

KAROTİS STENT UYGULAMA TEKNIĐİ VE STENT ÇEŞİTLERİ



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MEDİPOL ÜNİVERSİTESİ KARDİYOLOJİ

KAROTİS STENTLEME

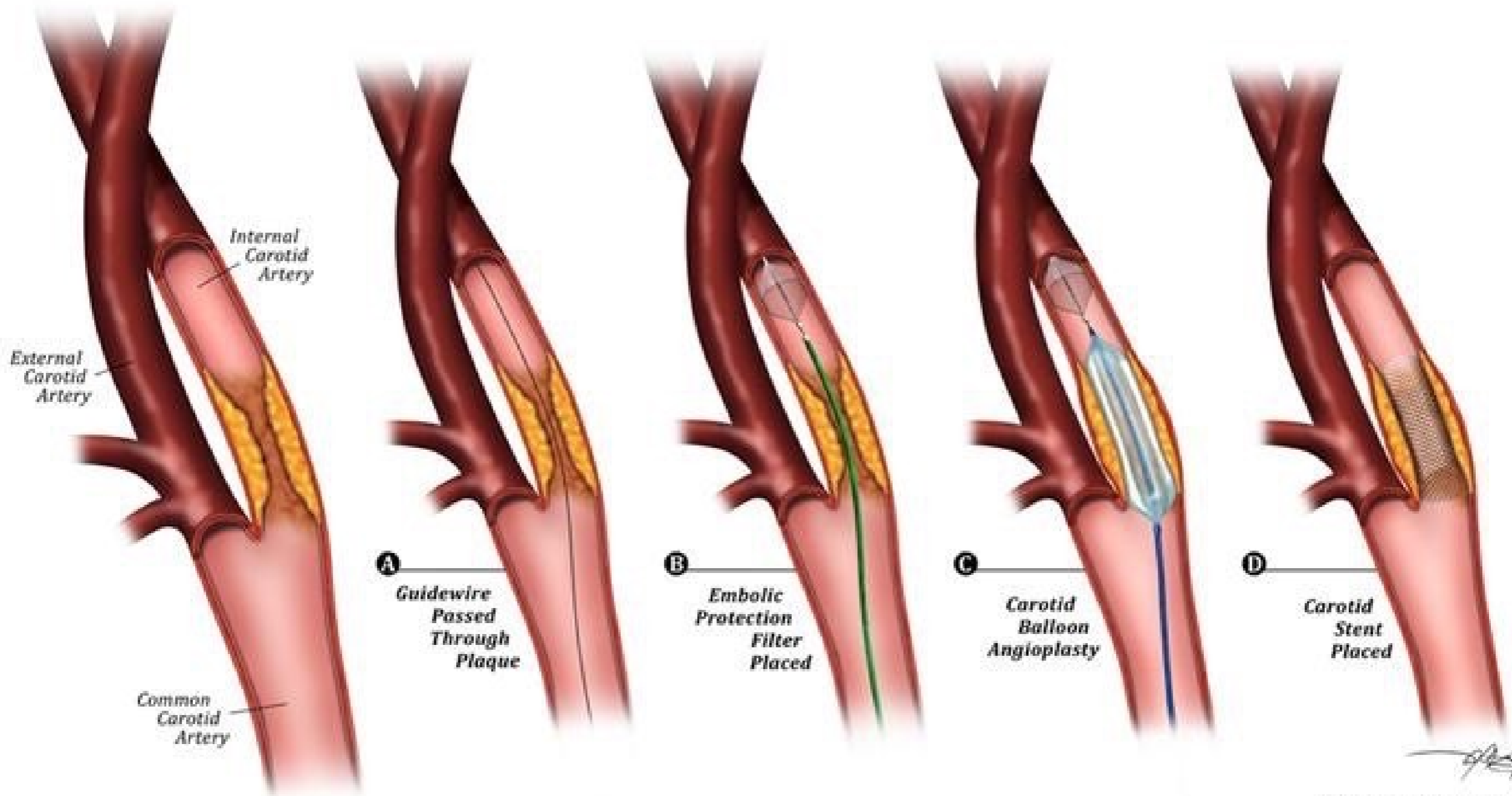
- Karotis arter stentleme işlemi; embolizasyon, tromboz, recoil ve uzun dönemde restenoz riskini azaltmakta
- Merkezin ya da operatörün periprocedural stroke riski asemptomatik hastada **<%3** ve semptomatik hastada **< % 6** olmalı

KAROTİS STENTLEME

- Perioperatif antiplatelet, antilipidemik tedavi (ilaç yükleyerek işlem yok)
- Antihipertansif ve betabloker tedavi düzenlenmesi (işlem sabahı alınmayacak)

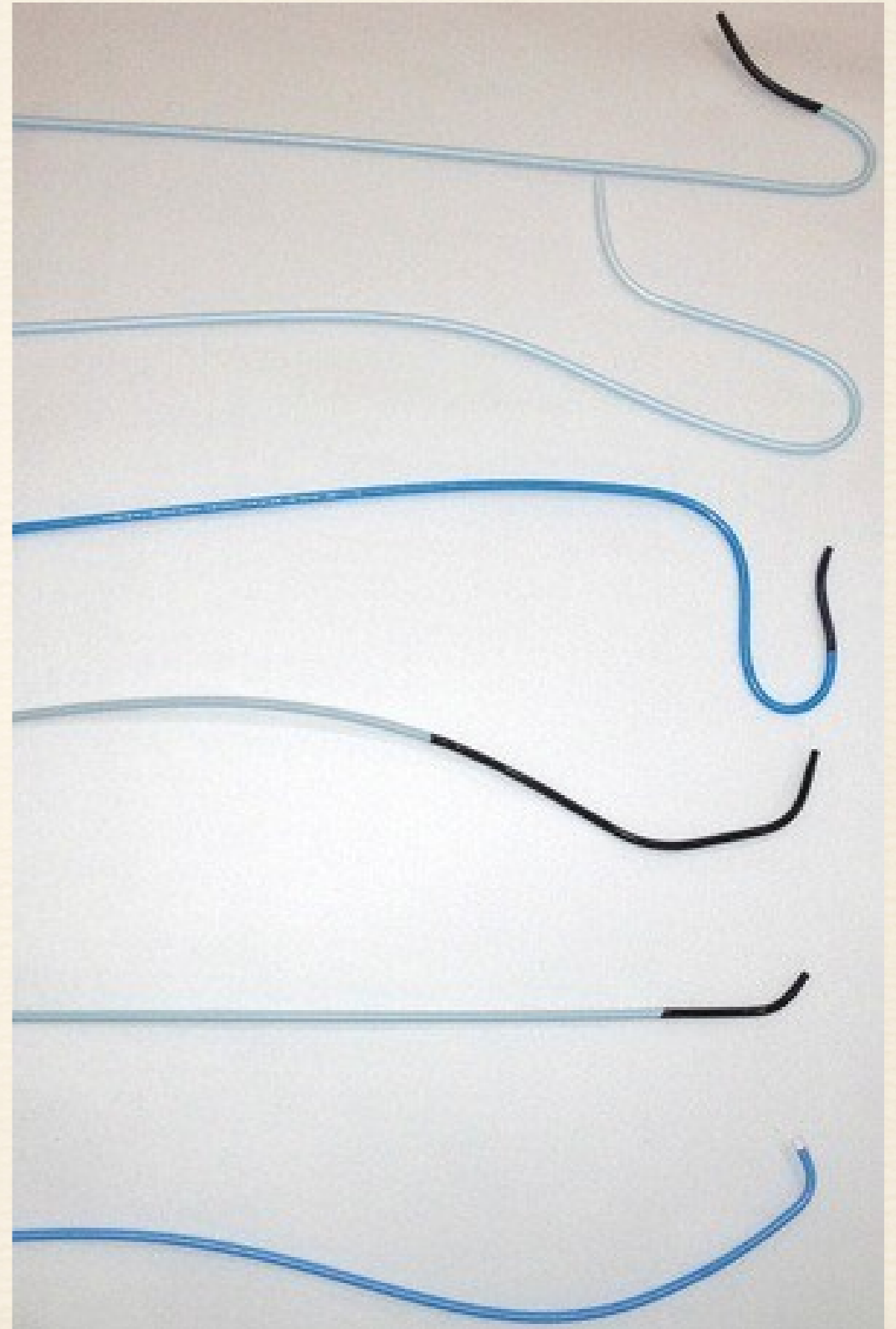
KAROTİS STENTLEME İŞLEMİ

- Perkutan girişim (Femoral, brakial, radyal, karotis)(alışık olduğu)
- Antikoagölasyon
- Emboli koruma cihazının yerleştirilmesi
- Stent yerleştirilmesi ve dilatasyonu
- Kontrol angiografik değerlendirme



Kataterler

- JB-2 catheter (Cook, Inc)
- SIM 1 catheter (Cook, Inc)
- SIM 2 catheter (Cook, Inc)
- H1 catheter (Cook, Inc)
- VTK catheter (Terumo)
- Glide vertebral catheter
- Simmons catheter
- Mani catheter



Embolik koruma cihazları

- Distal oklüzyon balon koruma cihazı
- Distal filtre cihazı
- Proksimal oklüzyon cihazı



Filter



Distal occlusion



Proximal Occlusion

- Distal oklüzyon balon koruma cihazı
- PERCU SURGE GUIDE WIRE
 - (Medtronic Vascular)
- Düşük geçiş profili
- Yüksek fileksibilite
- Balon şişkin iken lezyon angiografik olarak değerlendirilemez

The PercuSurge GuardWire™ System is not approved for use in the U.S. in the coronary, cerebral or carotid vasculature.



The PercuSurge GuardWire™



The PercuSurge GuardWire™ System is not approved for use in the U.S. in the coronary, cerebral or carotid vasculature.

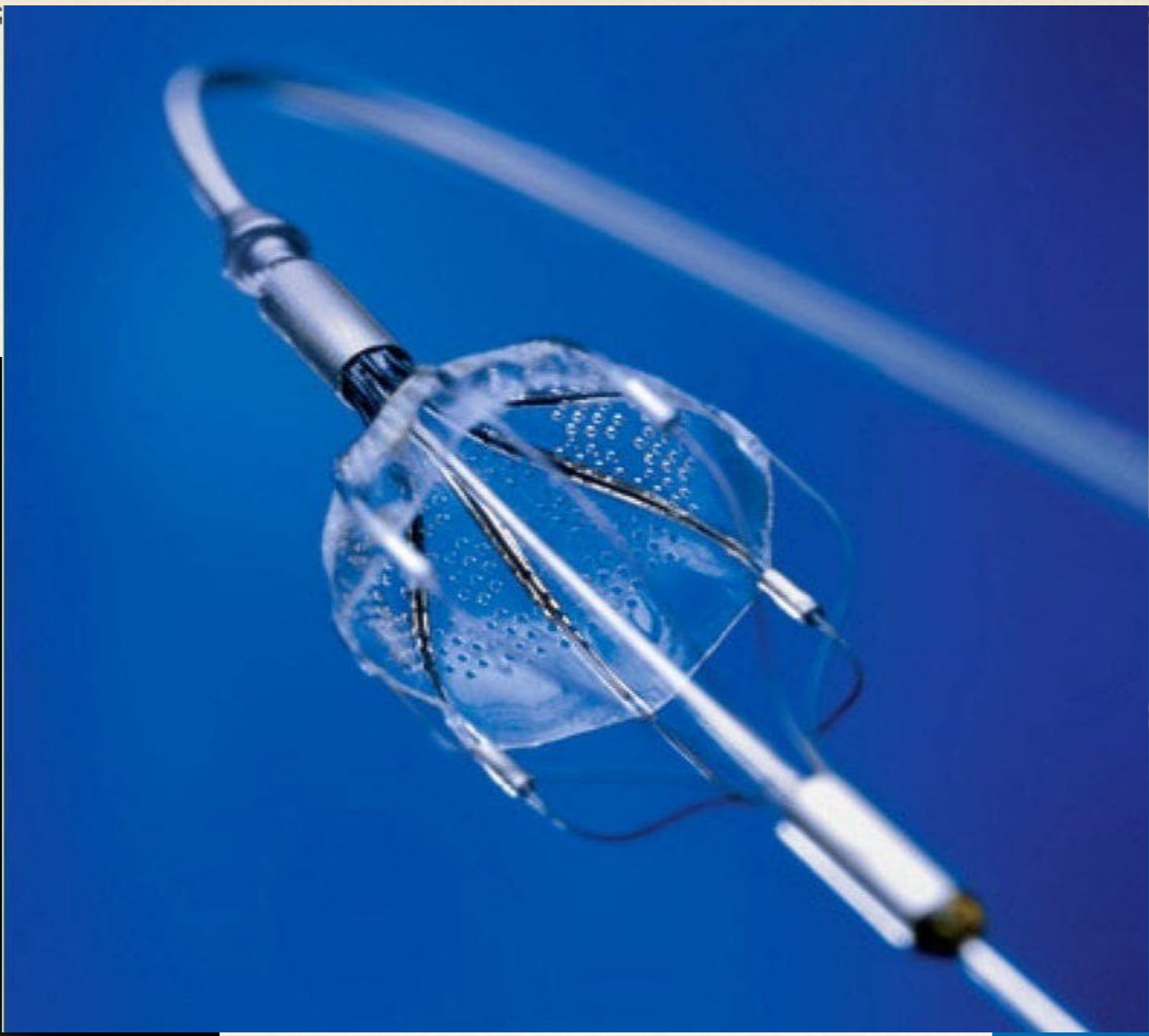
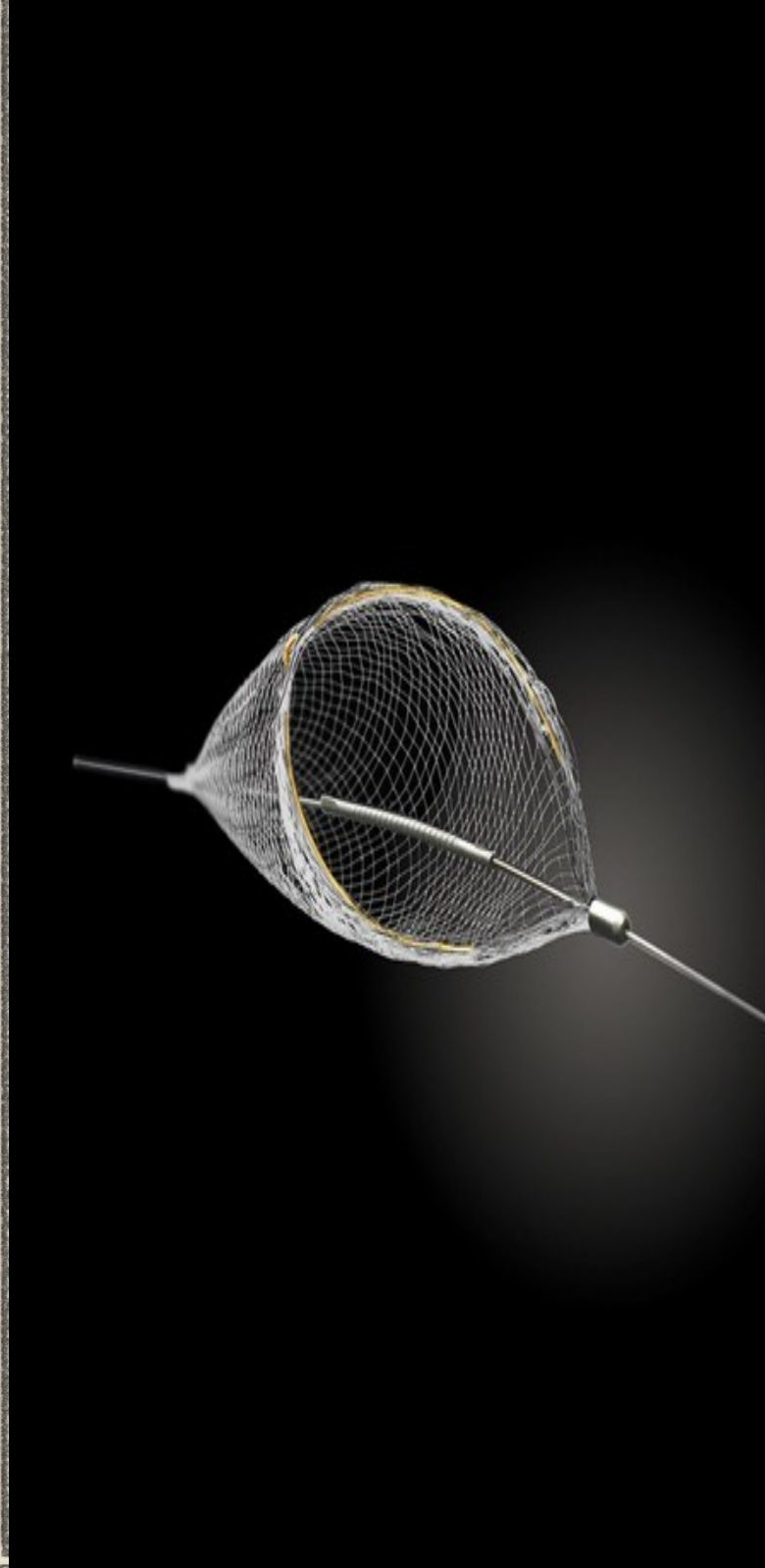


PercuSurge Esper™ Aspiration Catheter
Mounted on GuardWire™

Distal filtre cihazları

EPD	Manufacturer	Characteristic	Pore size (μm)	Lesion crossing profile (F)	Available filter diameters (mm)
RX Accunet	Abbott Vascular, Redwood City, CA, USA	Concentric	125	3.5–3.7	4.5, 5.5, 6.5, 7.5
Emboshield Pro	Abbott Vascular, Redwood City, CA, USA	Eoncentric, bare wire	120	2.8–3.2	Small = 2.5–4.8 mm Large = 4.0–7.0 mm
FilterWire EZ	Boston Scientific Corp, Natick, MA, USA	Eccentric	110	3.2	One size fits all
Angioguard	Cordis, Miami Lakes, FL, USA	Concentric	100	3.2–3.9	4, 5, 6, 7, 8
SpiderRX	ev3, Plymouth, MN, USA	Eccentric	Variable	3.2	3, 4, 5, 6, 7

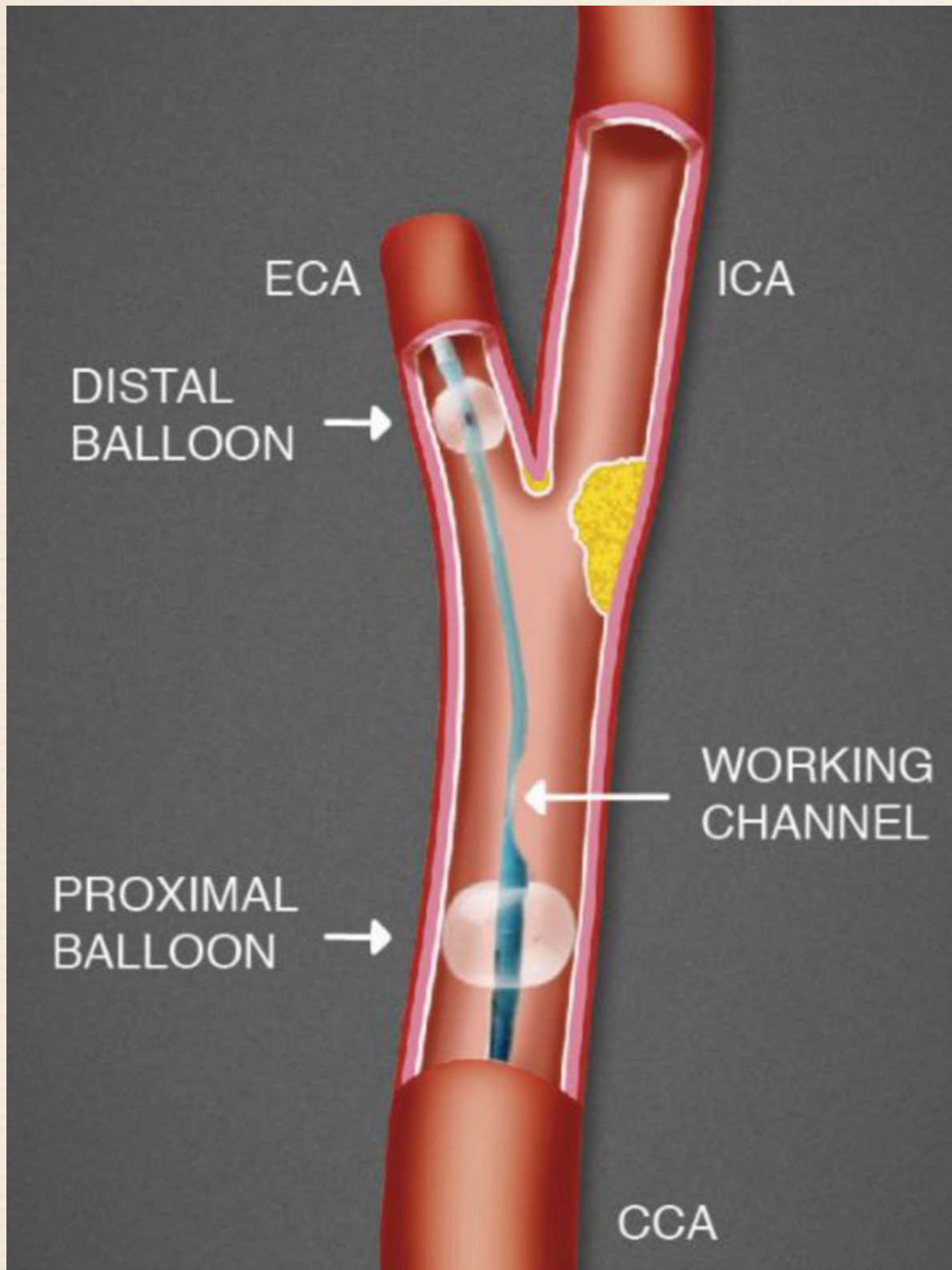
- Serebral perfüzyon sağlanması
- Angiografik değerlendirmeye işlem sırasında devam edilebilmesi
- Etkif antikoagölasyon ile filtre tıkanması önlenabilir, tıkanığında aspire edilir ya da filtre çıkarılabilir



Proksimal oklüzyon cihazı

EPD	Manufacturer	Characteristic	Flow pattern	Introducer sheath profile (F)
NPS	W. L. Gore & Associates, Flagstaff, AZ, USA	Separate CCA and ECA balloon	Reversed flow	9F
Mo.Ma	Invatec, Roncadelle, Italy	CCA and ECA balloon mounted on same catheter	No flow	8F

- CCA ve ECA nin oklüzyonu ile ICA da no-flow ya da reverse flow paterni,
- Yetersiz kollateral varlığında cerebral iskemi riski
- Aralıklı olarak balonun indirilmesi ile sağlanan serebral dolaşım ile embolizasyon riski



Kombine cihazlar

- Twin one device
 - Distal ICA da geçici oklüzyon konseptiyle geliştirilmiş
- Fiber net device
 - Filtre ve oklüzyon cihazının aynı sistemde olduğu ilk cihaz



Karotis stent çeşitleri

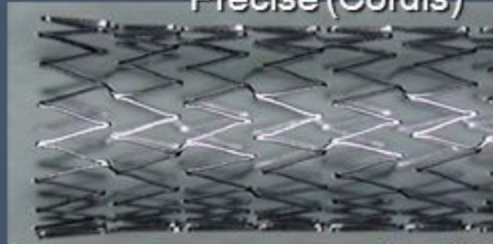
- Self expanding stentler nitinol ya da paslanmaz çelik (kobalt alaşımı) yapımı
- Stent iskeleti plak debrisinin dolaşımına geçişini minimize eden yapının en önemli kısmı
 - free cell area
 - open- closed cell design
 - Hücre boyutu ve yüzey alanı

Karotis stent çeşitleri

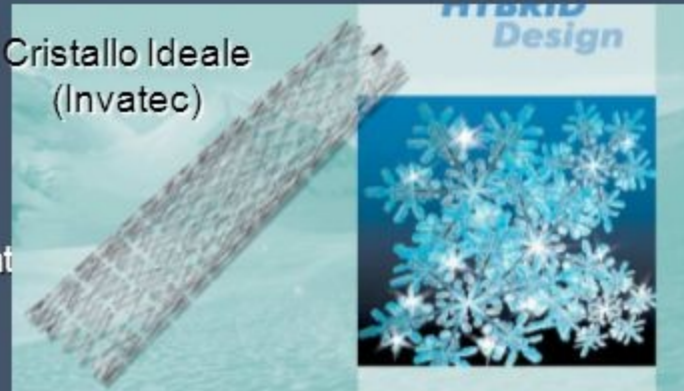
- **Fleksibilite**
 - mid segment ve uçlarda farklı boyutlarda serbest hücre alanı
- **Damar duvarı adaptasyonu**
 - konik stentler

STENT SEÇİMİ (IKA)

Precise (Cordis)



Cristallo Ideale (Invatec)



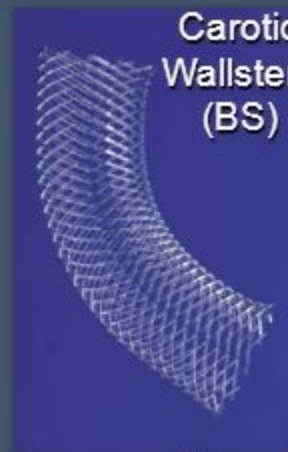
Vivexx (Bard)



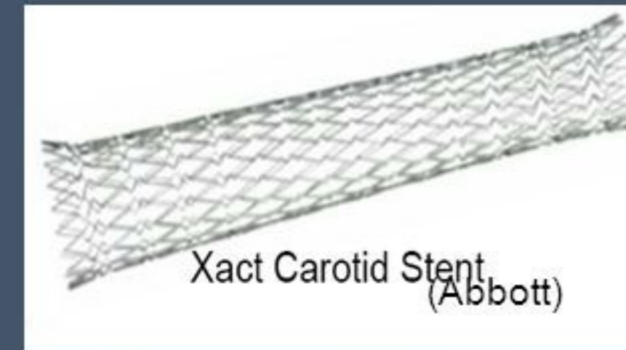
NexStent (BS)



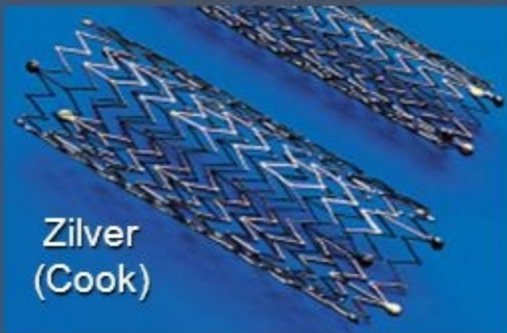
Carotid Wallstent (BS)



Xact Carotid Stent (Abbott)



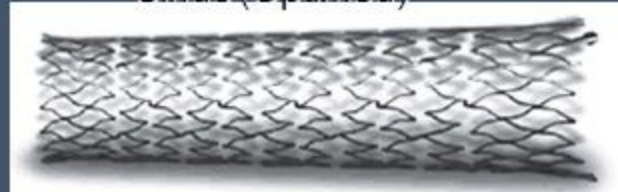
Zilver (Cook)



Acculink (Guidant)



Sinus (Optimed)



Exponent (Medtronic)



Protege (eV3)

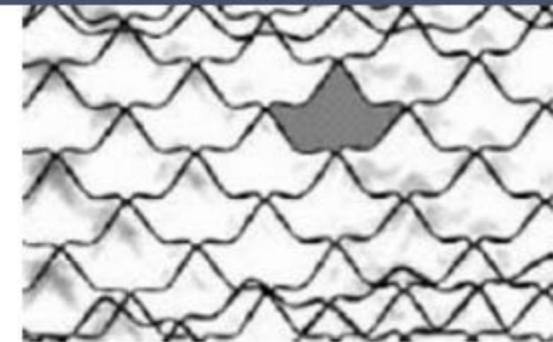


STENT SEÇİMİ

CLOSED CELL

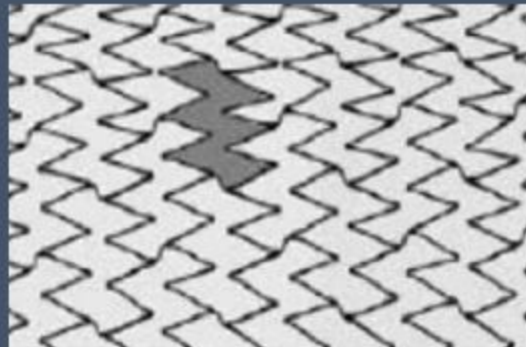


Wallstent (BSCI)



NexStent (BSCI)

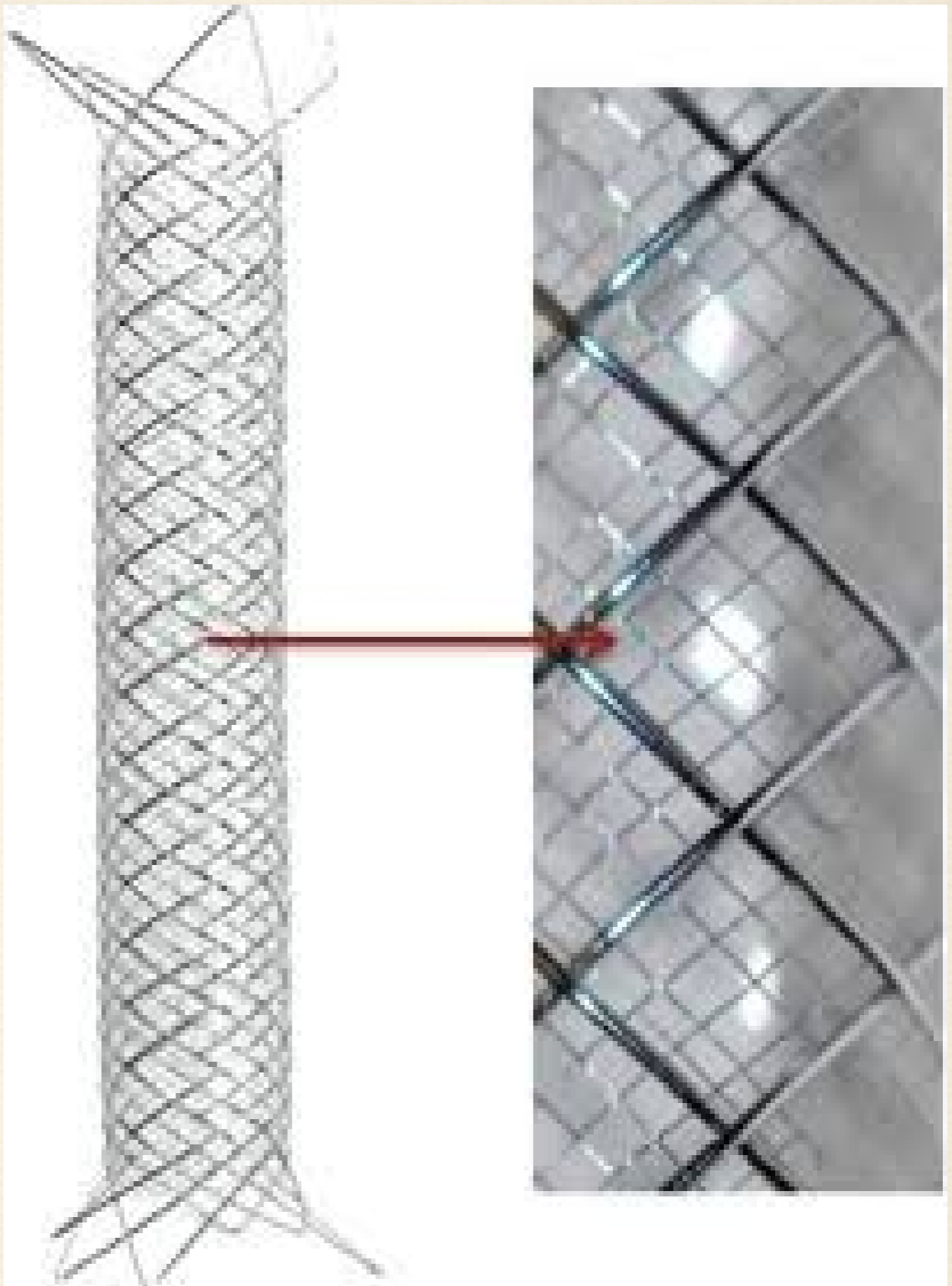
OPEN CELL



Precise (Cordis)



Acculink (Guidant)



Selfexpandable stentler

Stent	Manufacturer	Design	Free cell area (mm ²)	Tapering
Carotid Wallstent Monorail Exponent RX	Boston Scientific Corp, Natick, MA, USA	Woven closed-cell cobalt-chromium tube	1.08	Self-tapering
NexStent Monorail Precise Carotid Stent Protégé RX	Medtronic Vascular, Santa Rosa, CA USA	Laser-cut open-cell nitinol tube	6.51	Self-tapering
	Boston Scientific Corp, Natick, MA, USA	Laser-cut closed-cell nitinol coiled sheet	4.70	Self-tapering
	Cordis, Miami Lakes, FL, USA	Laser-cut open-cell nitinol tube	5.89	Self-tapering
	ev3, Plymouth, MN, USA	Laser-cut open-cell nitinol tube	10.71	Straight or Shouldered tapered
RX AccuLink Carotid Stent	Abbott Vascular, Redwood City, CA	Laser-cut open-cell nitinol tube with longitudinal spines	11.48	Straight or Conical tapered
X-Act	Abbott Vascular, Redwood City, CA	Laser-cut closed-cell nitinol tube	2.74	Straight or Conical tapered
Crystallo Ideale	Invatec, Roncadelle, Italy	Laser-cut closed-cell nitinol tube	Varying smaller at mid portion, larger at stent ends	Straight or Conical tapered

VAKA ÖRNEKLERİ



-I-

Im: 1/20

Se: 1

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Cerebral 6 fps

WL: 128 WW: 256 [D]

RAO: 32 CAU: 5

10.11.2016 11:32:34

Im: 1/31
Se: 2

GUR AYSER
30592501296
01.10.1944 F
Unspecified
R201611101127332
Cardiac XA
Cerebral 6 fps

WL: 128 WW: 256 [D]
AP

10.11.2016 11:33:14

Im: 1/29

Se: 3

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Cerebral 6 fps

WL: 128 WW: 256 [D]

LAO: 59

10.11.2016 11:33:39

Im: 1/148
Se: 5

GUR AYSER
30592501296
01.10.1944 F
Unspecified
R201611101127332
Cardiac XA
Fluoroscopy



WL: 128 WW: 256 [D]
RAO: 33

10.11.2016 11:41:25

Im: 1/46

Se: 6

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Fluoroscopy

WL: 127 WW: 160 [D]

RAO: 33

10.11.2016 11:51:58

Im: 1/19

Se: 8

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Left Coro 15 fps Low

WL: 129 WW: 179 [D]

RAO: 33

10.11.2016 11:56:13

Im: 1/128

Se: 9

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Fluoroscopy

WL: 127 WW: 160 [D]

RAO: 33

10.11.2016 11:56:21

Im: 1/150

Se: 10

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Fluoroscopy

WL: 127 WW: 160 [D]

RAO: 33

10.11.2016 11:57:42

Im: 1/27

Se: 11

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R20161101127332

Cardiac XA

Left Coro 15 fps Low

WL: 129 WW: 179 [D]

RAO: 33

10.11.2016 12:02:15

Im: 1/27

Se: 11

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

Cardiac XA

Left Coro 15 fps Low

WL: 129 WW: 179 [D]

RAO: 33

10.11.2016 12:02:15

Im: 1/36

Se: 12

GUR AYSER

30592501296

01.10.1944 F

Unspecified

R201611101127332

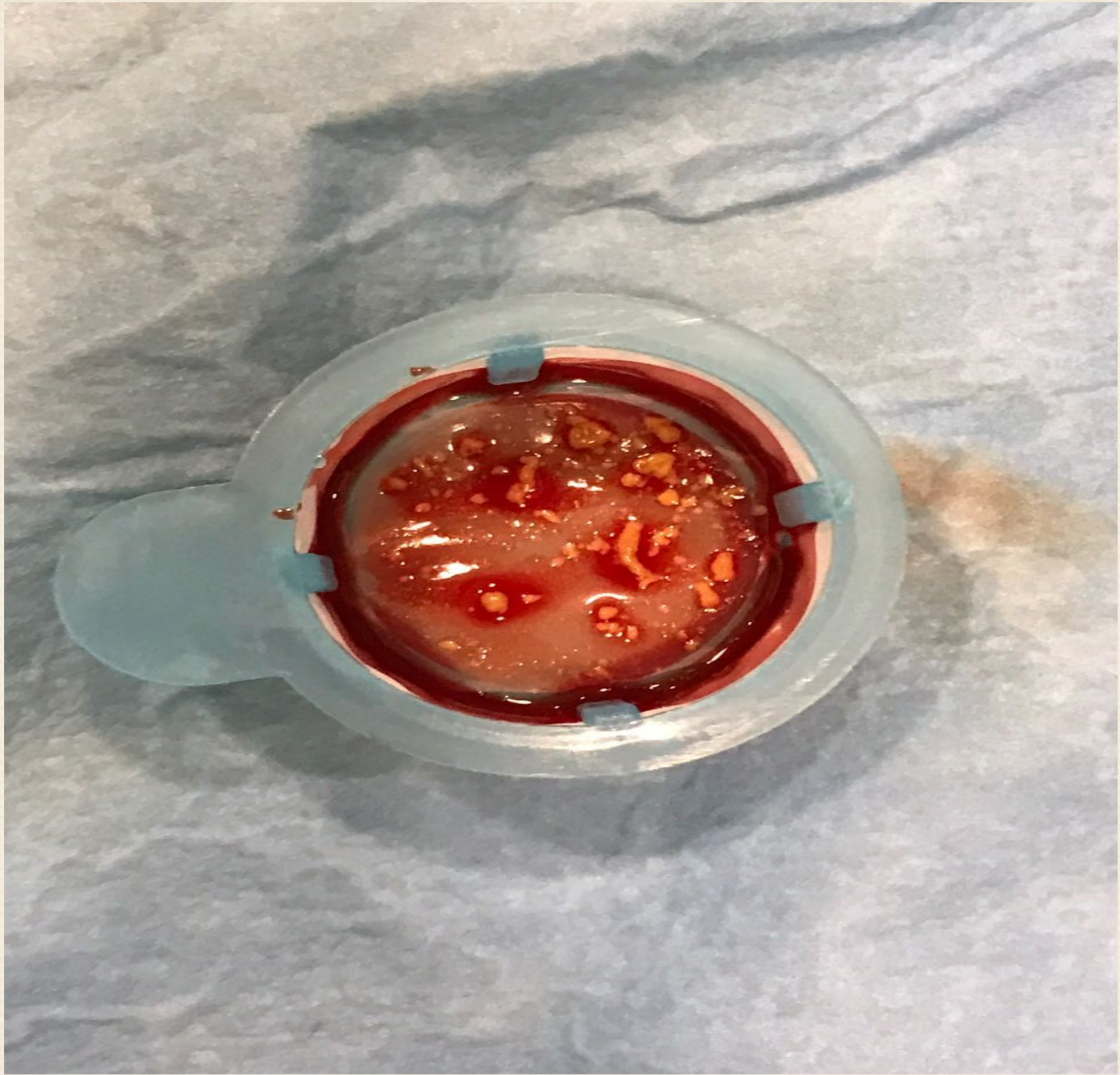
Cardiac XA

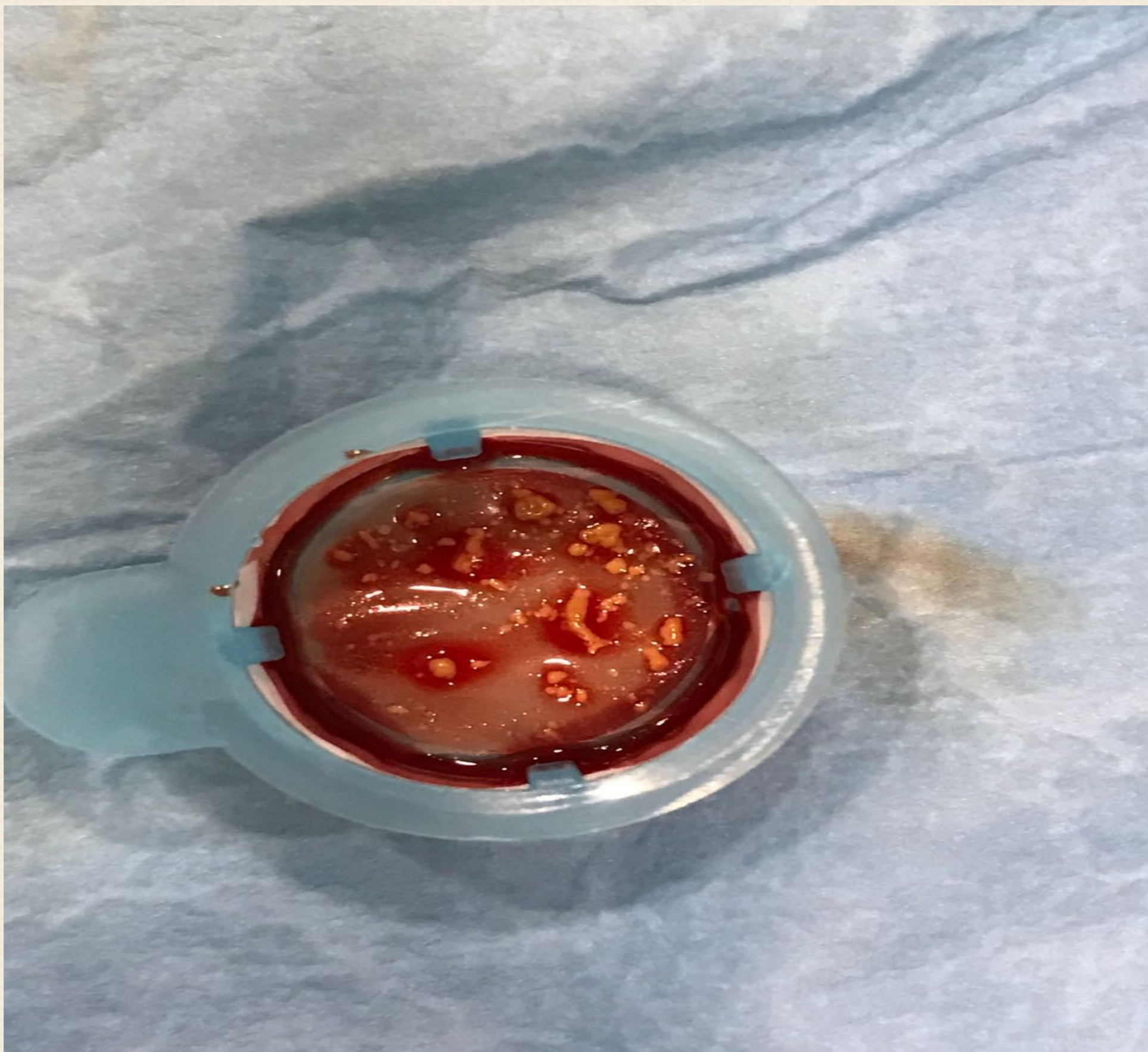
Left Coro 15 fps Low

WL: 129 WW: 179 [D]

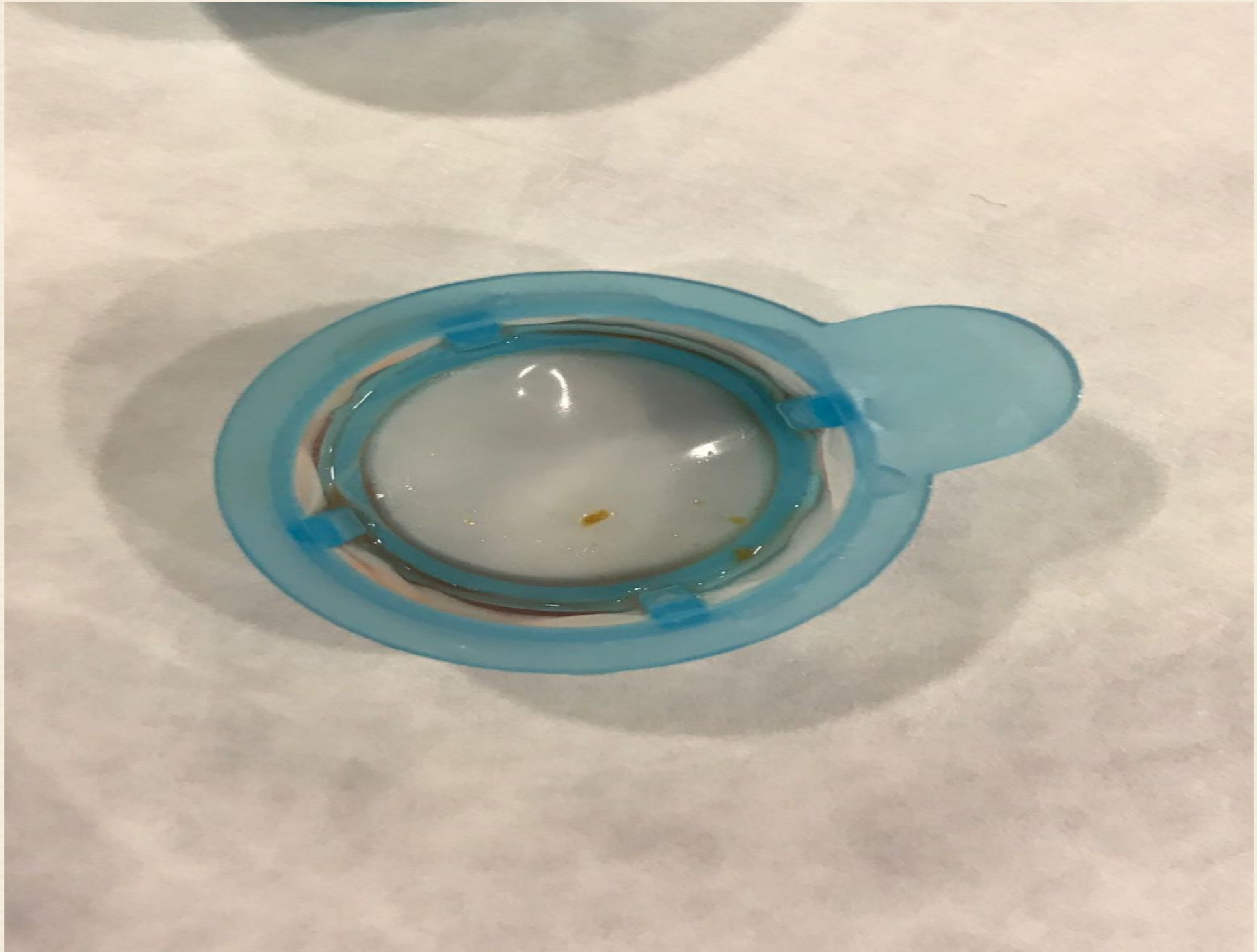
RAO: 33

10.11.2016 12:02:57





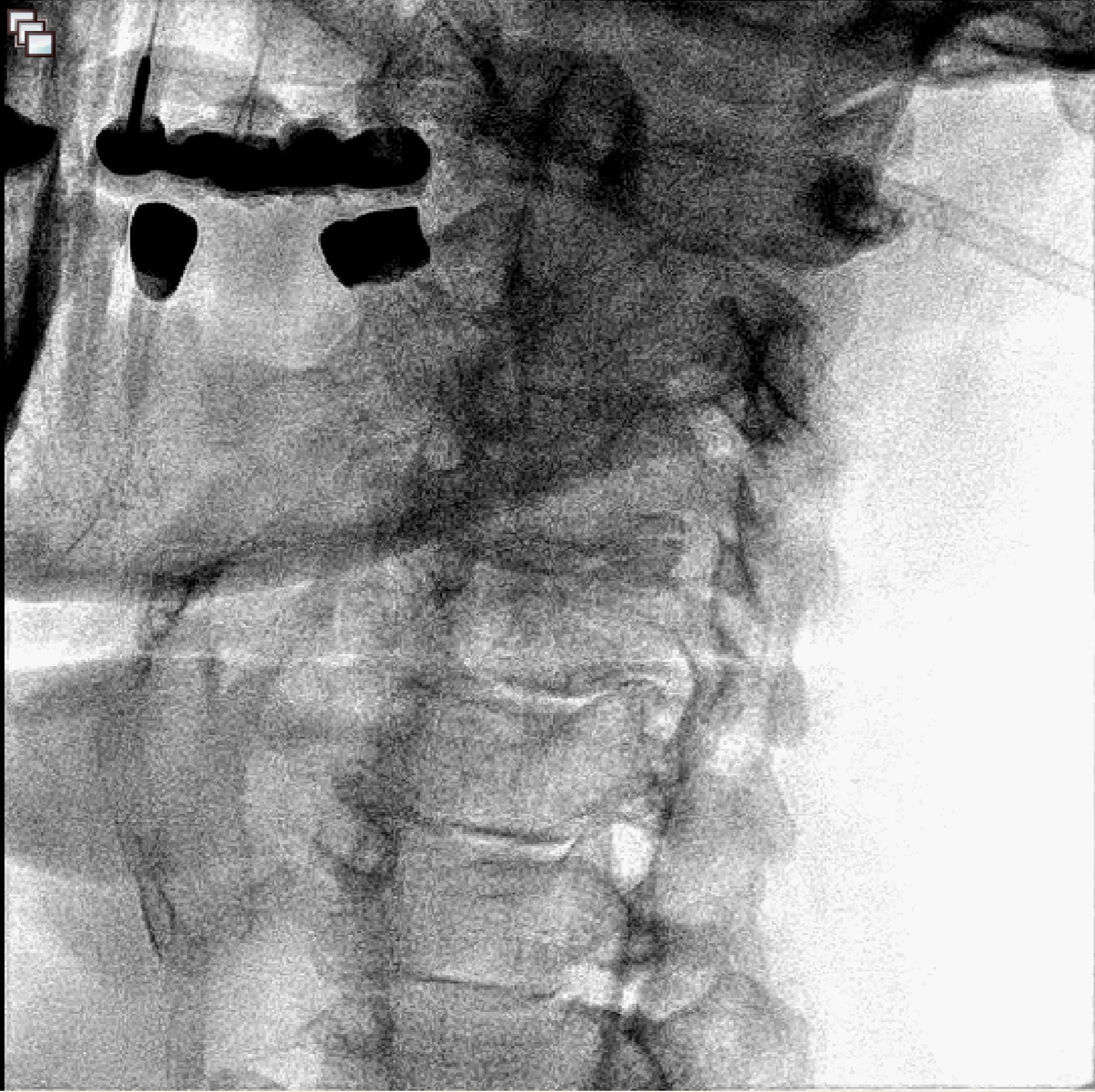




VAKA ÖRNEKLERİ



-II-





OZBEK, MEHME

MEDIPOL-MEGA HASTANELER KOMPLEKSI

31436206308

02-07-2017

KYT: BGC1360459

09:16:06 AM

02-07-2017

Se: 19 (19)

08:56:26 AM

Im: 1/32

Kardiyoloji Goruntu (Stent, Balon)

Birincil



Filtre Yok

Zoom: 1.0

W:83

C:121

UYGDR: A

LAO: 52.2°

CAU: 1.3°

mAs: 17.0

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:20:47 AM

Se: 21 (21)

Im: 1/81

Filtre Yok

Zoom: 1.0

W:74

C:84

UYGDR: A

LAO: 32.3°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSİ

02-07-2017

09:25:28 AM

Se: 24 (24)

Im: 1/79

Filtre Yok

Zoom: 1.0

W:66

C:83

UYGDR: A

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:25:38 AM

Se: 25 (25)

Im: 1/136

Filtre Yok

Zoom: 1.0

W:66

C:83

UYGDR: A

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:25:50 AM

Se: 26 (26)

Im: 1/33

Filtre Yok

Zoom: 1.0

W:68

C:83

UYGDR: A

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:26:25 AM

Se: 27 (27)

Im: 1/16

Filtre Yok

Zoom: 1.0

W:63

C:124

UYGDR: A

LAO: 39.1°

CAU: 1.3°

mAs: 11.0

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:28:38 AM

Se: 28 (28)

Im: 1/150

Filtre Yok

Zoom: 1.0

W:56

C:89

UYGDR: ^

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:30:17 AM

Se: 29 (29)

Im: 1/149

Filtre Yok

Zoom: 1.0

W:50

C:89

UYGDR: A

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:31:04 AM

Se: 30 (30)

Im: 1/150

Filtre Yok

Zoom: 1.0

W:59

C:90

UYGDR: ^

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:31:50 AM

Se: 31 (31)

Im: 1/69

Filtre Yok

Zoom: 1.0

W:178

C:128

UYGDR: ^

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:32:55 AM

Se: 32 (32)

Im: 1/149

Filtre Yok

Zoom: 1.0

W:160

C:127

UYGDR: ^

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:33:07 AM

Se: 33 (33)

Im: 1/79

Filtre Yok

Zoom: 1.0

W:160

C:127

UYGDR: ^

LAO: 39.1°

CAU: 1.3°

Eğim: Bilinmiyor

OZBEK, MEHME

31436206308

KYT: BGC1360459

02-07-2017

08:56:26 AM

Kardiyoloji Goruntu (Stent, Balon)

Birincil

MEDIPOL-MEGA HASTANELER KOMPLEKSI

02-07-2017

09:33:49 AM

Se: 34 (34)

Im: 1/25

Filtre Yok

Zoom: 1.0

W:256

C:128

UYGDR: A

LAO: 0.8°

CAU: 1.2°

mAs: 18.0

Eğim: Bilinmiyor



İstanbul Girişimsel Kardiyoloji Akademisi



Teşekkürler...