

New Balloons: SC/NC Euphoria: The Defining Moment. When Technology Matches Expertise.

Byeong-Keuk Kim, MD, PhD

Division of Cardiology, Severance Cardiovascular Hospital
Yonsei University College of Medicine, Seoul, Korea





Medtronic

Euphora™

SEMICOMPLIANT BALLOON
DILATATION CATHETER

*The defining moment.
When technology matches expertise.*

Balloon catheter, the essential tool for the successful coronary intervention.

Many catheters in the market, we should choose the most perfect one satisfying the unmet needs....



Recently, new balloon launched ...Euphora™ Balloon

... Complements Expertise and
... Provides Uncompromising Performance...

Design advances were inspired by **customer needs and insight**

Each element of Euphora™ balloon was deliberately designed for unsurpassed performance:

- **Superior deliverability***—advanced design maximises **pushability** and **crossability** through challenging lesions
- **Superb KBT performance**—allows for smooth navigation in bifurcations†
- **Excellent recross**—performs reliably in long, difficult cases*

*Bench testing vs. Trek, Emerge™, Sprinter™ Legend™ and Ryujin™ Plus balloons. 2.50 mm x 15 mm balloons tested.

†Based on 6 F KBT testing.

Bench test data may not be indicative of clinical performance.

Each Element of Euphora™ Balloon Was Deliberately Designed for Unsurpassed Performance

Euphora has key new improvements.

Superior Deliverability*



PowerTrac™ technology
Enables superior deliverability*

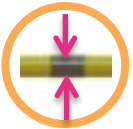
Unmatched Crossability*



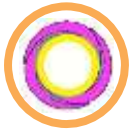
Ultra-Slim balloon material
15% thinner†



Tapered shaft
9% lower profile‡



Lower profile marker bands
8% smaller†



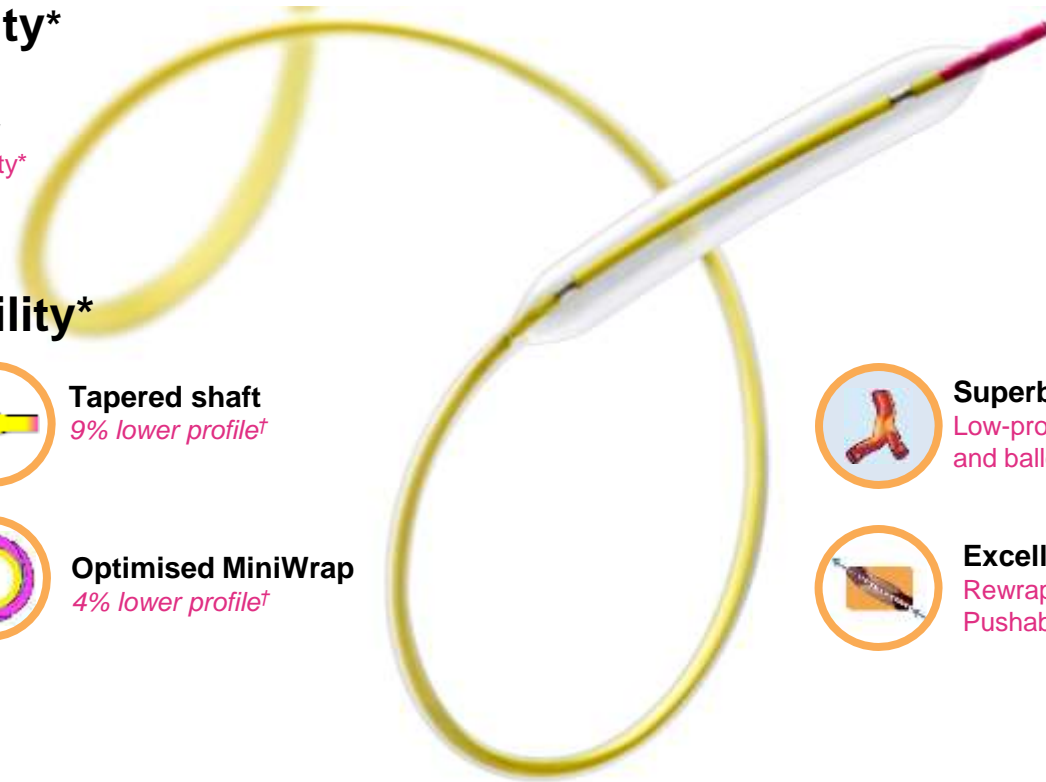
Optimised MiniWrap
4% lower profile‡



Superb KBT Performance‡
Low-profile inner/outer shaft and balloon material



Excellent Recross
Rewrap is uniform and Pushability is maximised.



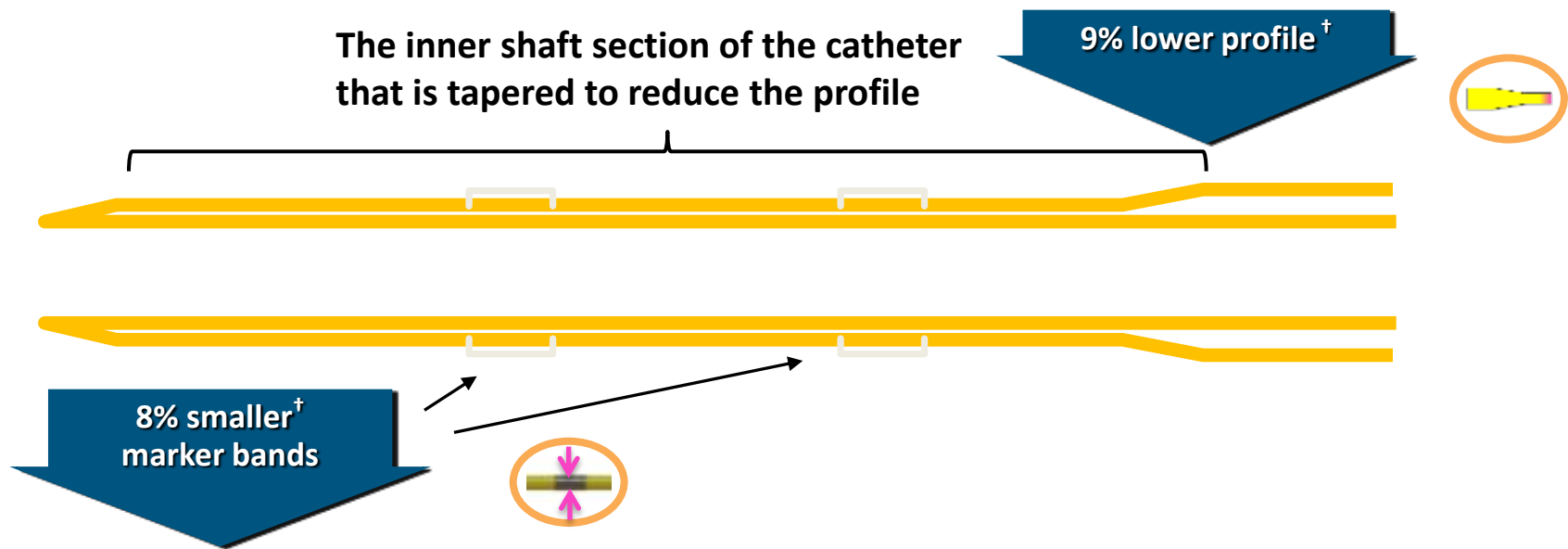
*Bench testing vs. Trek, Emerge™, Sprinter™ Legend™ and Ryujin™ Plus balloons. 2.50 mm x 15 mm balloons tested.

†Comparison between 2.50 mm x 15 mm Euphora™ and Sprinter Legend balloons.

‡Based on 6 F KBT testing.

Bench test data may not be indicative of clinical performance.

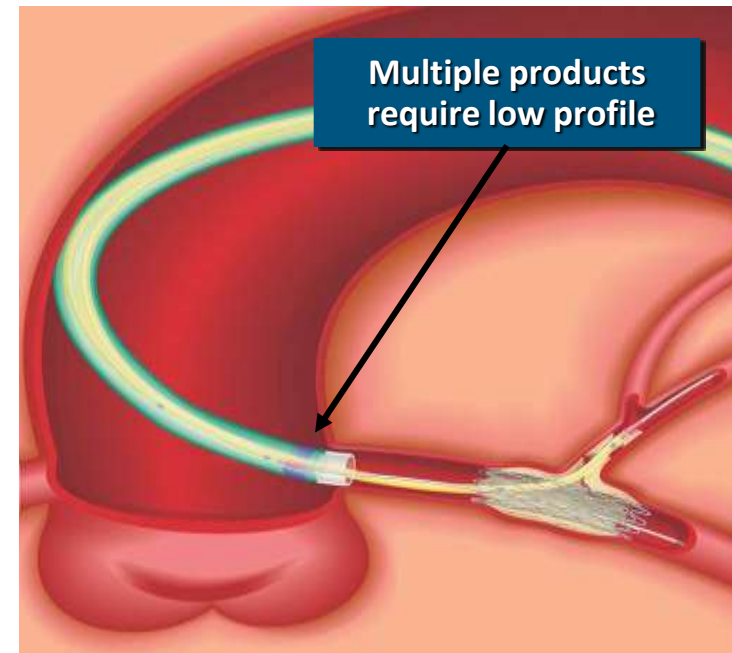
Unmatched Crossability — Euphora™ balloon has “Tapered Profile Shaft” and “Low-Profile Marker Bands”.



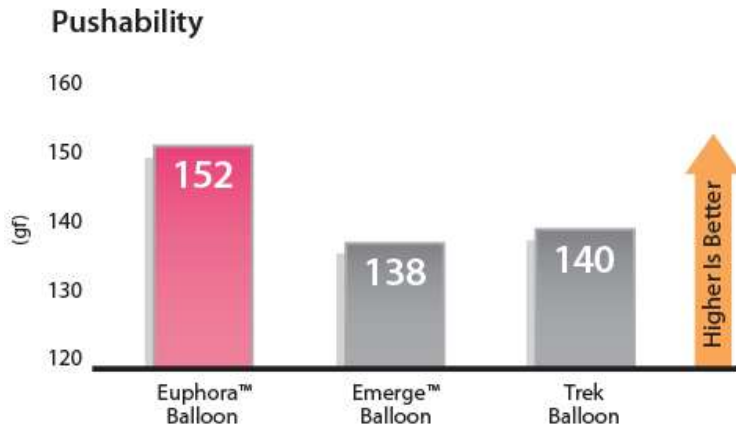
- Lower profile inner shaft
 - Lower profile marker bands
- } Lower crossing profile for unmatched crossability*

*Superb KBT (Kissing Balloon Technique) Performance — Low-Profile Shaft and Balloon Allow for Smooth Navigation in Bifurcations**

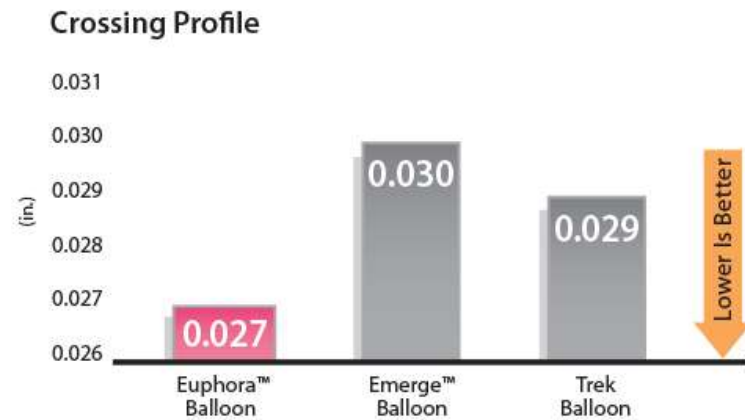
- Euphora IFU indicates any combination of Euphora balloon and up to two 3.50mm x 30mm balloons can be used simultaneously in a 6F guide catheter.



Advanced Design Maximises Pushability and Crossability for Superior Deliverability*



Significantly greater push force for challenging lesions*



Lowest crossing profile in the market*

*Bench testing vs. Trek and Emerge balloons. 2.50 mm x 15 mm balloons tested. Bench test data may not be indicative of clinical performance.

Euphora has broad size matrix, 64 sizes.

Broad size matrix with 7 additional lengths expands treatment options

		Balloon Length (mm)						
		6 mm	10 mm	12 mm	15 mm	20 mm	25 mm	30 mm
Diameter (mm)	1.50 mm	●	●	●	●	●	—	—
	2.00 mm	●	●	●	●	●	●	●
	2.25 mm	●	●	●	●	●	●	—
	2.50 mm	●	●	●	●	●	●	●
	2.75 mm	●	●	●	●	●	●	—
	3.00 mm	●	●	●	●	●	●	●
	3.25 mm	●	●	●	●	●	●	—
	3.50 mm	●	●	●	●	●	●	●
	3.75 mm	●	●	●	●	●	●	—
	4.00 mm	●	●	●	●	●	●	●

64 sizes

● = a new length

Euphora™ balloon show the outstanding “Design Advances”.

Euphora™ balloon features important customer experience enhancements:

- Differentiated **pink tip** and **strain relief**— for improved visibility and easier product identification
- Improved product **label print on luer**— for fast, at-a-glance readability



Design Advances; Product package enhancements allow for easier readability and less shelf space.



Environmentally friendly reduced box size has a smaller footprint on congested shelves. With convenient EZ Pull™ corners, pulling the right Euphora™ balloon is quick and easy.



Horizontal orientation of label and strong neon colors clearly identify product sizes.



Compliance chart compatible for use in the sterile field and designed for low lighting and quick reference.

Thinner box spine means 3 additional Euphora™ shelf cartons can be stacked upright on a 1-meter-long shelf compared with Trek and Emerge™ shelf cartons





NC Euphora™

NONCOMPLIANT BALLOON
DILATATION CATHETER



*The defining moment.
When technology matches expertise.*

NC Euphora™ Balloon

- Advanced design improves pushability and trackability—**demonstrating superior deliverability***
- High rated burst pressure (RBP) up to 20 atm with superior growth profile for **unmatched precision***
- **Excellent recross** for long, difficult cases†
- **Designed for durability**—reinflated up to 20 times to RBP without bursting

*Competitive testing vs. NC Trek™ and Quantum Apex™ balloons.

Bench test data may not be indicative of clinical performance.

†NC Euphora, NC Trek and Quantum Apex 3.00 mm x 20 mm balloons tested.

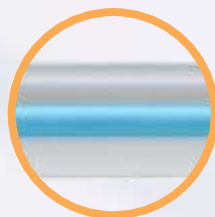


NC Euphora™
NONCOMPLIANT BALLOON
DILATATION CATHETER

Each NC Euphora™ has key new improvements



Optimised **tapered tip design** and **lowest lesion entry profile** improves tracking through difficult lesions with **less catching** on stents*.



Strong, durable and flexible LIGHT™ (Low Inflation Growth, High Track) balloon material provides **high-pressure capability†**, a **superior growth profile** and **excellent recross‡**.



Platinum iridium marker bands enhance **visibility!**



PowerTrac™ technology enables **superior deliverability†**.

Balloon material reflatates to rated burst pressure (RBP) up to 20 times without bursting

*Competitive testing vs. Quantum Apex™ balloon.

†Competitive testing vs. NC Trek™ and Quantum Apex balloons on file at Medtronic, Inc.

Bench test data may not be indicative of clinical performance.

‡NC Euphora, NC Trek and Quantum Apex 3.00 mm x 20 mm balloons tested.



NC Euphora™
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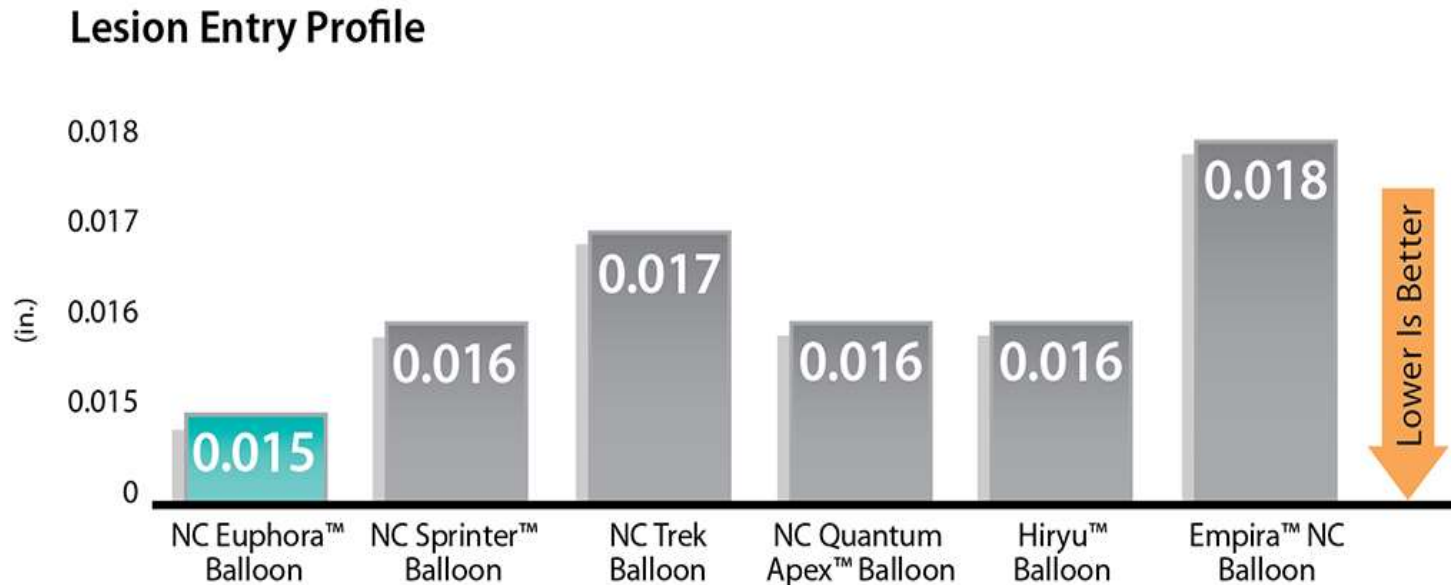
Trademarks may be registered and are the property of their respective owners. For distribution only in markets where the NC Euphora™ noncompliant balloon dilatation catheter has been approved. Not for distribution in the USA or France. © 2014 Medtronic, Inc. All rights reserved. UC201405720aML 4/14

Deliberately Designed for Unsurpassed Performance

NC Euphora™ balloon has the lowest lesion entry profile among key NC balloon competitors



“Lesion entry profile”



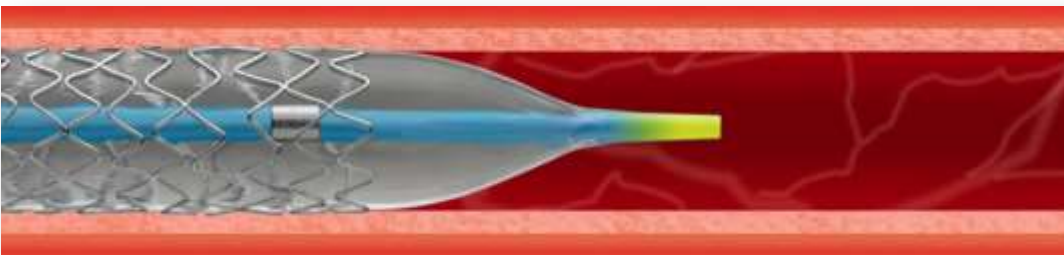
NC Euphora™ can help to reduce unintended vessel damage, potential edge dissections, and stent malappositions.

Balloons with weaker materials have a tendency to grow excessively longitudinally and radially, **creating a “dogbone” effect. This leads** to unintended vessel damage and potentially edge dissections



“Dogbone” effect can lead to inaccurate placement and edge dissections.*

The LIGHT™ balloon material allows for **more flexibility and growth control at a higher RBP of 20 atm**, which has been shown to improve stent appositions and improve clinical outcomes

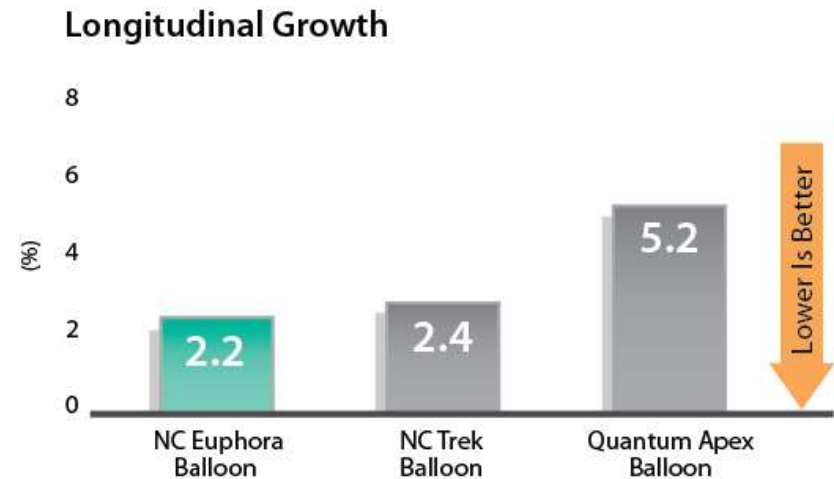
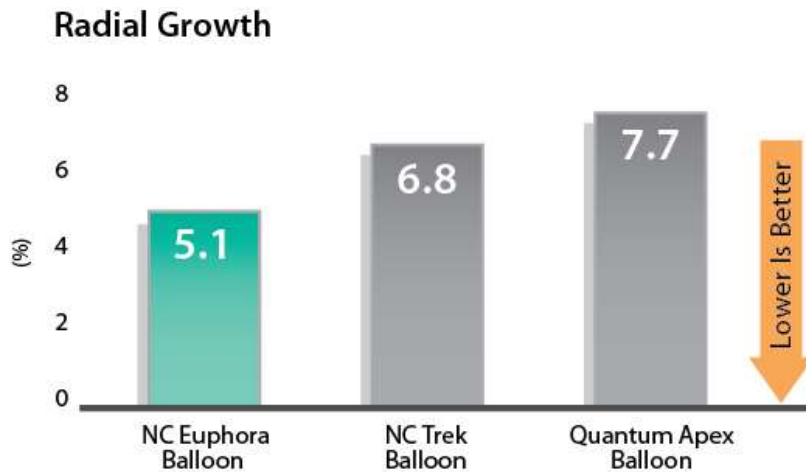


Balloon growth control leads to improved accuracy

NC Euphora™ balloon has high rated burst pressure (RBP) up to 20 atm, with a superior growth profile for unmatched precision*

Significantly lower radial growth to reduce unwanted vessel expansion

Lower longitudinal growth† to minimise vessel trauma outside the stent



NC Euphora, NC Trek and Quantum Apex 3.00 mm x 20 mm balloons tested;

*Competitive testing vs. NC Trek™ and Quantum Apex™ balloons.

Bench test data may not be indicative of clinical performance.

†Significantly lower compared with Quantum Apex balloon.

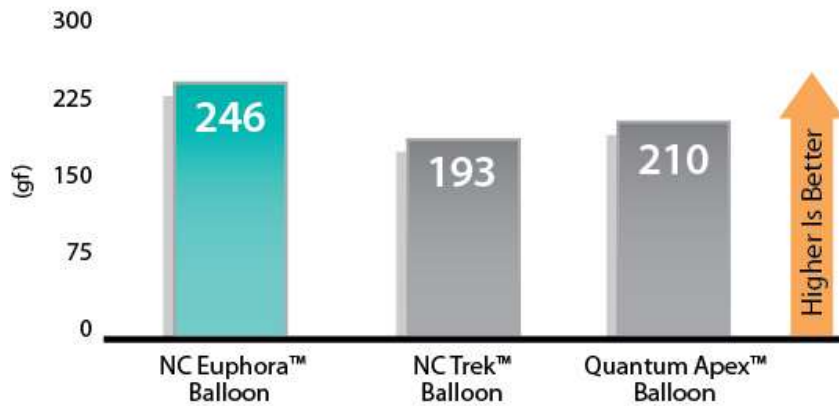


NC Euphora™
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NC Euphora™ balloon has **superior Pushability** and **Trackability** compared with NC competitors*

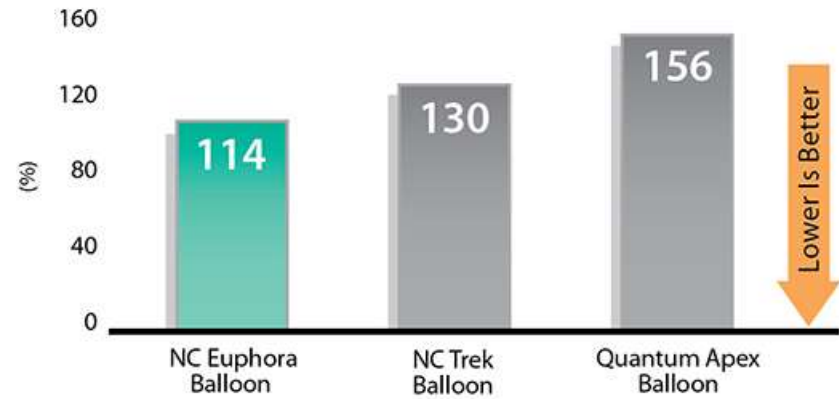
Allows for significantly greater push force through tight lesions

Pushability



Requires significantly less force to track through tortuous anatomy

Trackability



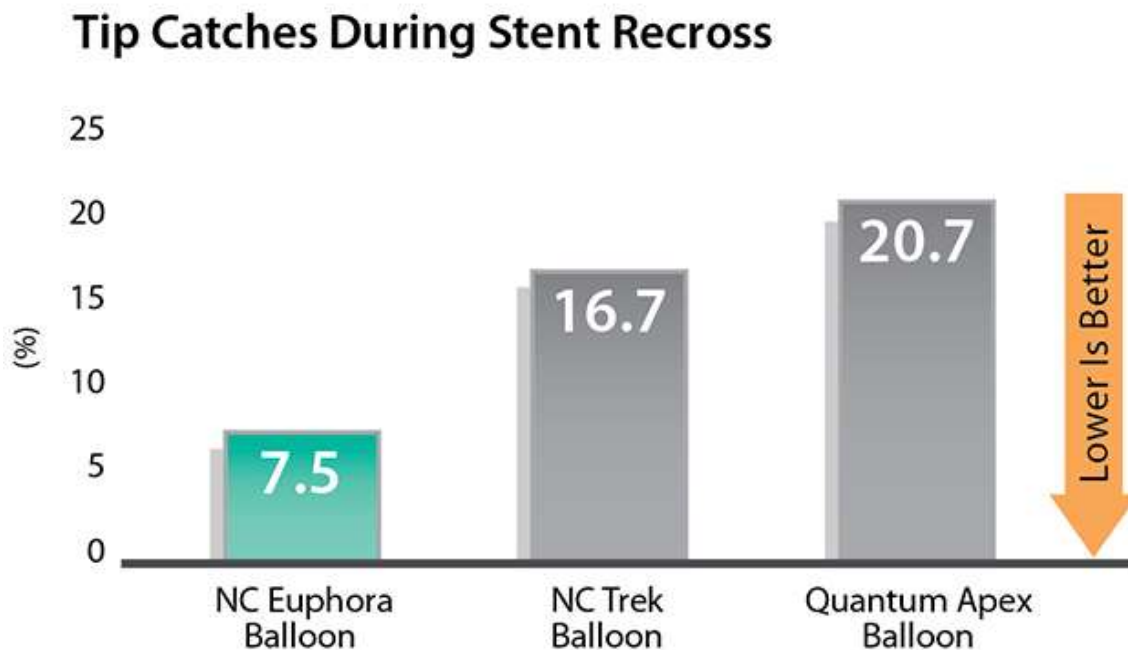
NC Euphora, NC Trek and Quantum Apex 3.00 mm x 20 mm balloons tested;

*Competitive testing vs. NC Trek™ and Quantum Apex™ balloons.
Bench test data may not be indicative of clinical performance.



NC Euphora™
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NC Euphora™ balloon has **excellent recross** for reliable performance **in long, difficult cases***



NC Euphora balloon is three times less likely than Quantum Apex™ balloon to catch on a stent strut when recrossing a previously deployed stent*

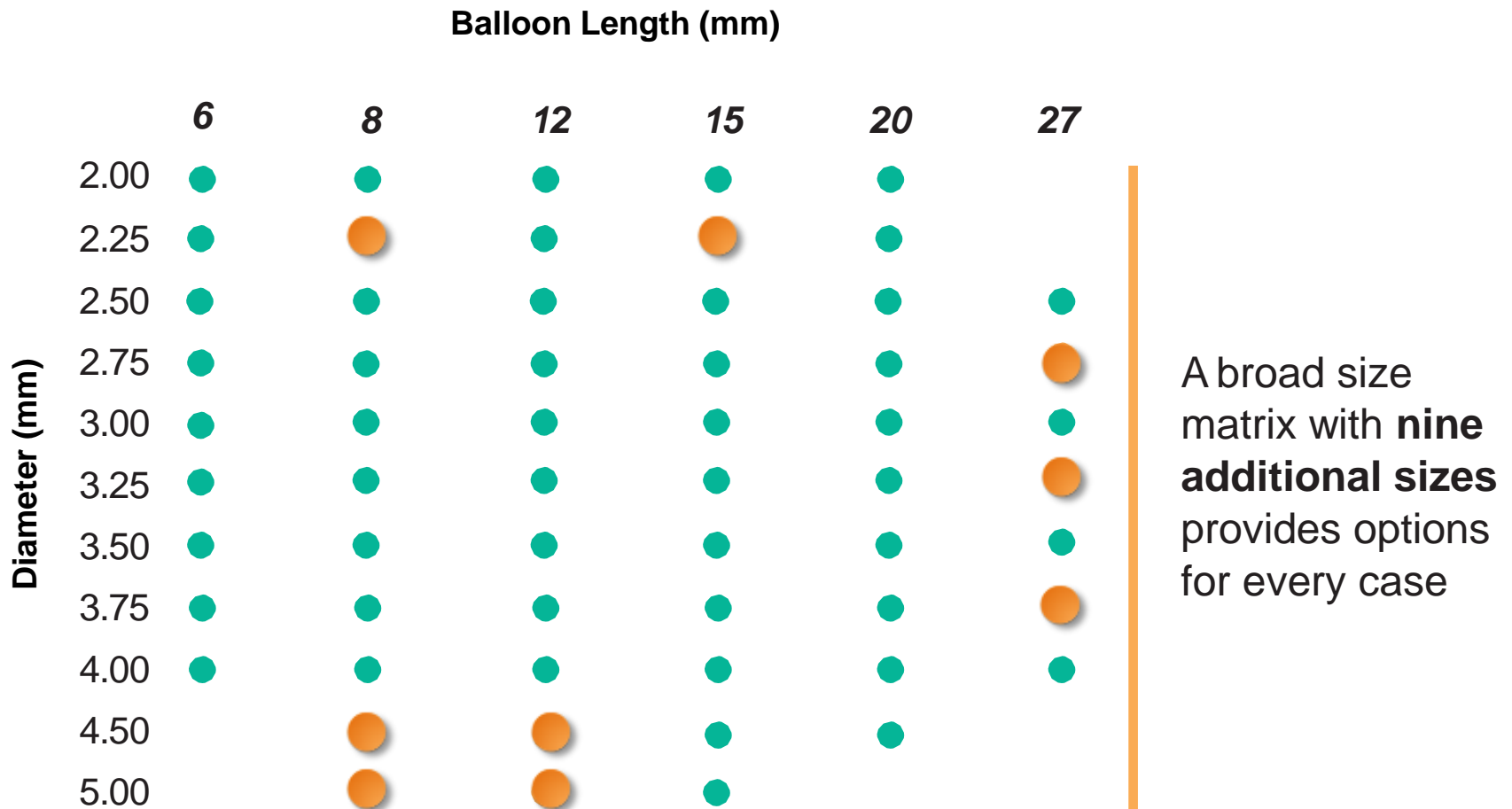
NC Euphora, NC Trek and Quantum Apex 3.00 mm x 20 mm balloons tested;

*Competitive testing NC Trek and Quantum Apex numerical but not statistically better than all. Bench test data may not be indicative of clinical performance.



NC Euphora™
NONCOMPLIANT BALLOON
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Each NC Euphora™ Balloon has broad size matrix !



● = a new size compared with NC Sprinter™ balloon matrix



NC Euphora™
NONCOMPLIANT BALLOON
DILATATION CATHETER

Each NC Euphora™ Balloon Component Was Deliberately Designed for Unsurpassed Performance

Product package enhancements were driven by customer needs for fast, at-a-glance readability and enhanced clarity



Environmentally friendly **reduced box size** has a **smaller footprint** on congested shelves. With convenient **EZ Pull™** corners, pulling the right NC Euphora™ balloon is quick and easy.



Horizontal orientation of label and strong neon colors **clearly identify product sizes**.



Compliance chart compatible for use in the **sterile field** and designed for **low lighting** and **quick reference**.

Thinner box spine means **7** additional NC Euphora™ shelf cartons can be stacked upright on a 1-meter-long shelf compared with NC Trek™ and Quantum Apex™ shelf cartons



NC Euphora™
NONCOMPLIANT BALLOON
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Product evaluation in real cases

CASE #1



Brief history

- **M/77**

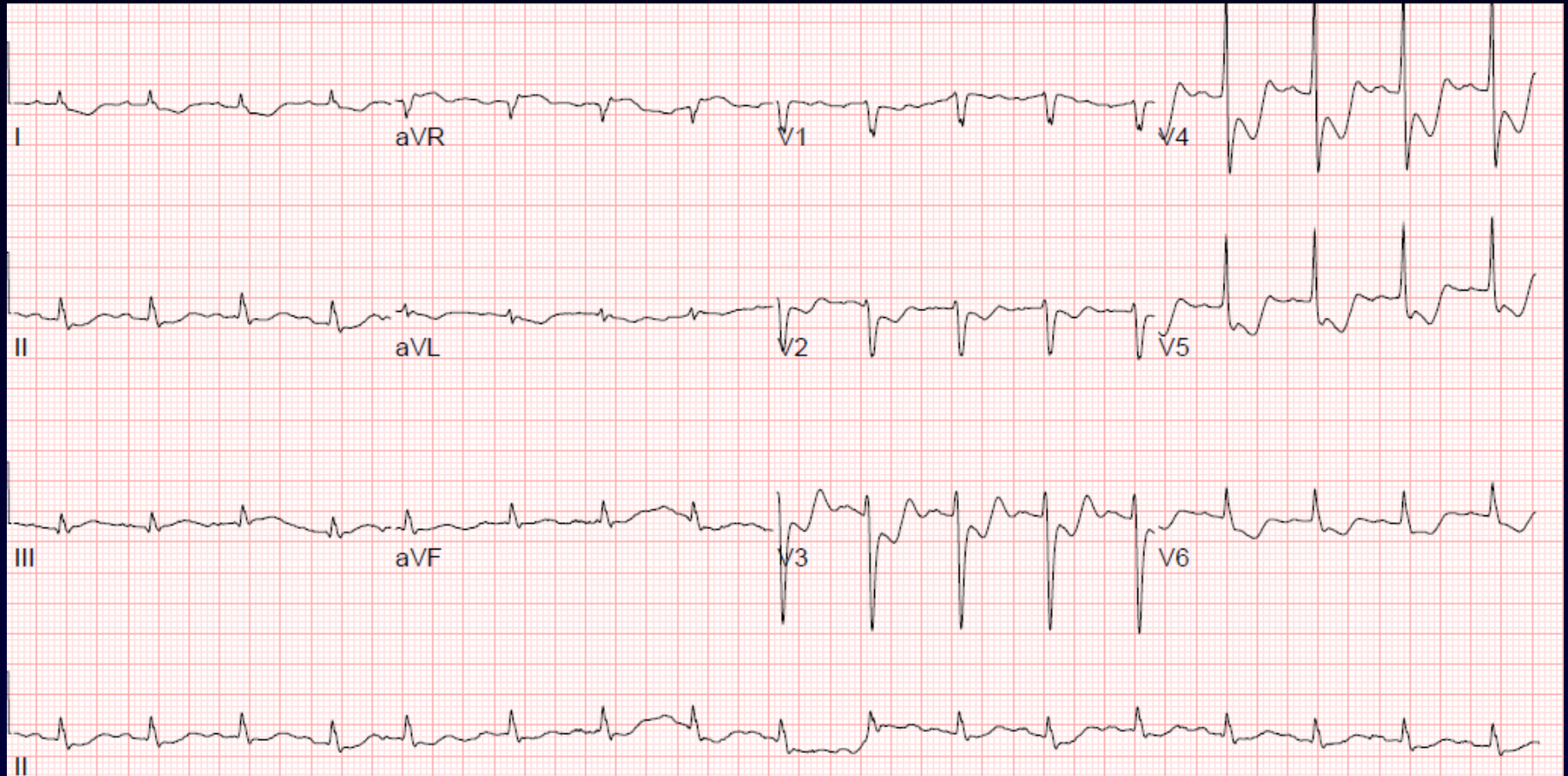
- **Chief complaint**

Chest pain & aggravated dyspnea after spine operation
Cardiac enzyme elevated

- **Patient history**

- s/p OPCAB due to CAOD 3-VD (LIMA to dLAD, to Dx c RA Y, to intermedius c RA double Y sequential, to 2nd OM c RA double Y sequential, to rPL c RA double Y) (2007.11.20)
- s/p renal allograft, Rt (1999)
- Old CVA, HTN, DM , Current smoker (40pyrs)
- L4-5 TLIF d/t spinal stenosis, 2 days ago ... *stopping aspirin for 8 days*

EKG HD #2



CK 1017 (44-245 IU/L)

CK-MB 31.9 (0.0-5.0 ng/mL)

Troponin T 673 (0-14 pg/mL)

TTE (2016.4.11)



1. RWMA: akinesia at anterior, lateral, and inferior wall (basal to mid LV)
2. LV systolic function (EF : 33%)

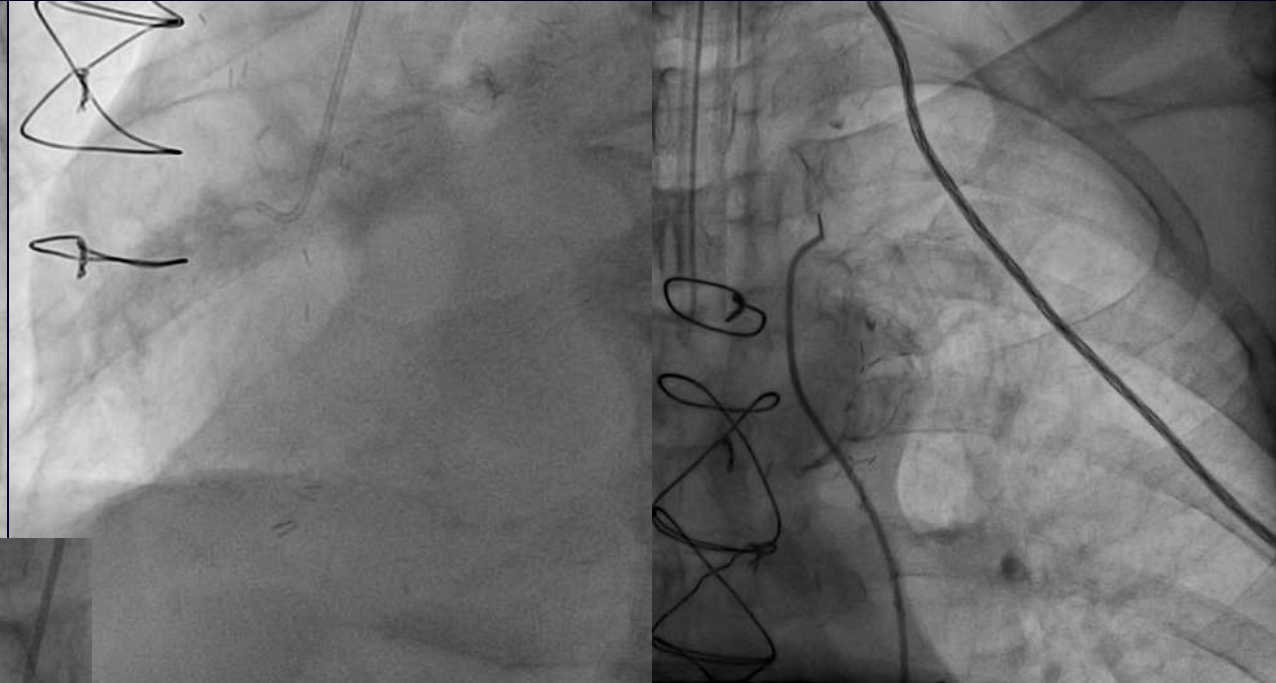
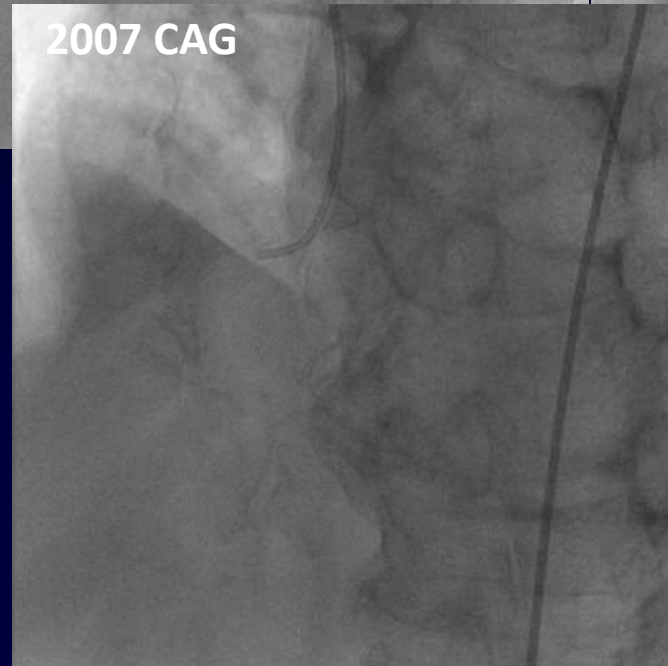
Chest AP HD#2



Immediate transfer in

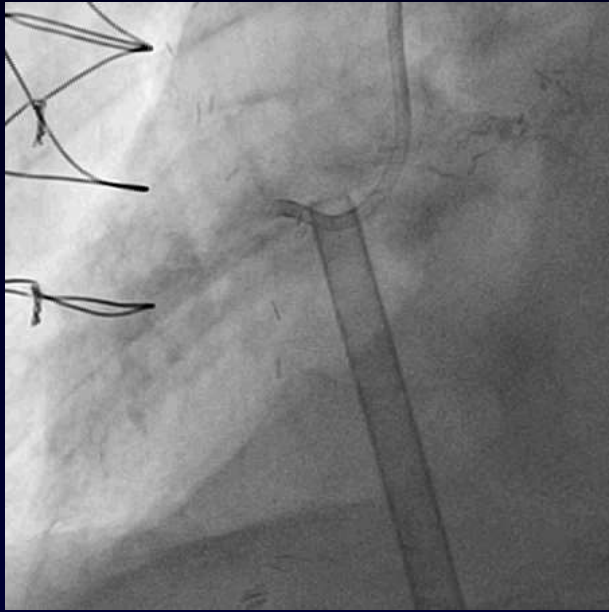
.. BP down → Start emergent procedures !

Emergent CAG

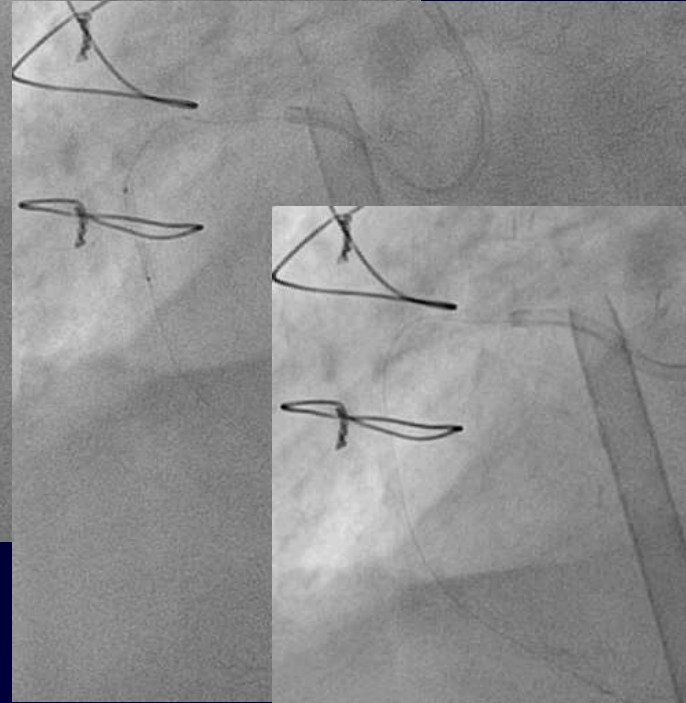
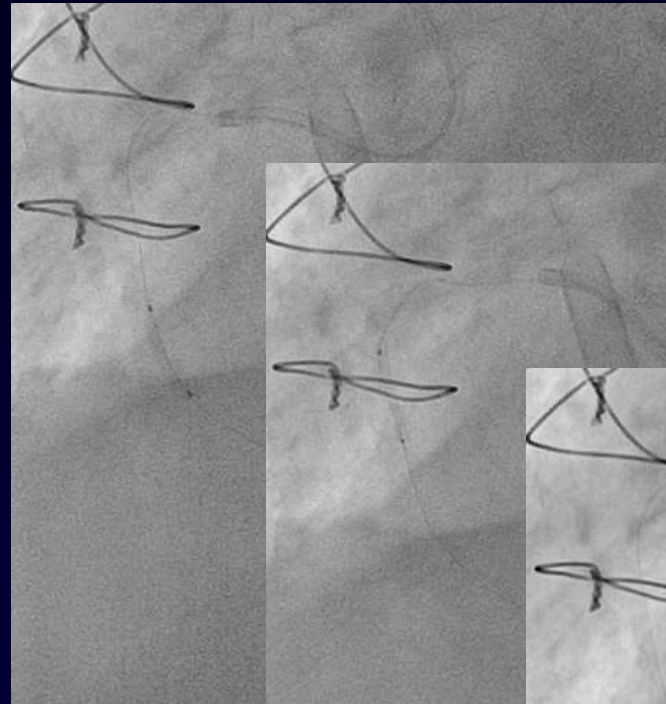


LIMA to d-LAD, to Dx c RA Y,
to intermedius c RA double Y sequential,
to 2nd OM c RA double Y sequential,
to rPL c RA double Y → **occluded ...**

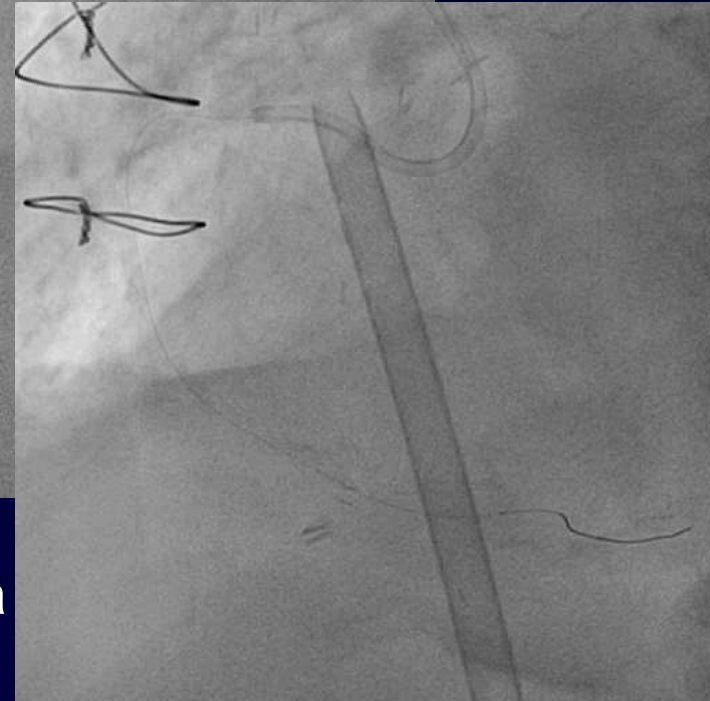
PCPS first and start PCI of RCA, severe calcified tortuous lesion



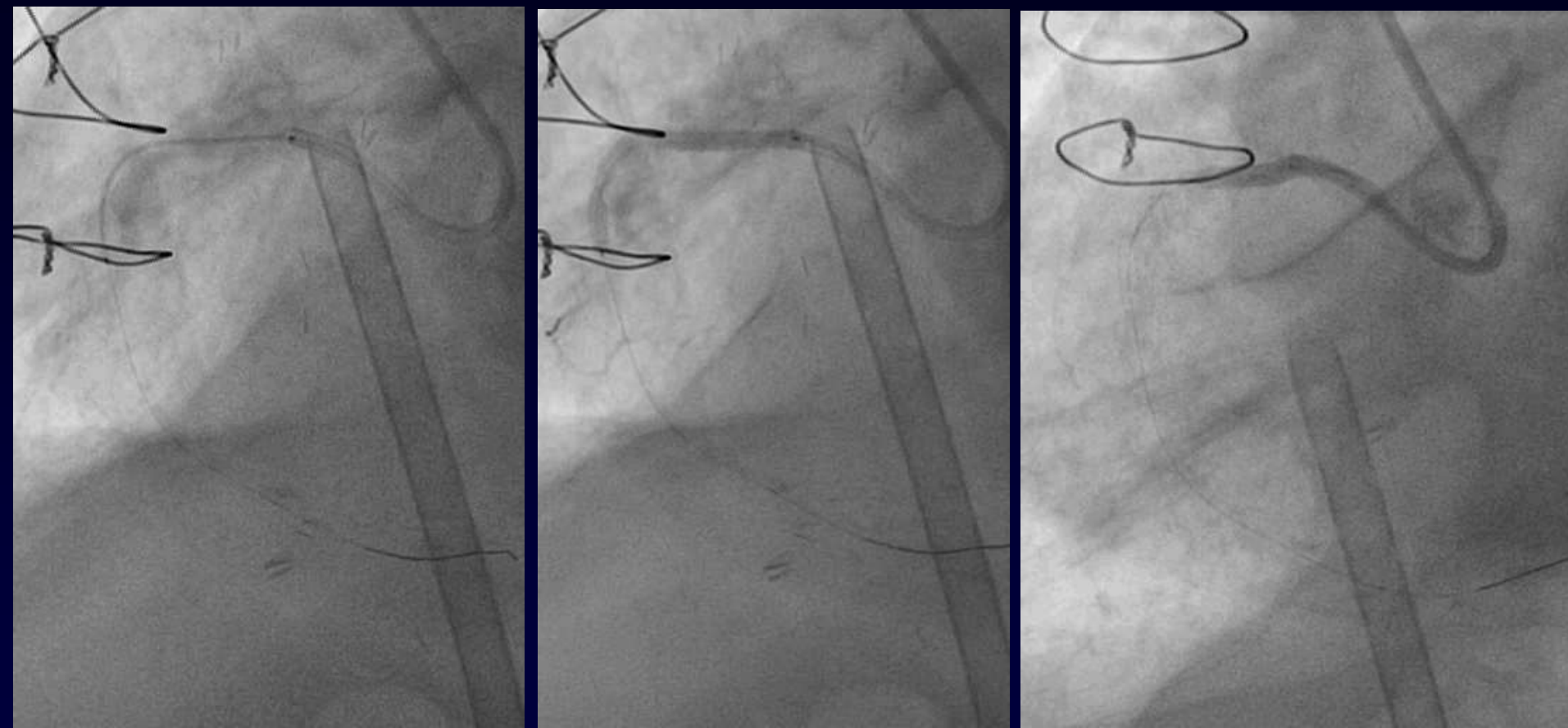
GC, 7Fr Amplatz short-tip



Pre-ballooning with Euphora
semi-balloon 2.5×15 mm

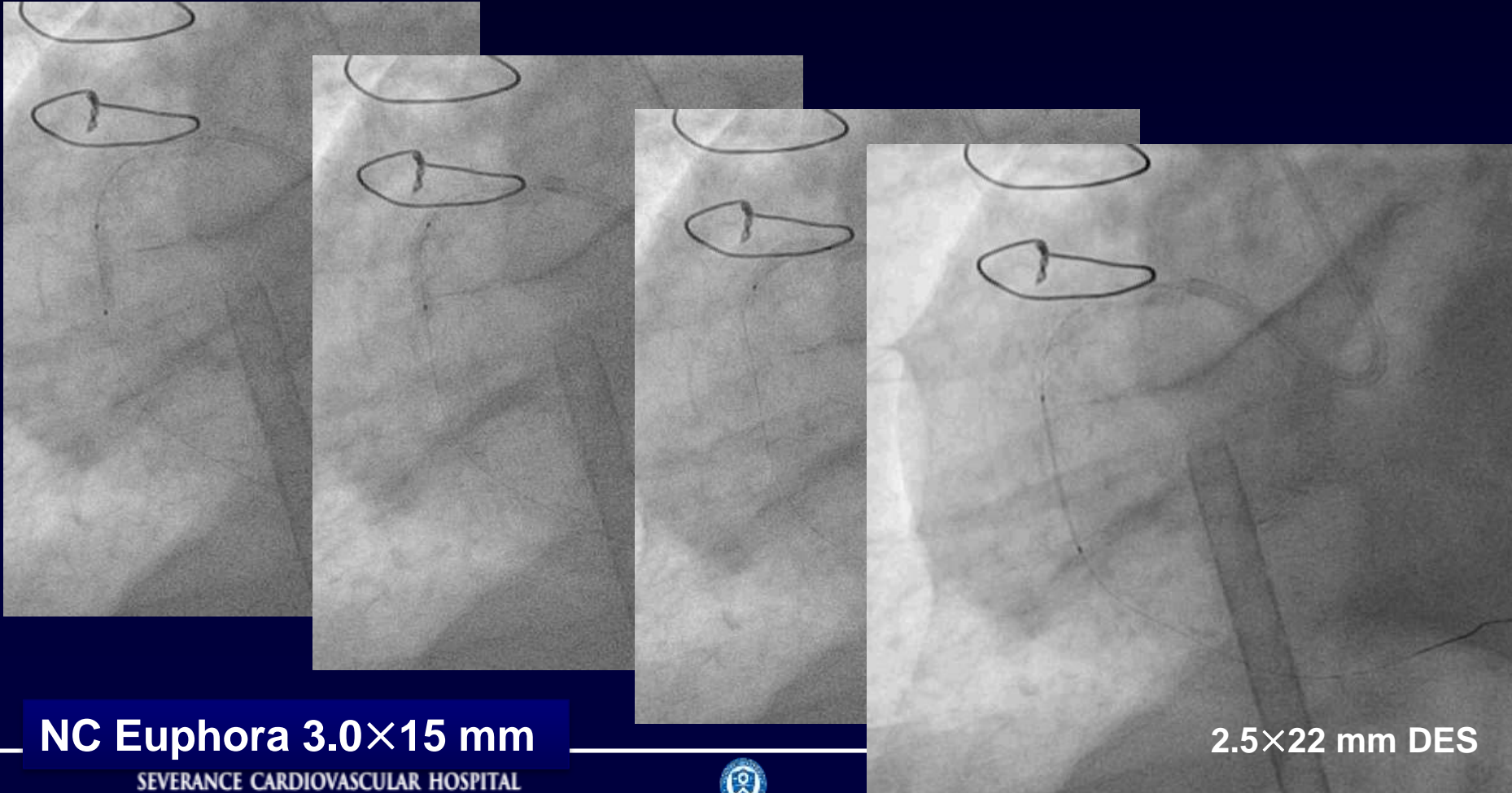


Stenting at p-RCA (2016.4.11)



Orsiro 2.5×40 mm

**Additional stenting at m-RCA was required
... but delivery was difficult, not crossing first stents
→ *Lesion preparation again with NC balloon !***



NC Euphora 3.0×15 mm

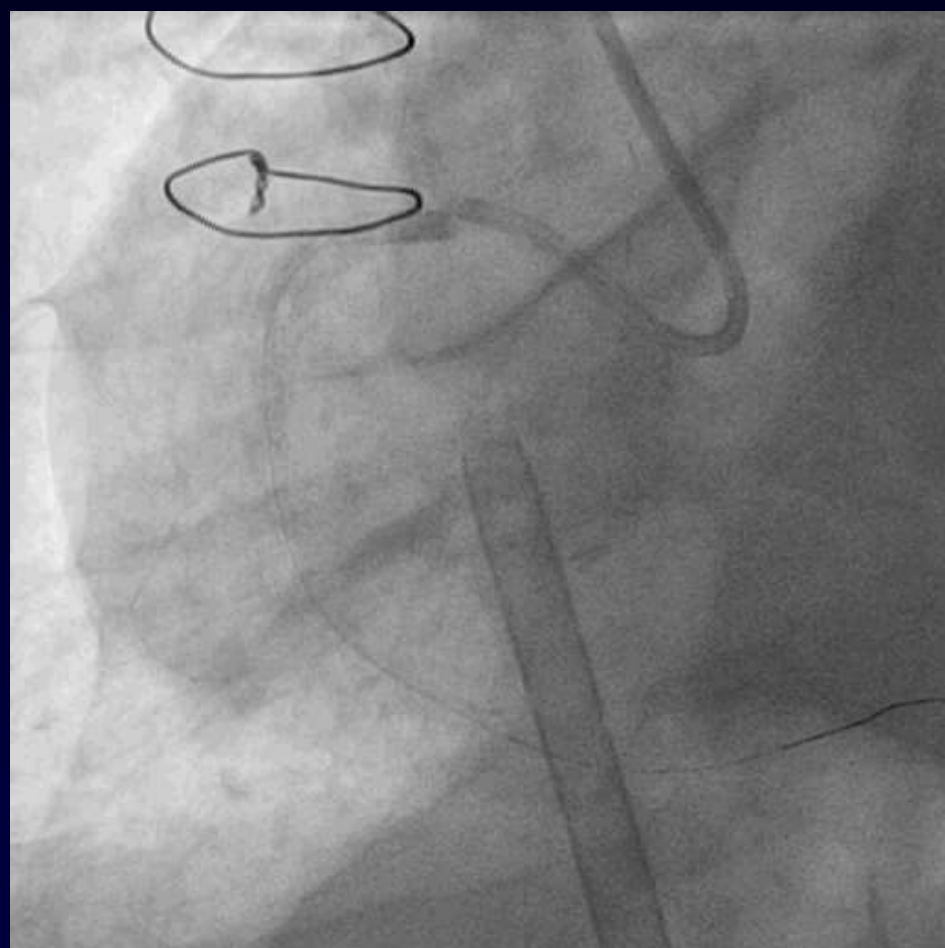
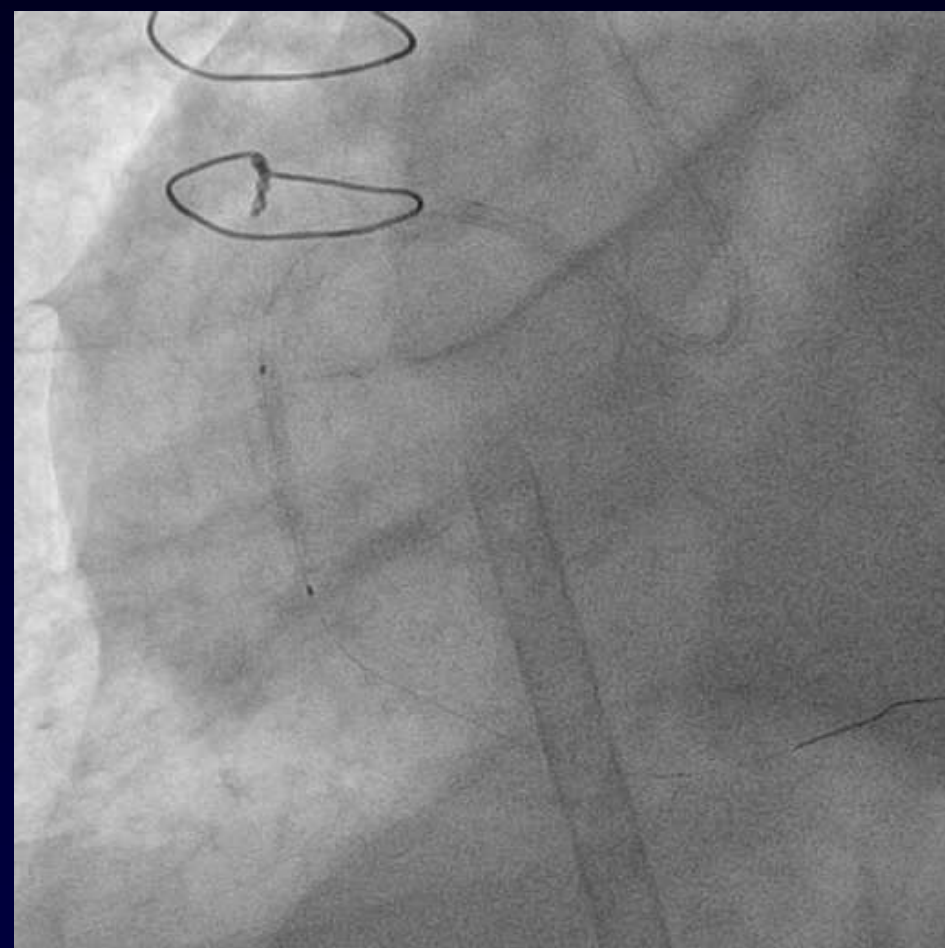
SEVERANCE CARDIOVASCULAR HOSPITAL



2.5×22 mm DES

Second stent at m-RCA

Final angio



Product evaluation in real cases

CASE #2



- **F/88**

- **Chief complaint**

Chest pain (onset: 10 Days ago)

- **Diagnosis**

Unstable angina, CAOD(3vd)

Hypertension, DM, CKD (stage III; BUN/Cr 44.3/1.85 mg/dL)

s/p PTCA c stent at pLCx and p-mRCA (2010.06)

s/p PTCA c stent at p-mLAD (2011.03)

s/p PTCA c stent at dLCx (2015.05)

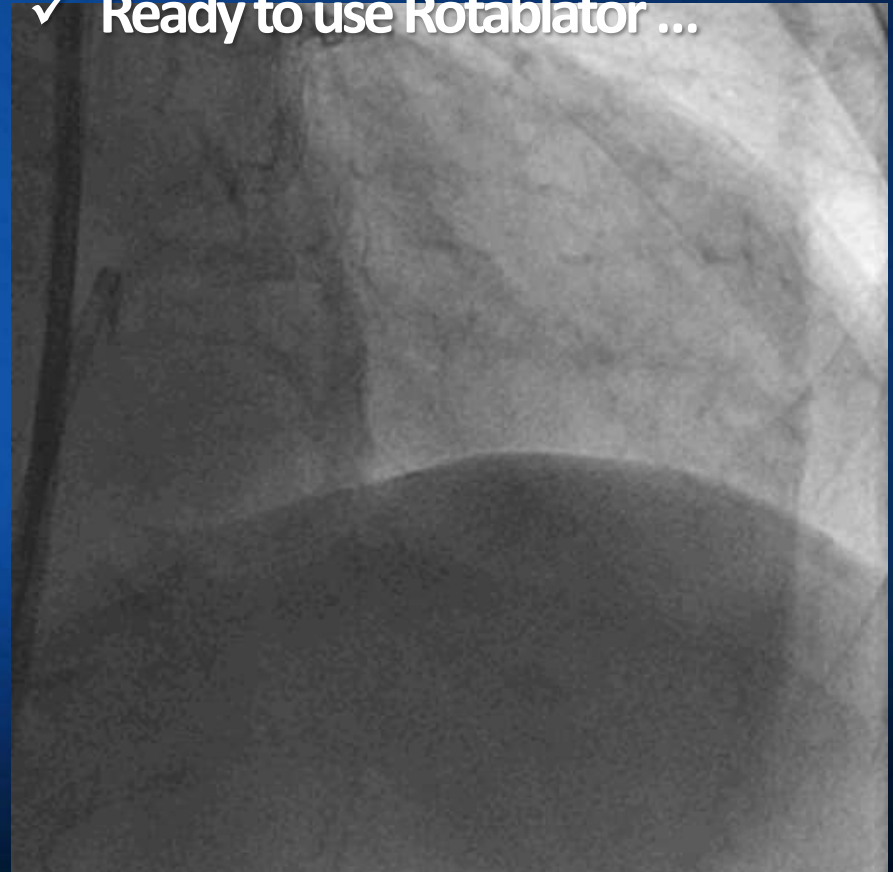
s/p PTR A c stent at Lt renal a. (2001.03)

Coronary angiography (2016.04.20)

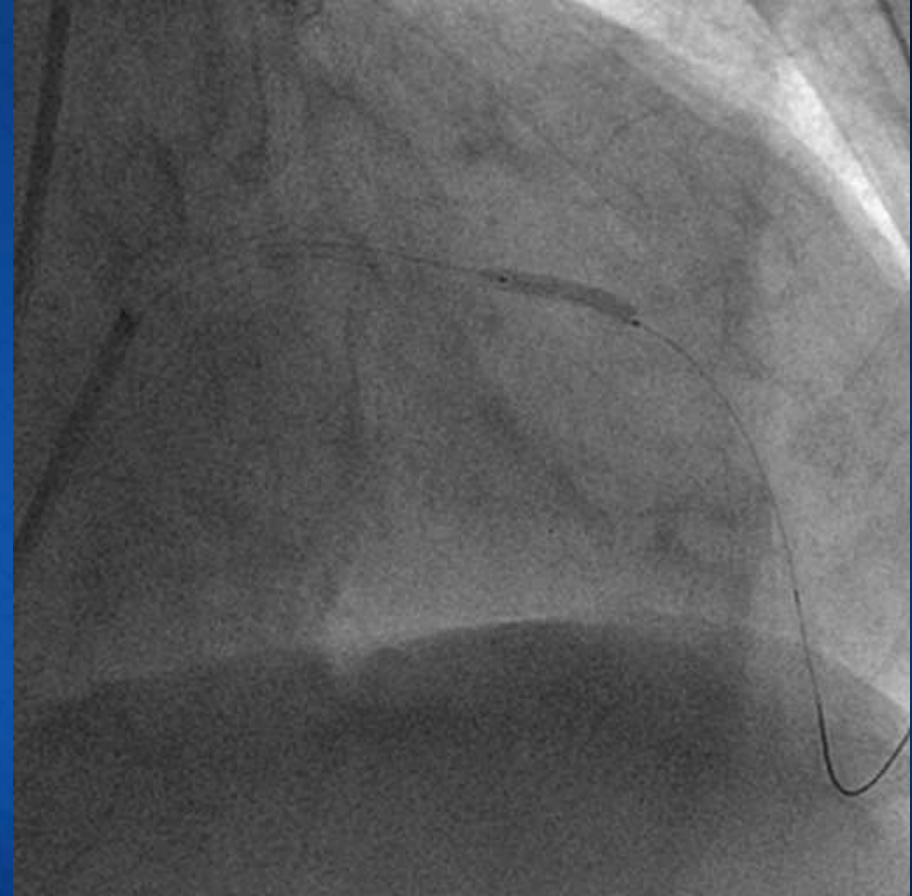
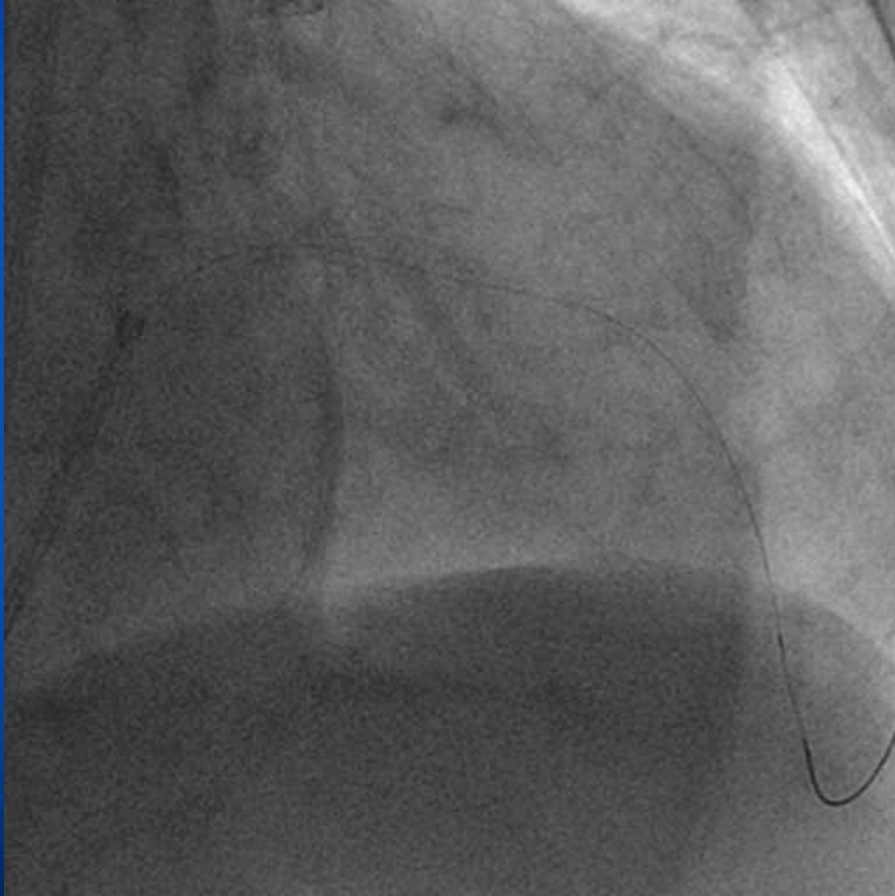


LAD PCI ... Very tortuous aorta with calcification ... Old age (88 years old)

- ✓ Tortuous Ao → RAABE sheath
- ✓ For strong back-up → 7 Fr AL-1 SH
- ✓ Ready to use Rotablator ...



PCI at mLAD (2016.04.20)

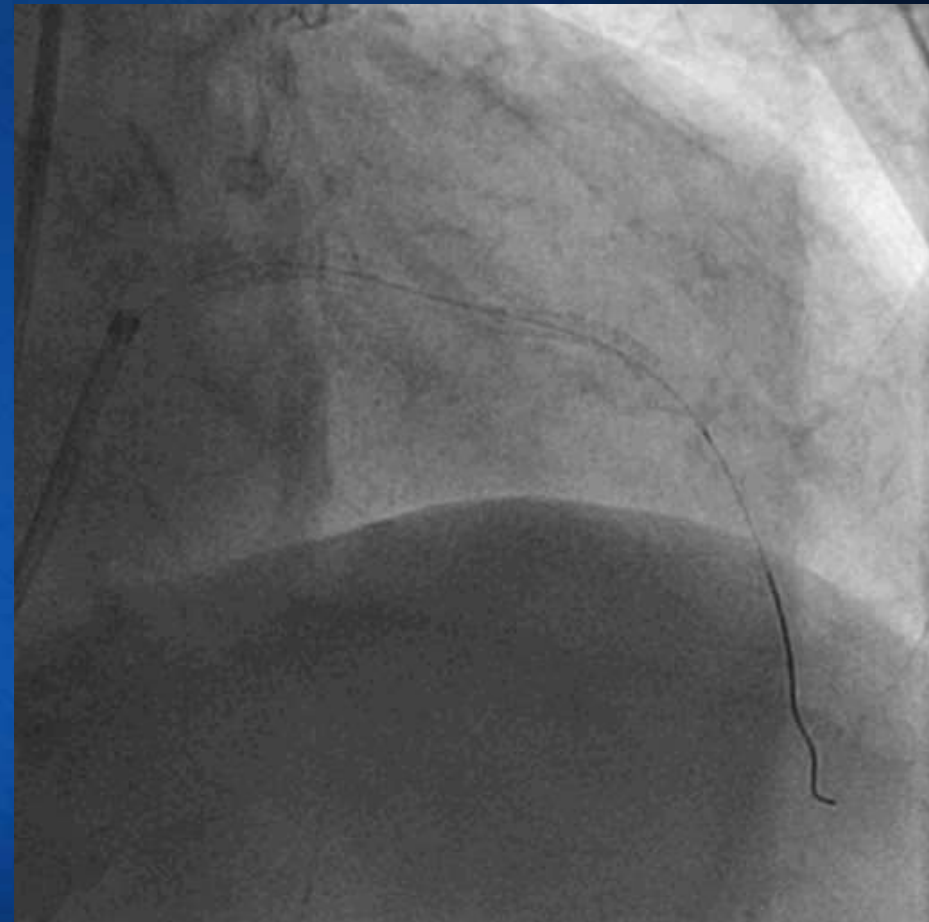
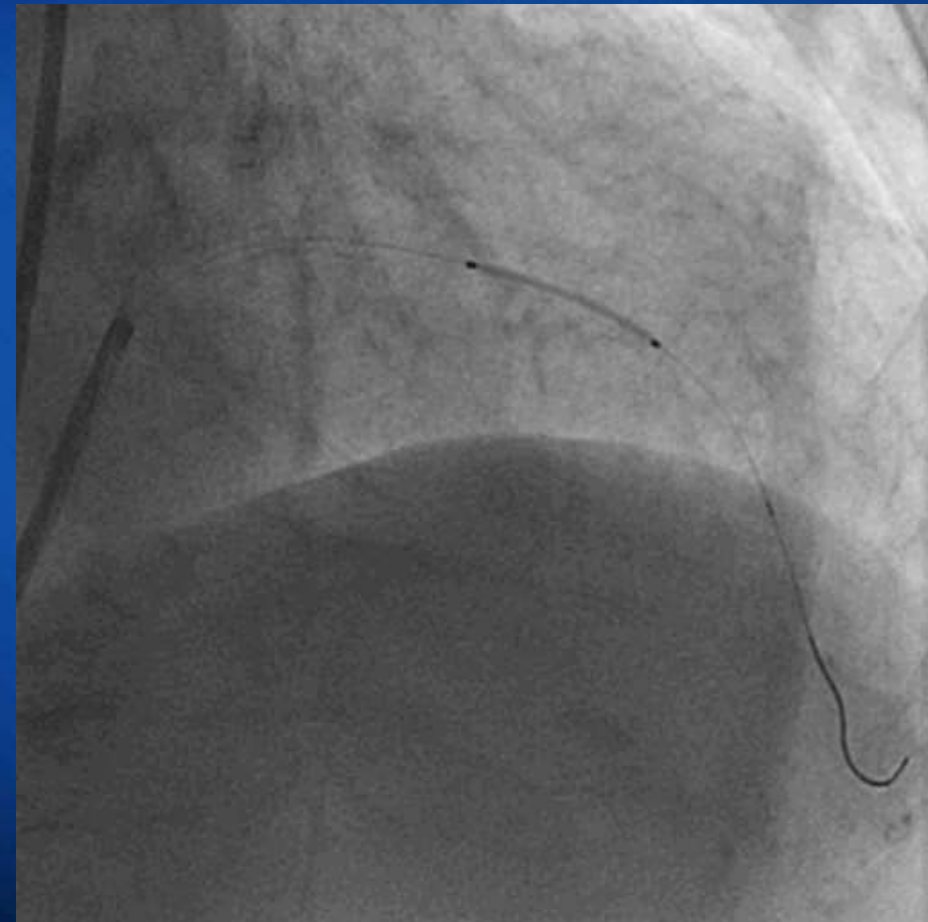


Europa Balloon 2.5X15mm



LAD stenting

Final angio



Stent 2.5 x 18 (→ 12 atm)



Take-home message

- **Euphora semi balloon & NC Euphora balloon ...**

will show the outstanding performances due to the improved unique features, especially in various complex lesions (diffuse long lesions, heavily calcified lesions, bifurcation requiring kissing balloon) and cause the resultant stent optimization.



*Thank you for your
attention*

The end

Severance Cath room at 1996

