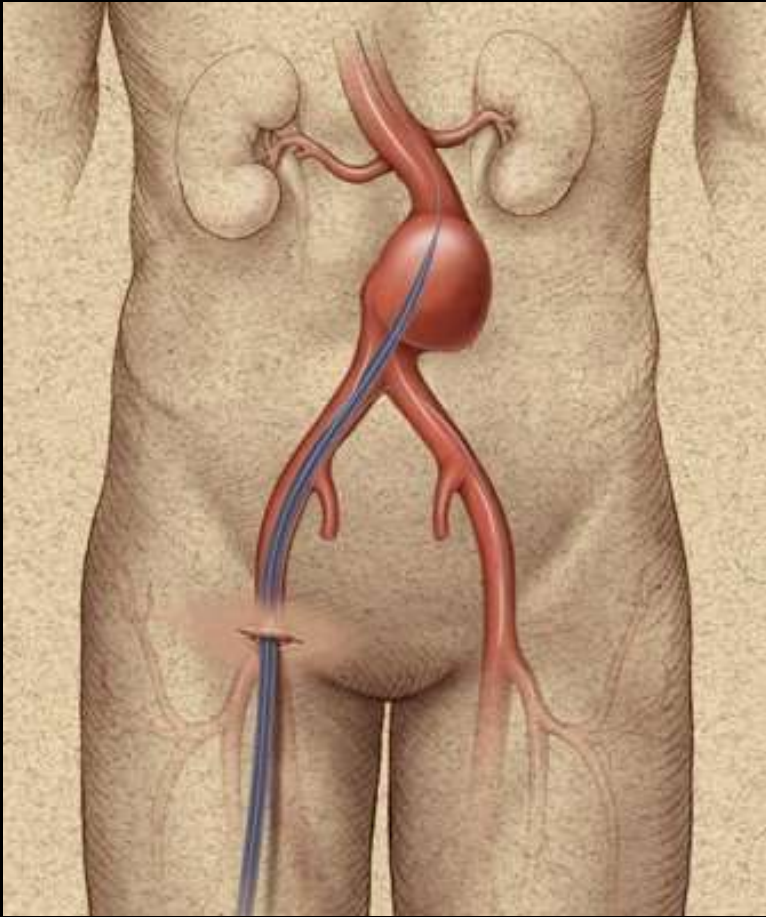




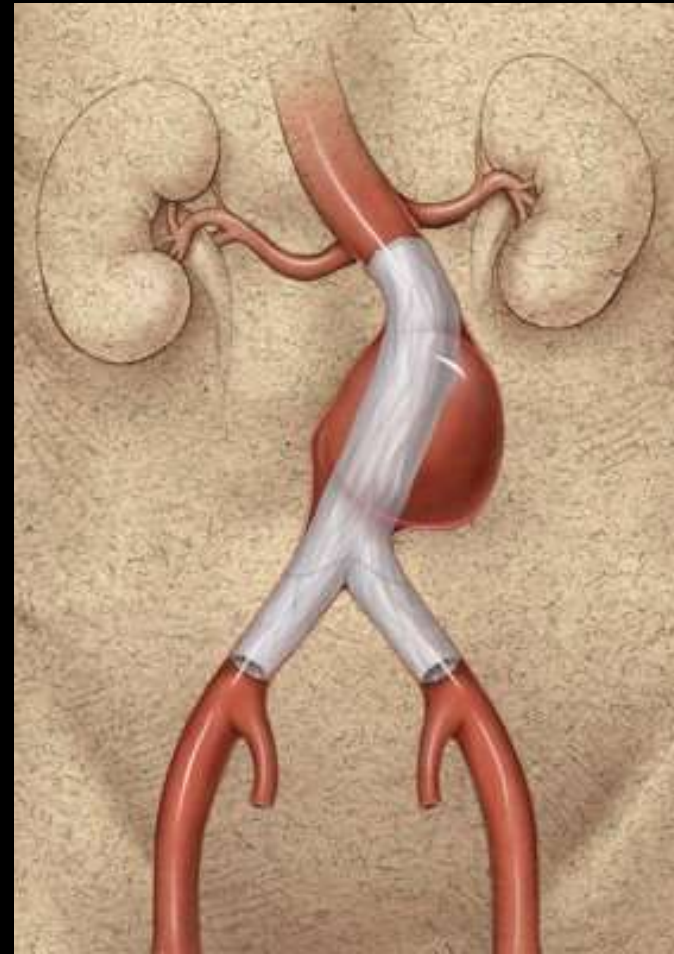
EXCLUDER[®]
BIFURCATED ENDOPROSTHESIS 



AAA Delivery System Implant



Delivery Catheter Placed in Position



Stent graft in Aorta



(A)

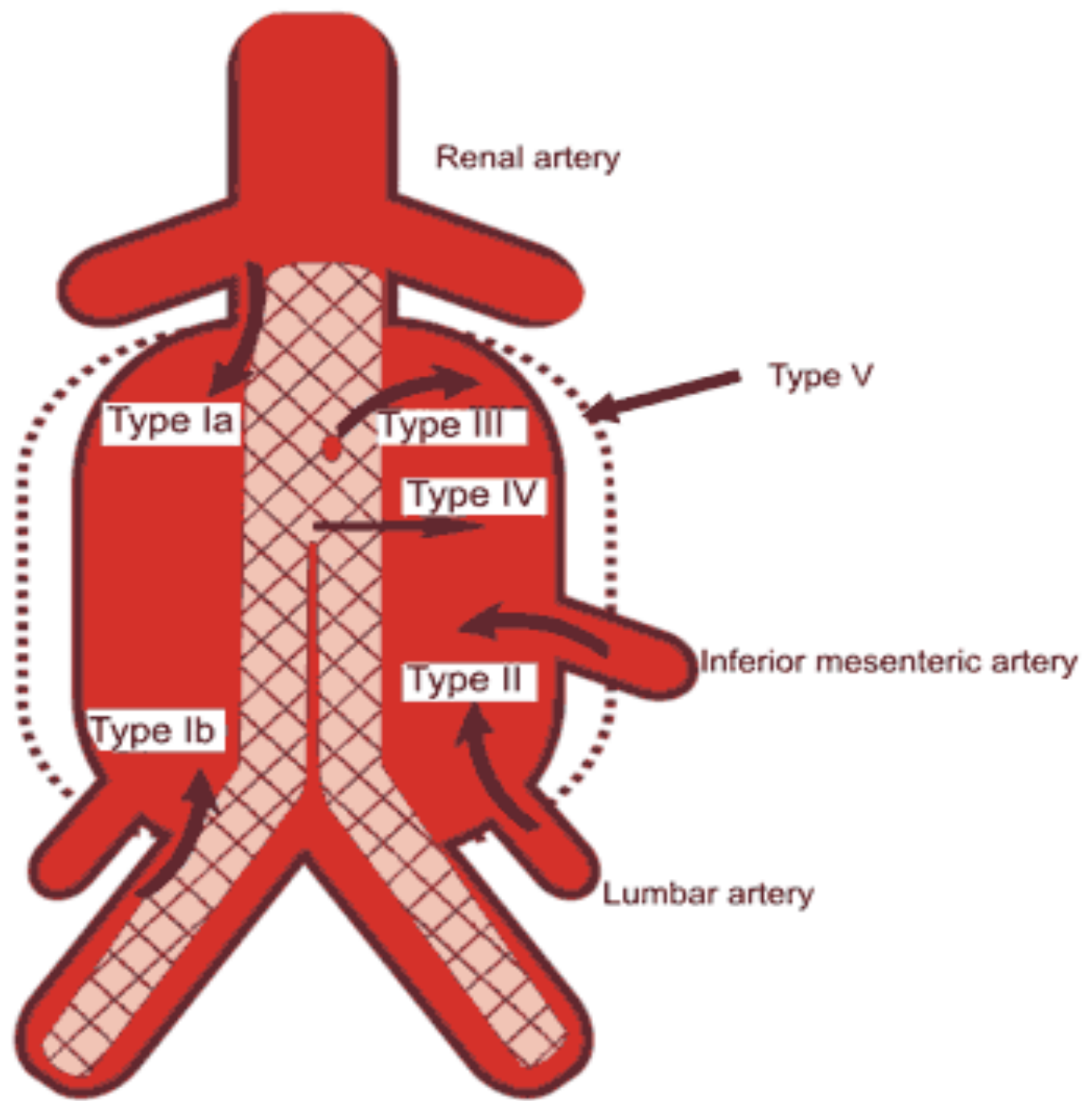


(B)

Figure 1

The Ovation[®] abdominal stent graft platform is FDA-approved to the complex aortoiliac aneurismatic disease.

Endoleaks



Renal artery

Type V

Type Ia

Type III

Type IV

Inferior mesenteric artery

Type Ib

Type II

Lumbar artery

Lower Res
20



Pre-Treatment

10-

11

Full Hanover Res

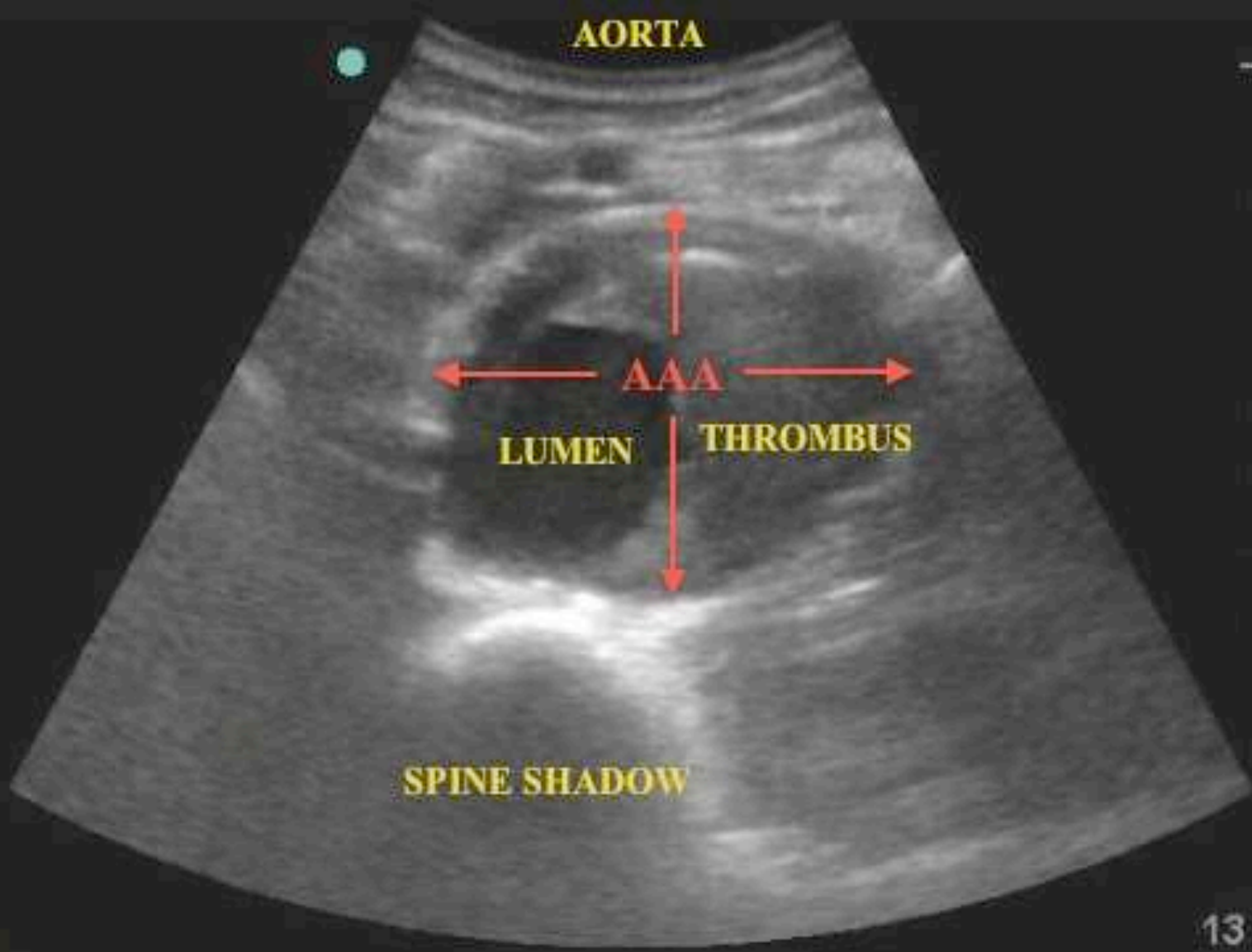


Post-Treatment

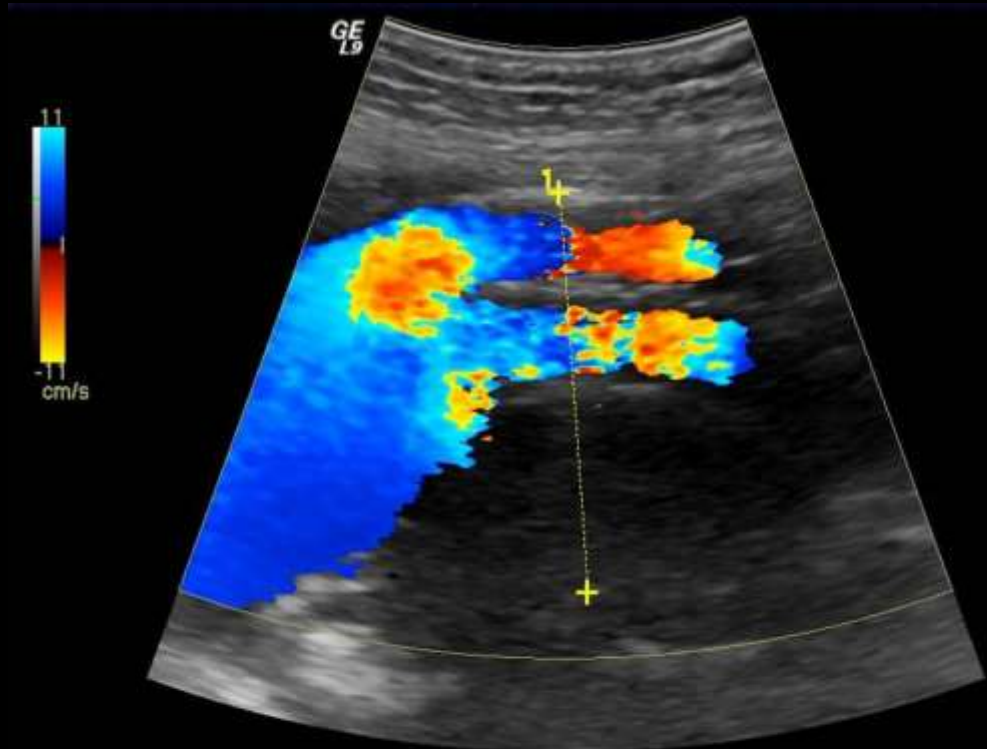
13-JUN-2001
13:25:35

DR L
3 CM
13 LAD
• 6 0
PRN 10/29
PAC 0
TIME 4:50a

Gen THI
S MB



Abd
- C60
98%
MI
1.0
TIS
0.1
A
B



AAA RES SAC SAG

1 L 4.56 cm



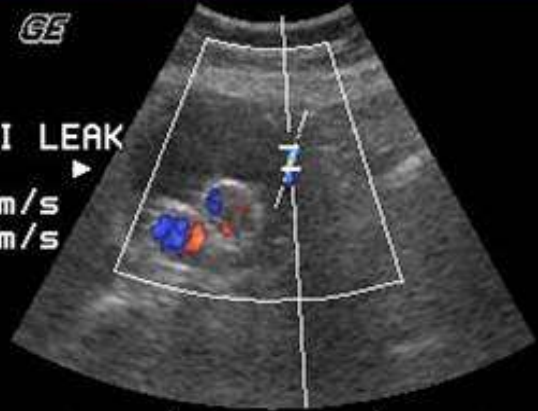
1700P +1:57:11
68F
51CG
IM#9



GE

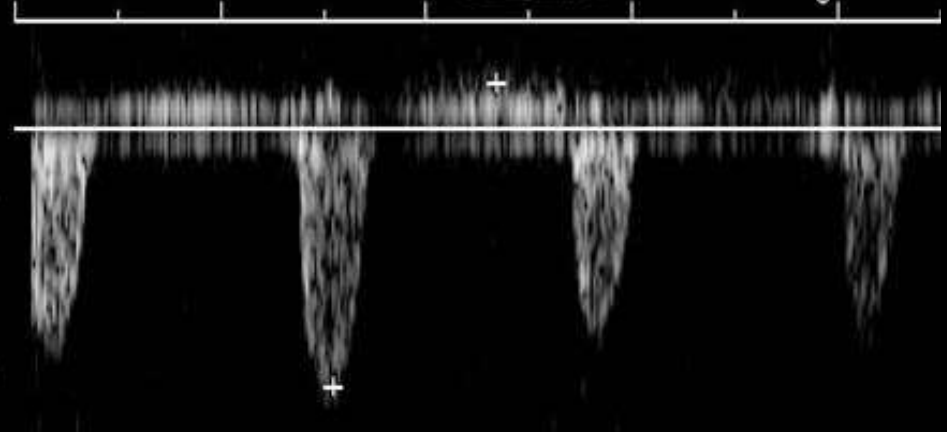
TYPE II LEAK

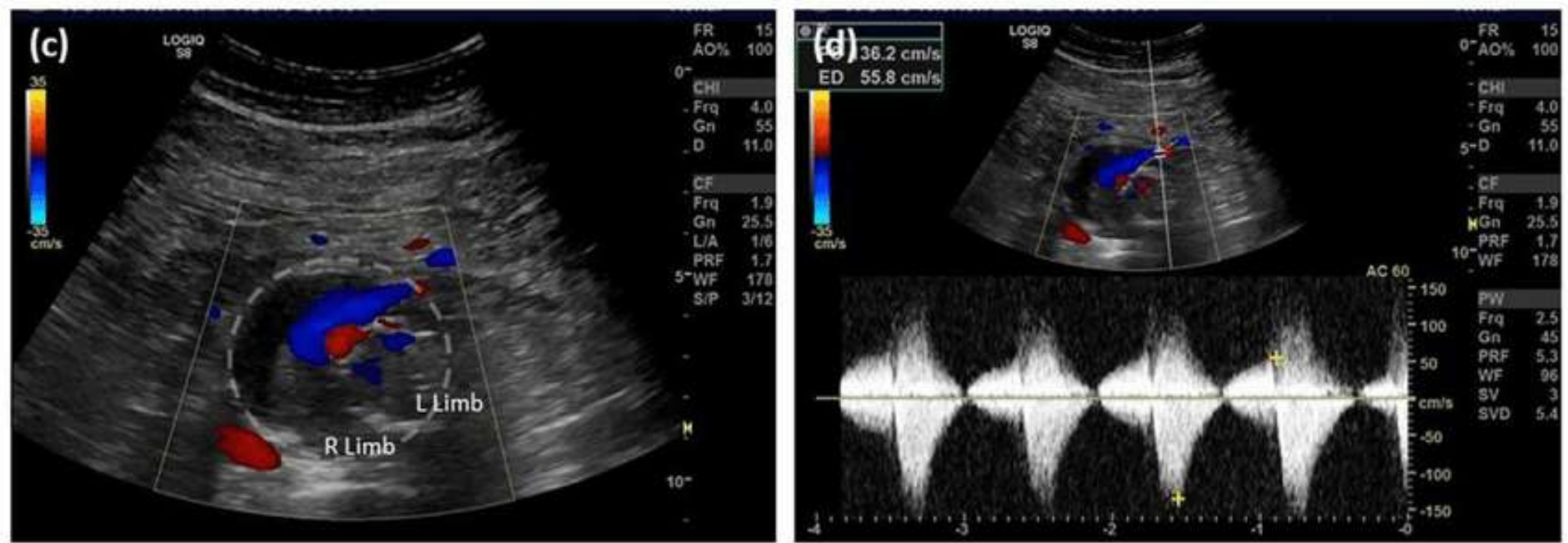
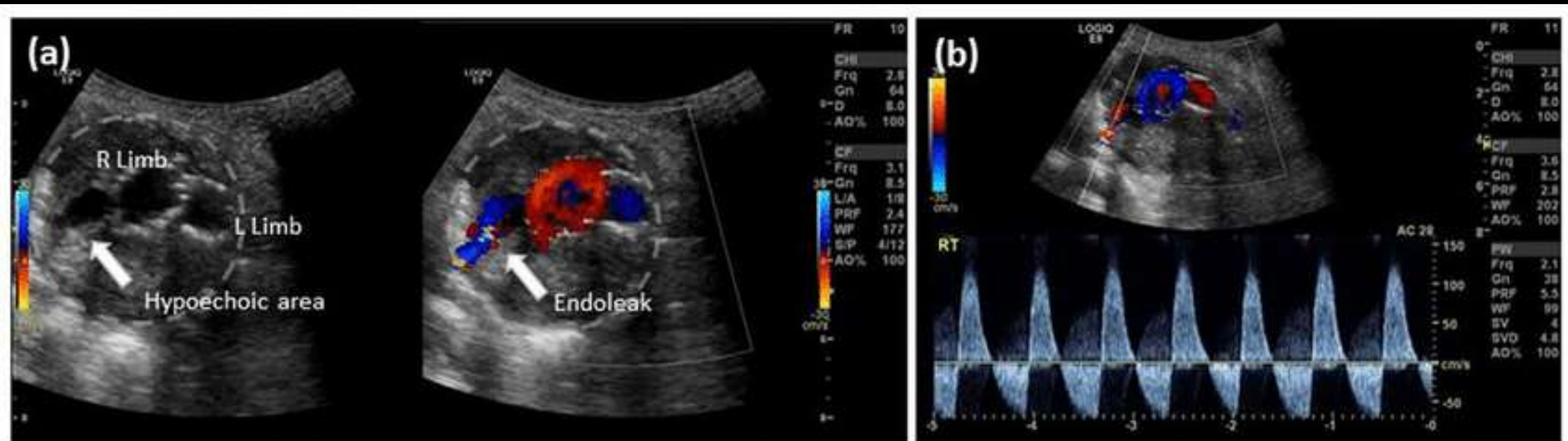
124.9cm/s
21.9cm/s



26 PS
ED
26
cm/s

6100P
65F
45DG
6SW
20°
36SD

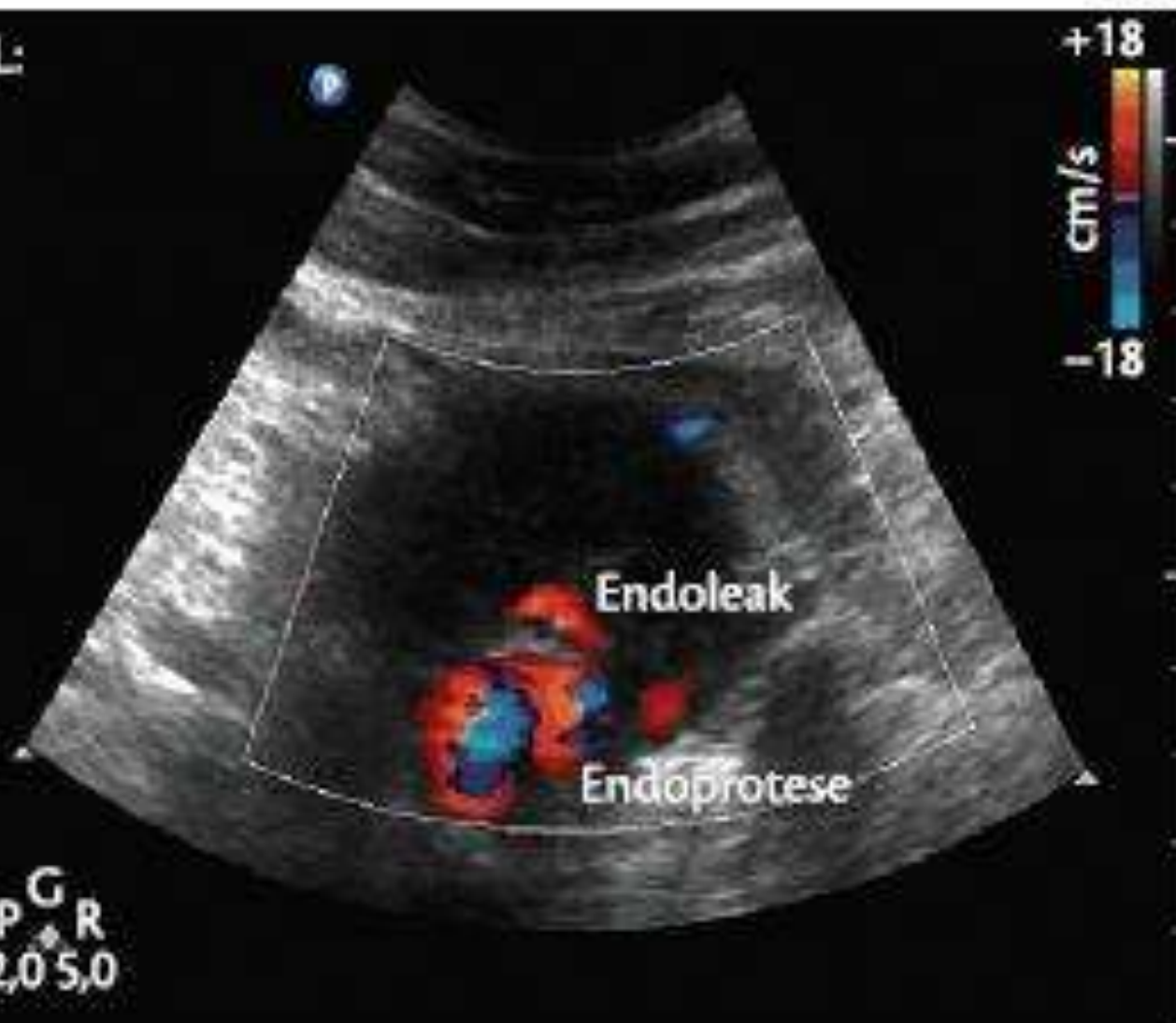






AORTA E IL:
C5-2
17 Hz
9 cm
2D
F3
Gn 50
232 dB/C3
F/3/3
Color
2,5 MHz
Gn 76
F/4/3
Filter 5

G
P R
2,0 5,0



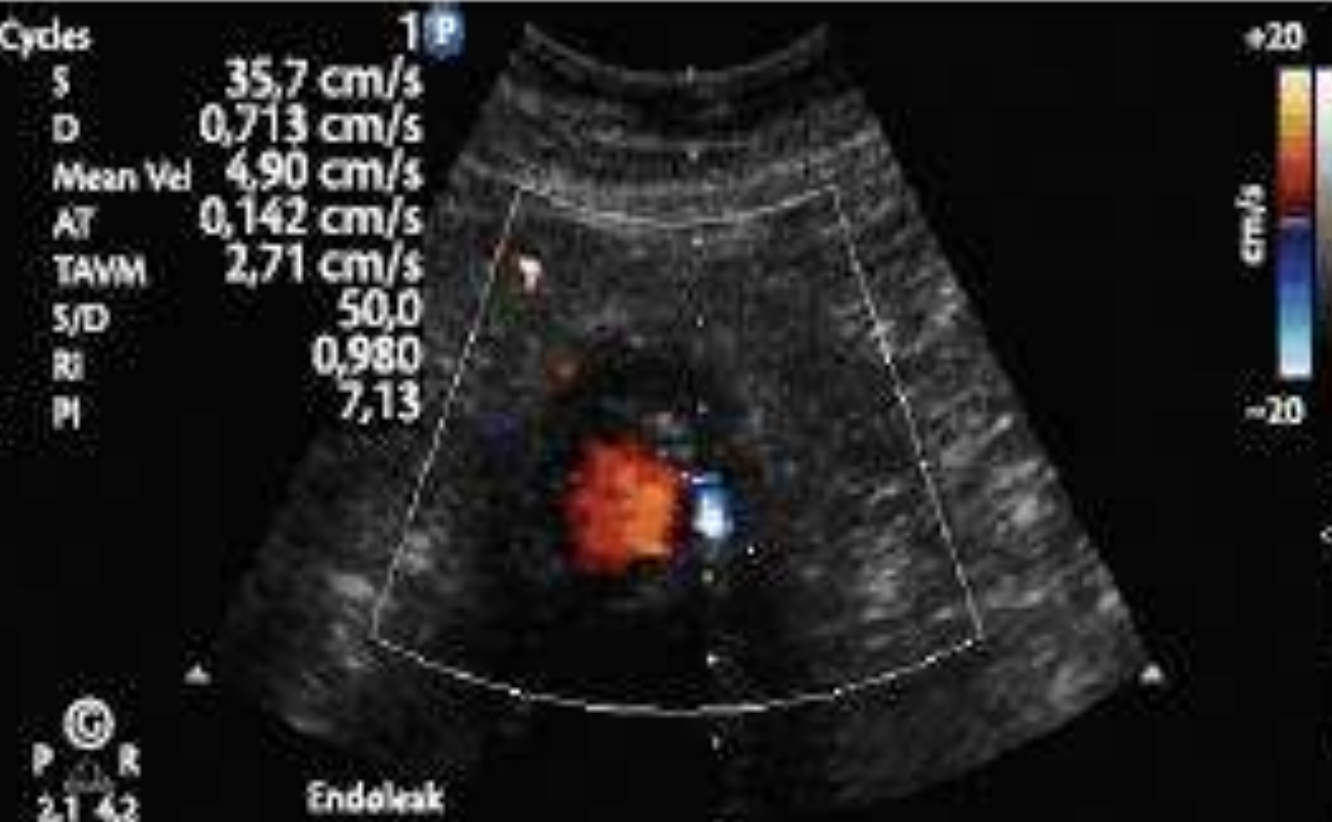
AORTA E RA + Cycles 1 P

CS-2	S	35,7 cm/s
	D	0,713 cm/s
9 cm	Mean Vel	4,90 cm/s
	AT	0,142 cm/s
	TAVM	2,71 cm/s
	S/D	50,0
	RI	0,980
	PI	7,13

2D
H3
Gn 50
232 dB/C4
F/3/3

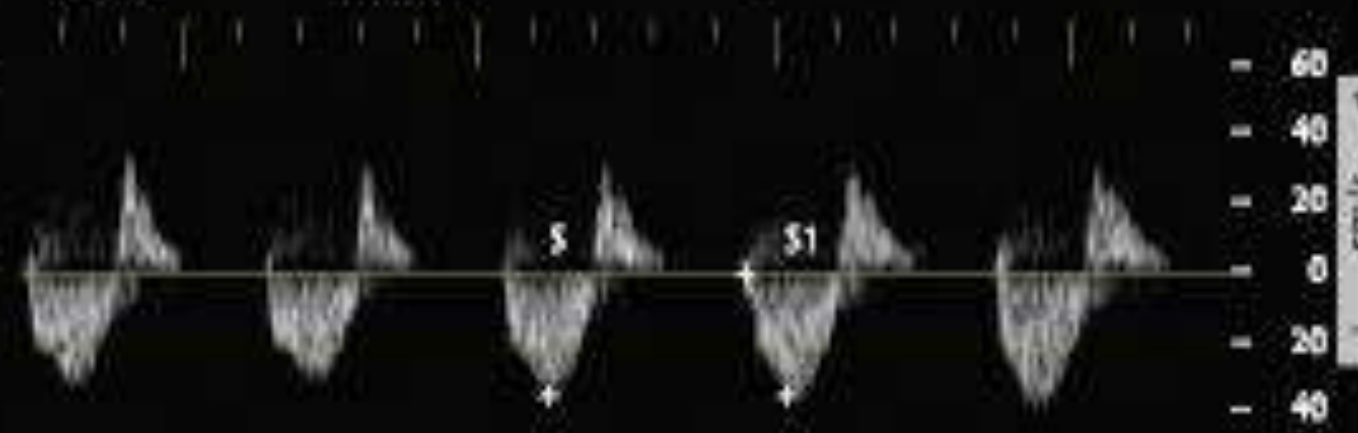
Color
2,5 MHz
Gn 69
D/4/3
Filter 5

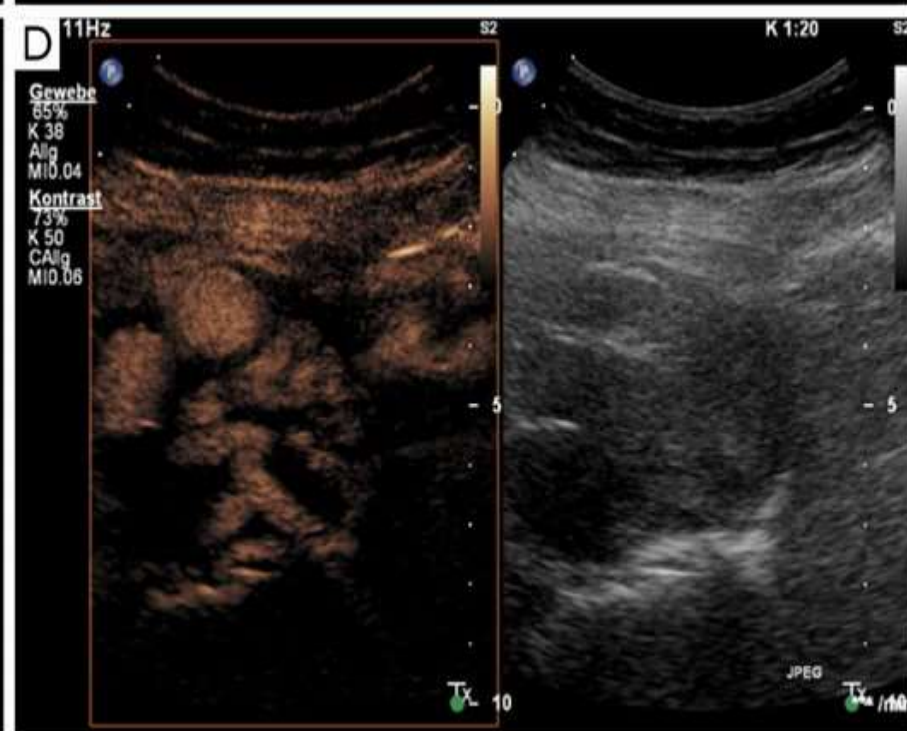
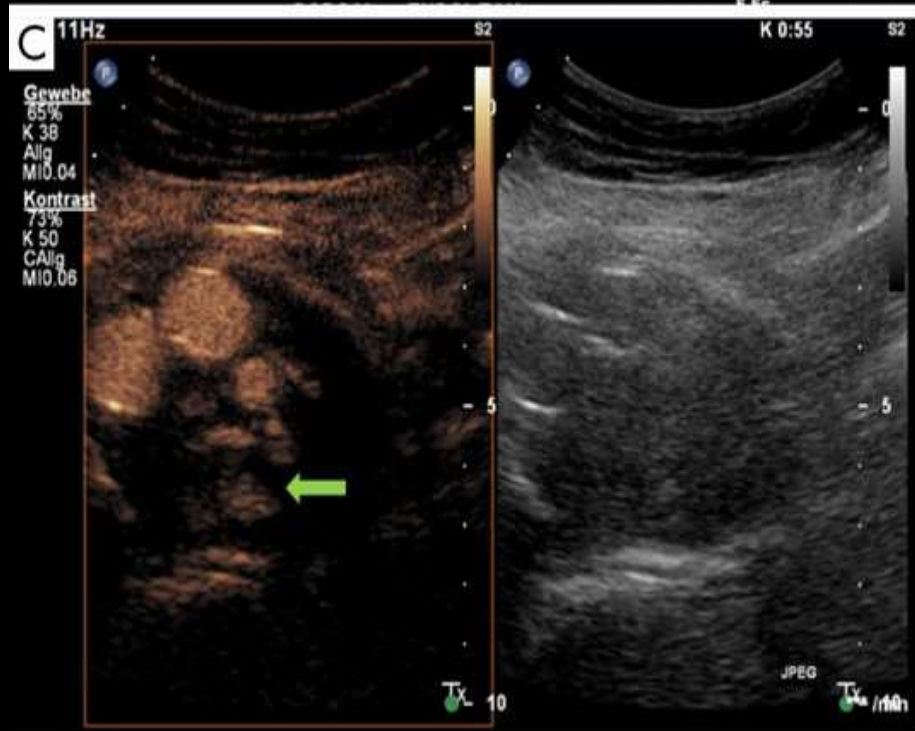
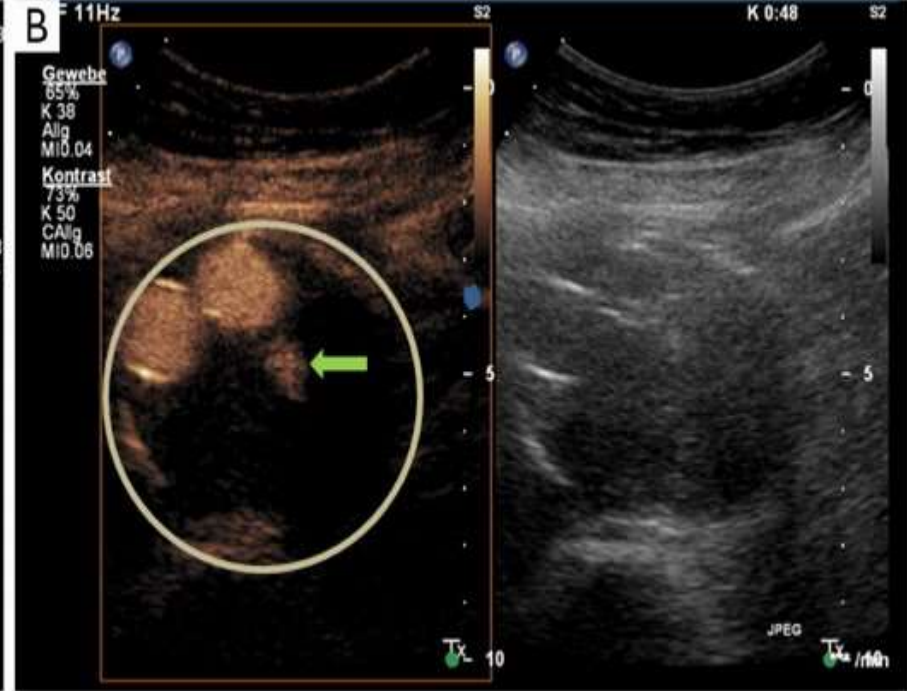
PW
2,5 mHz
Gn 44
5,1 cm
Angle 45



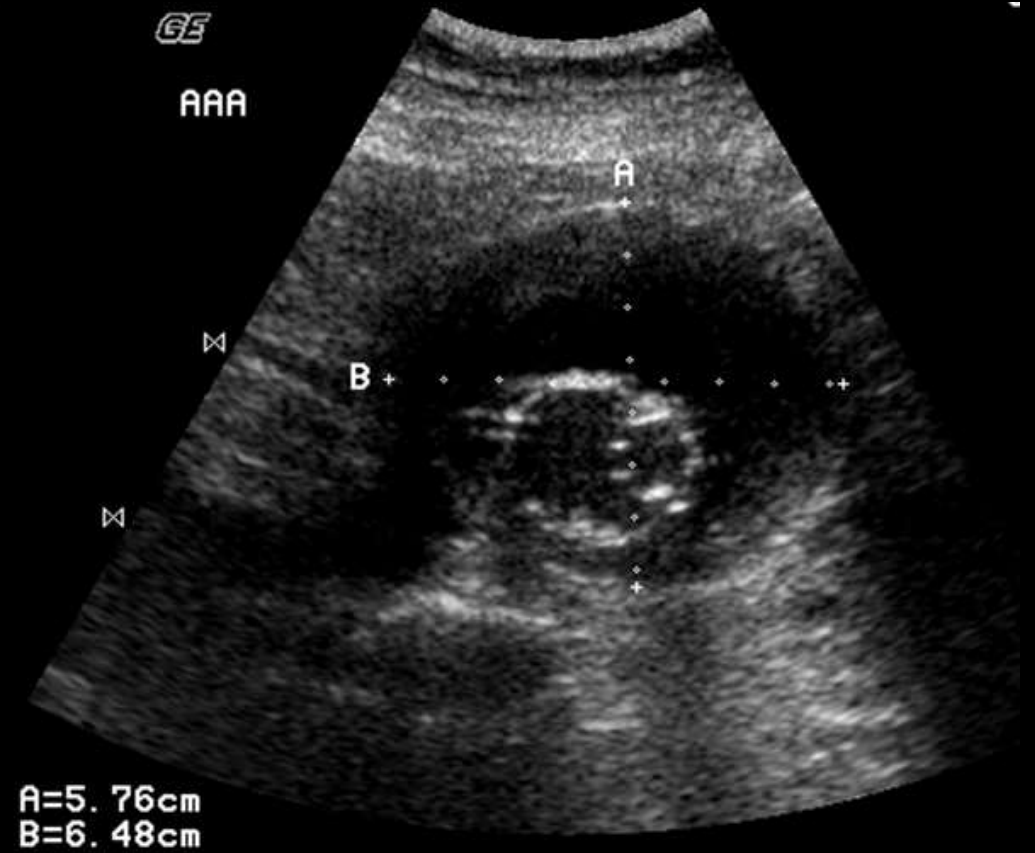
©
P R
2.1 4.2

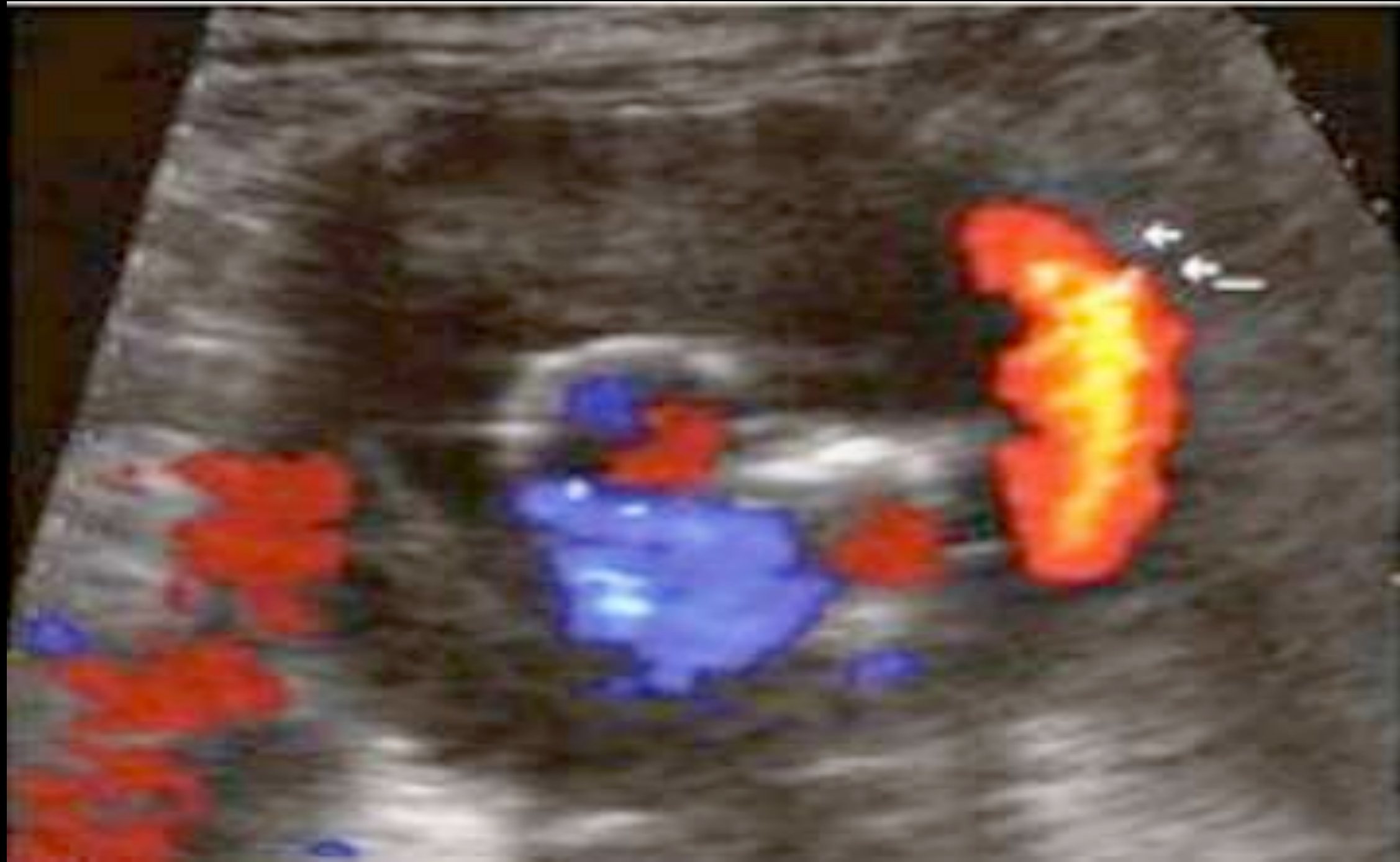
Endoleak





Residual AAA





Diagnosis of endoleak

- Type
- Location
- Extent
- Source

Treatment of endoleaks

- *Size of residual aortic sac*
- *Rate of growth of the endoleak*
- *Origin of the endoleak*

Aortic Dissections

SONGER, KEVIN
300100

AORTA
DISTAL

Aorta

False lumen

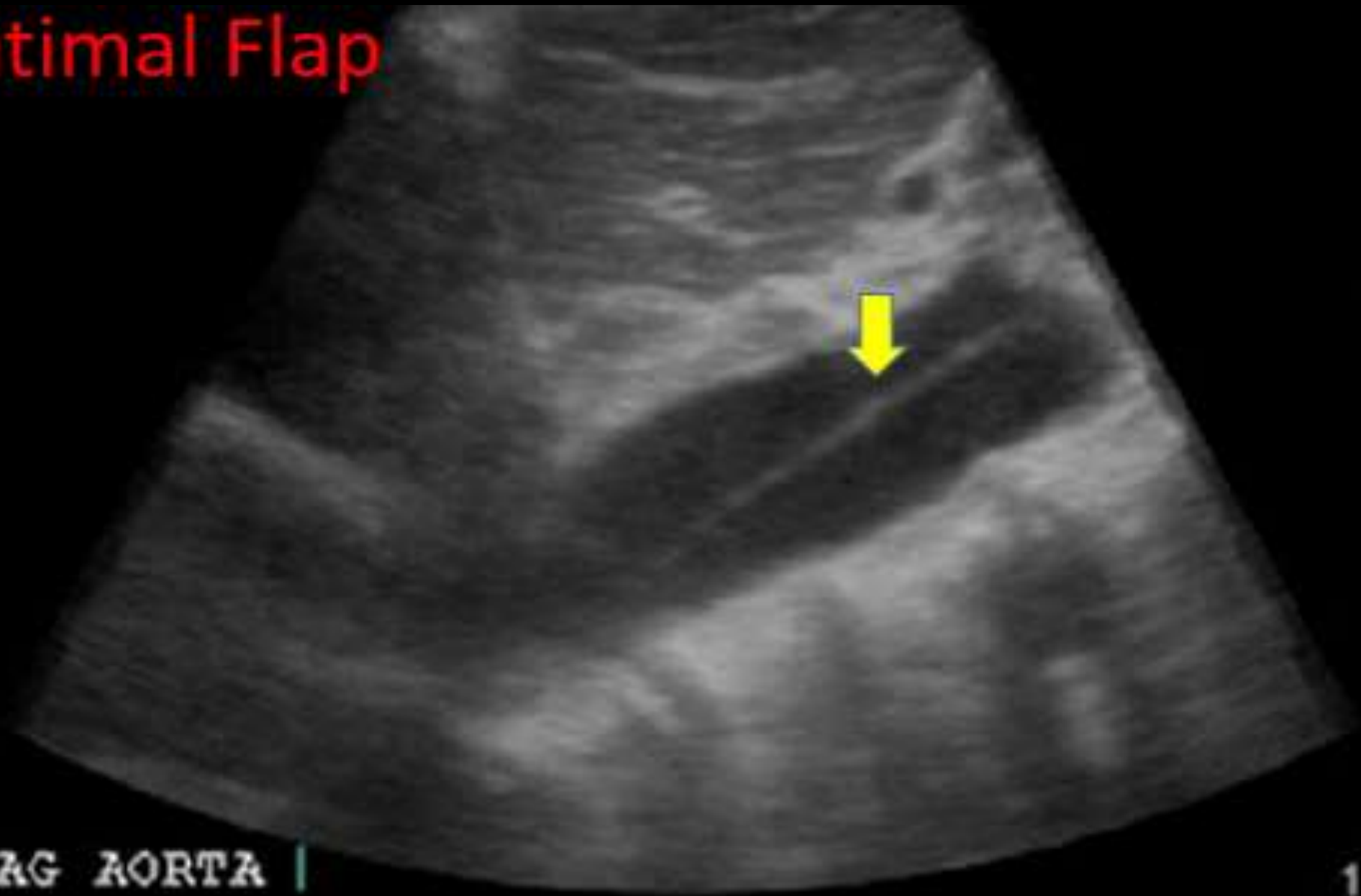
Dissected
intima flap

True lumen

Scale
Freq.
Proc.
SV
LVRej
Doppler
Scale
LVRej
Freq.
Proc.
SV
SVD



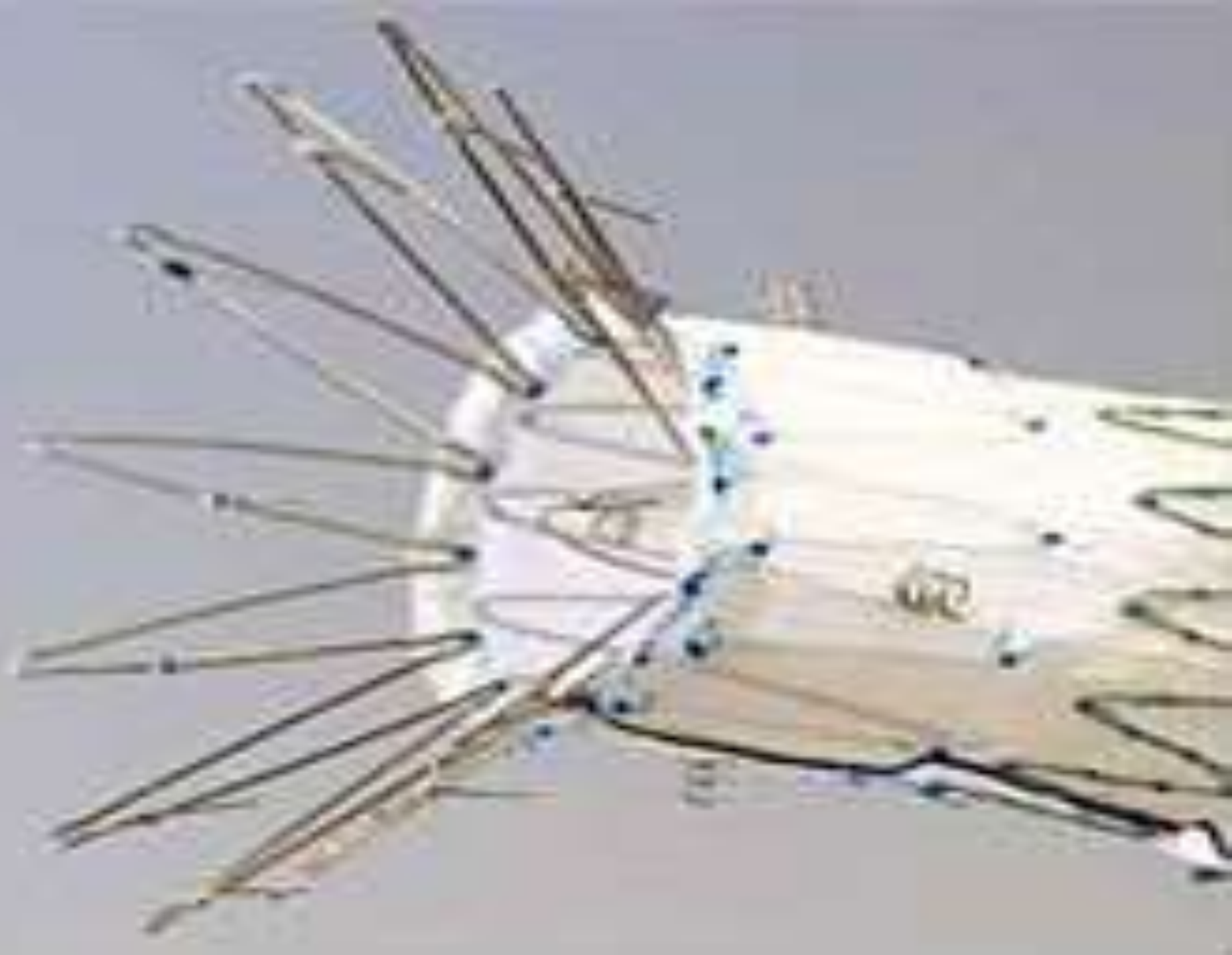
Intimal Flap



SAG AORTA |

16 .

Aptus



Conclusions

- Diagnostic ultrasound remains a critical component of the long term care of patients with aortic stent grafts

Conclusions

- Size of residual aortic sac
- Location of endoleak
- Origin of endoleak
- Patency of the graft