



PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

**ROMA**

Centro Congressi  
di Confindustria

Auditorium  
della Tecnica

9<sup>a</sup> Edizione

30 Settembre  
1 Ottobre  
2022

## Lesioni Coronarie Calcifiche

## CASO CLINICO: DIAMONDBACK



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*Servizio di Emodinamica-UOC Cardiologia*

*Ospedale GB Grassi- ASL Roma 3*

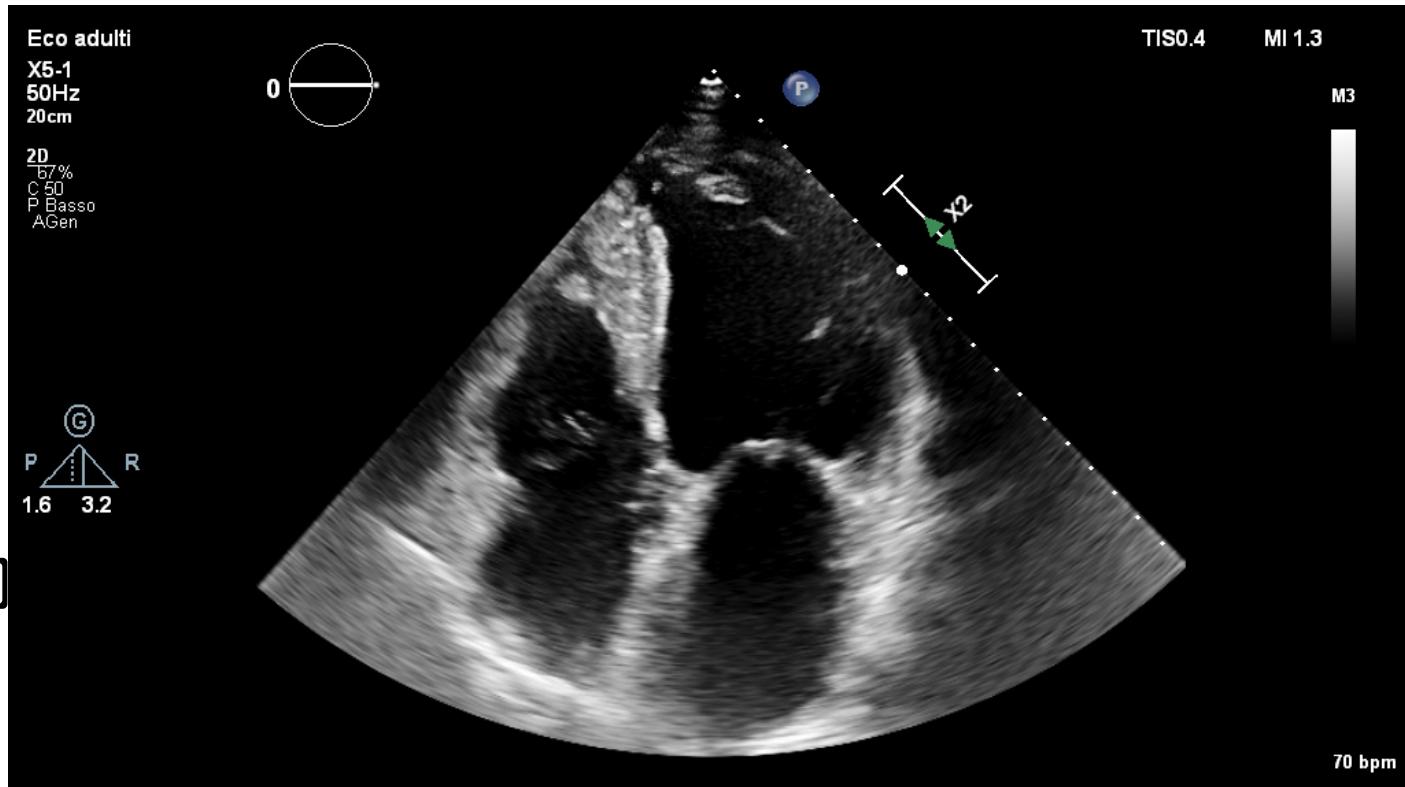
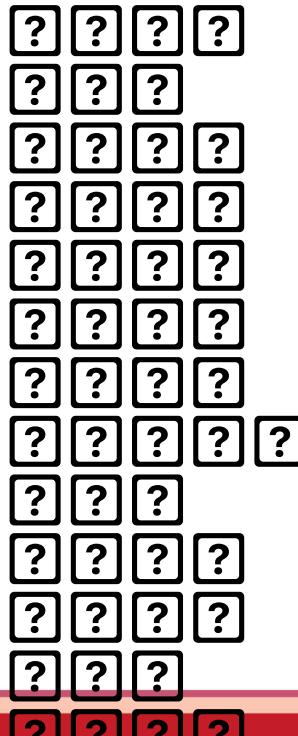


# Clinical Presentation

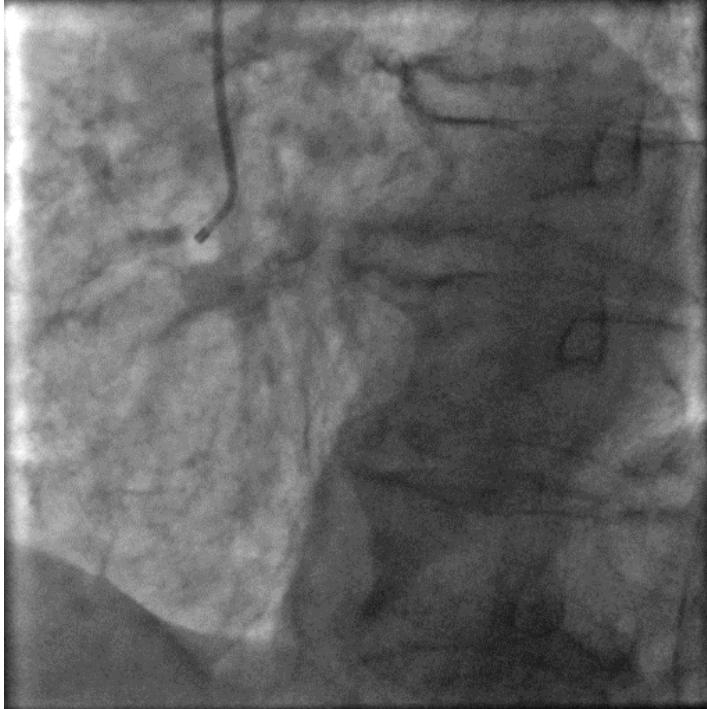
- 80 y/o male patient
- HTN
- NIDDM
- Dyslipidemia
- April 2022: NSTEMI with inferior negative T waves
- Severe CKD: Cr Clearance 30ml/min



# Echocardiography



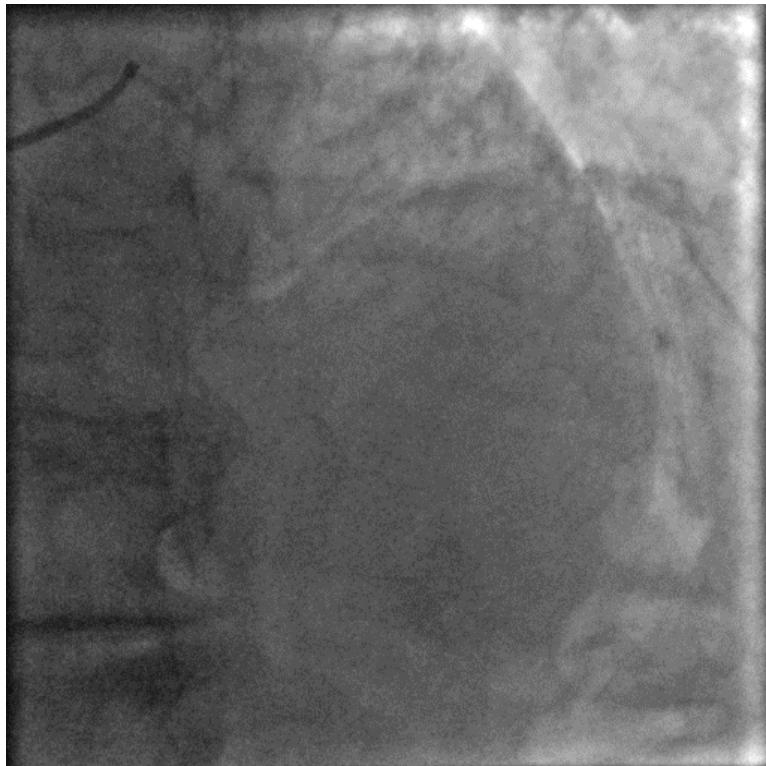
# Baseline Coronary Angiography

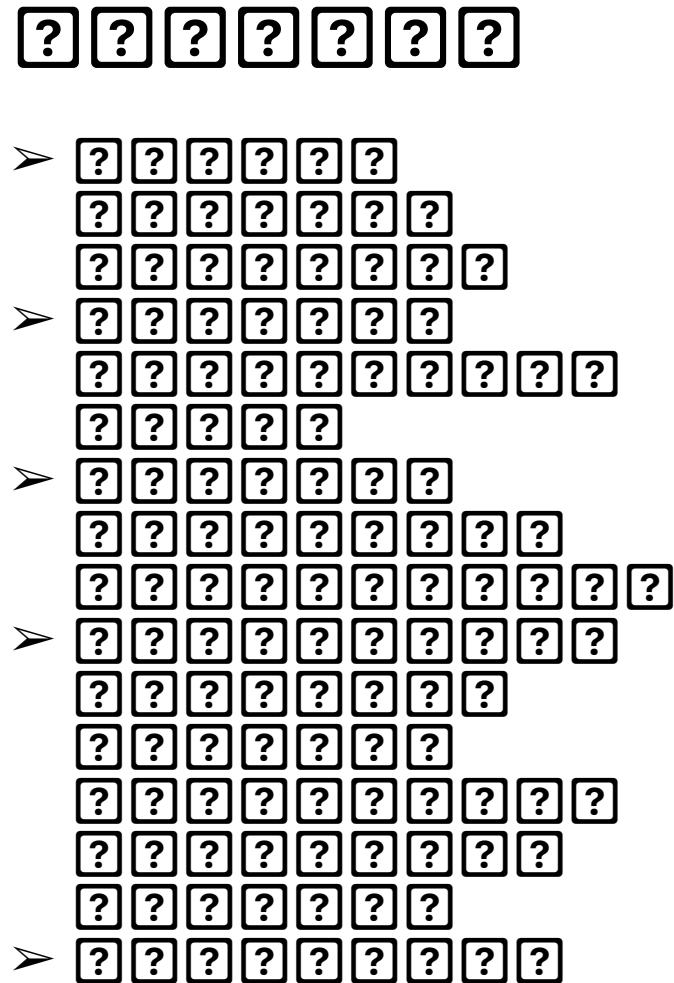
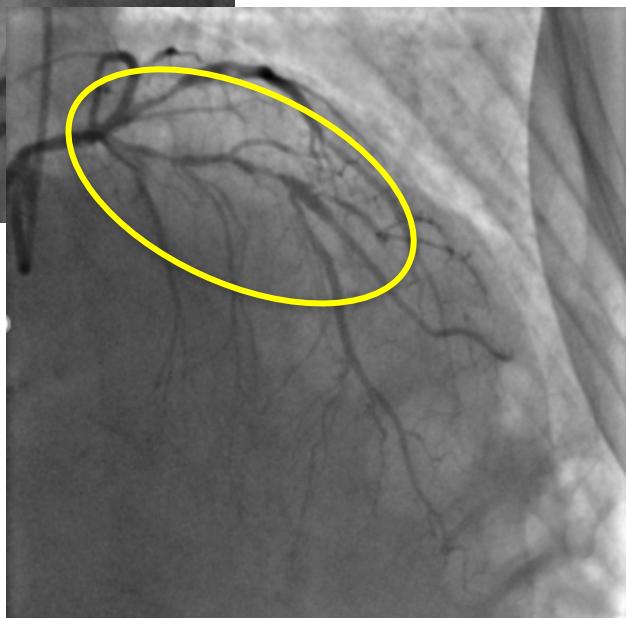
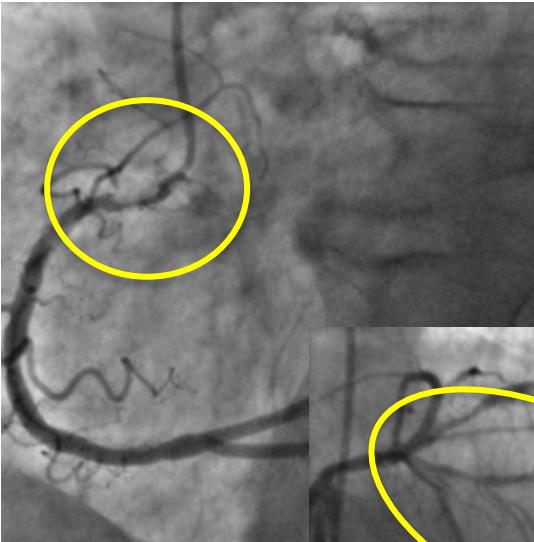


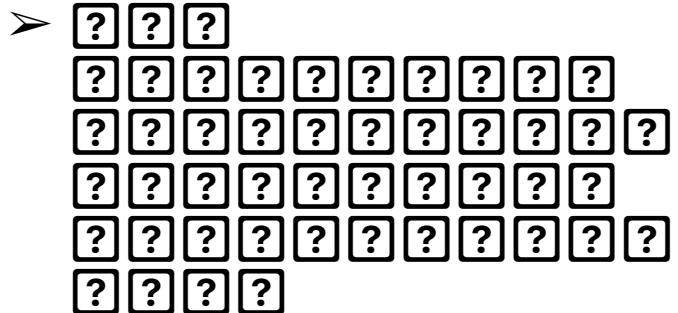
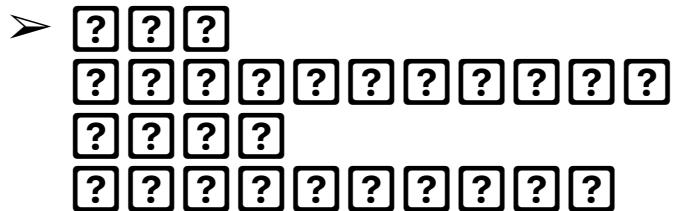
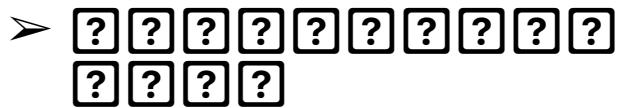
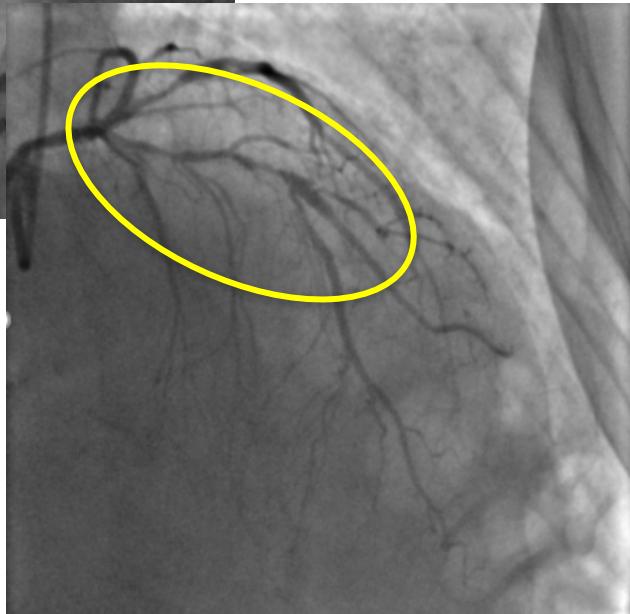
# Baseline Coronary Angiography



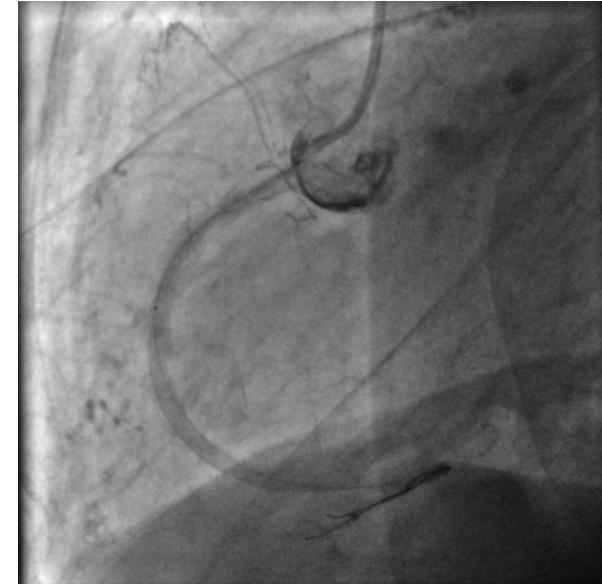
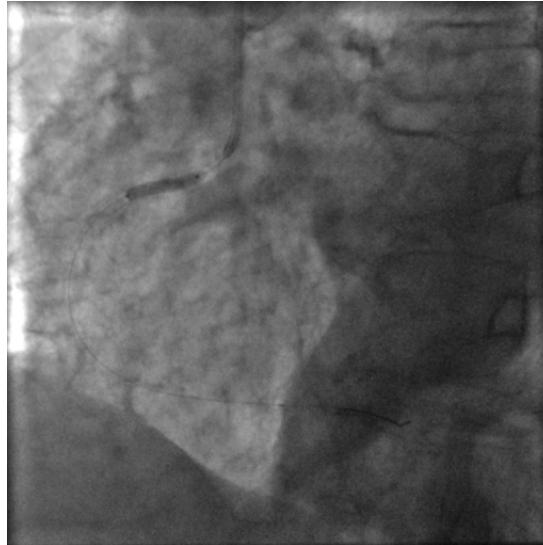
# Baseline Coronary Angiography







# RCA PCI



NC Emerge 3.0/15mm-3.5/15mm; stent Biofreedom Ultra 3.5/24mm and 3.5/36mm in overlapping; post-dilat NC Euphora 3.75/15mm-4.0/12 mm

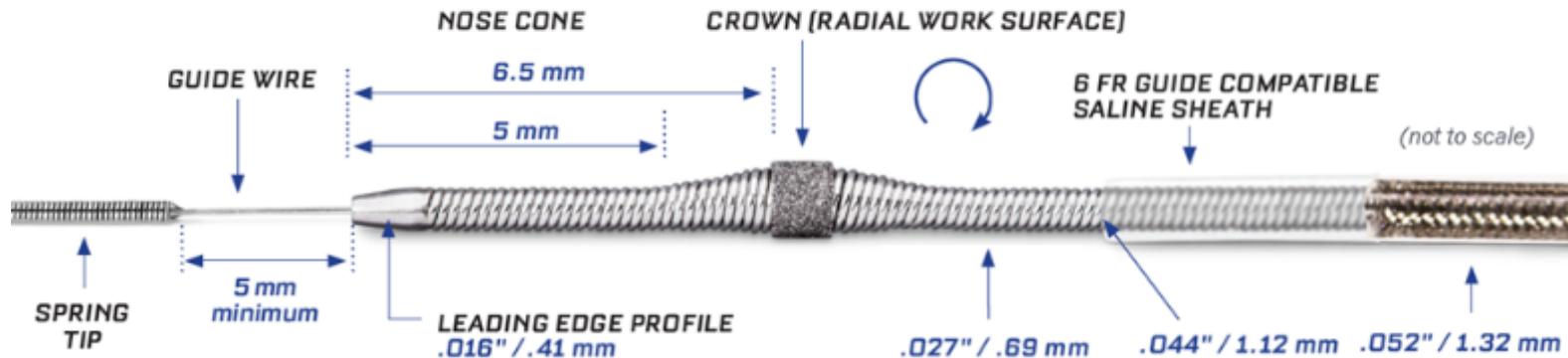
# RCA pci final result





### Diamondback 360™ OAD Properties

- Saline Sheath: PEBAK with Stainless Braid and Atraumatic Tip
- Driveshaft: 3-Filar 304V Stainless Steel
- Crown: Diamond-coated 304 Stainless Steel



# Mechanism of Action

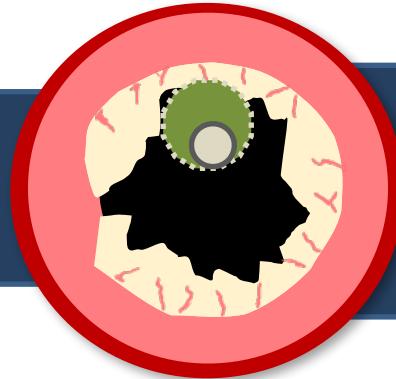
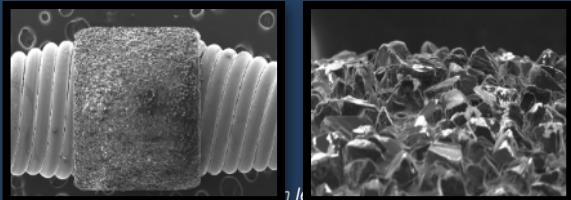


## Orbiting, bi-directional, diamond-coated crown:

- A single 1.25 mm crown adapts to vessel size (2.5-4.0 mm).<sup>1,2</sup>
- Continuous flow reduces risk of thermal injury.<sup>1</sup>

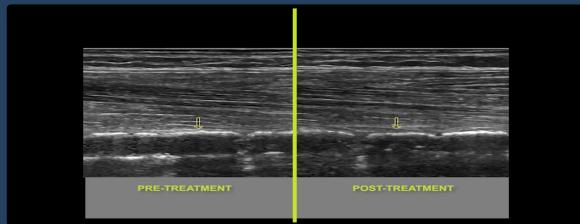
## Differential Sanding<sup>1,2</sup>

- **Superficial calcium** is sanded by diamond surface.
- Healthy elastic tissue flexes away from the crown, minimizing damage to the vessel.



## Pulsatile Forces<sup>2,3</sup>

- **Deeper plaque** can be affected by pulsatile mechanical forces caused by eccentric crown rotation.
- May contribute to compliance change.\*



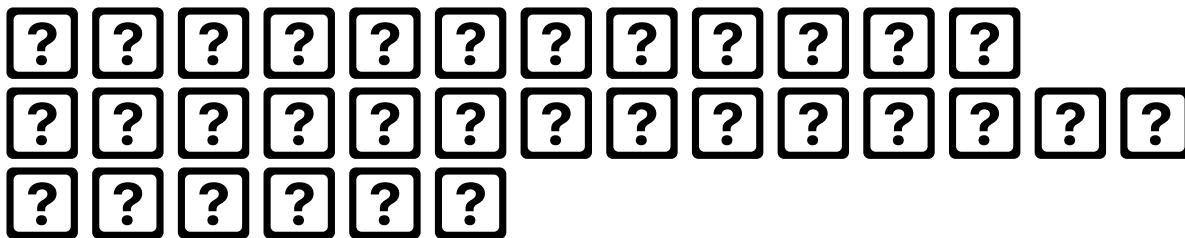
Example: Vessel compliance before and after treatment with Diamondback 360™ in perfused cadaver.

1. Shlofmitz, E. et al. Exp Rev Med Dev. 2017;14(11):867-879.

2. CSI Data on File: based on cadaver atherosclerotic lesions, porcine coronary lesions, and graphite block test models.

3. Zheng et al. Poster presentation. ASME. June 2018. MSEC2018-6802. Report and data on file at CSI.

\*Results vary based upon plaque morphology, calcification, and anatomy



6 Fr Guide Compatible  
Saline Sheath

135 cm usable length



Crown Advancer Knob and  
Power On/Off Button

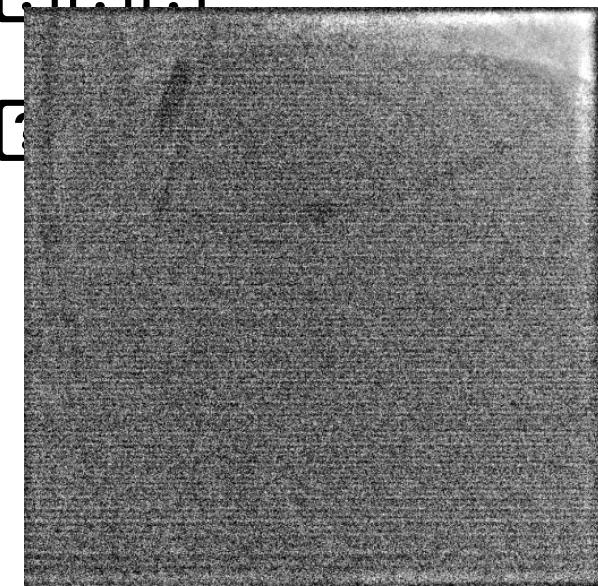
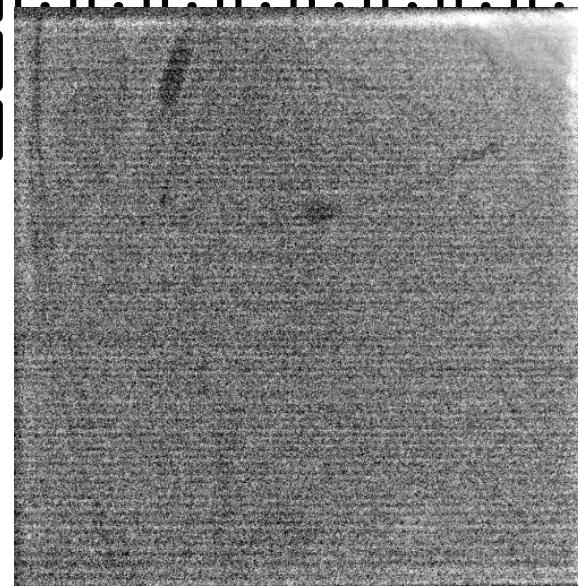
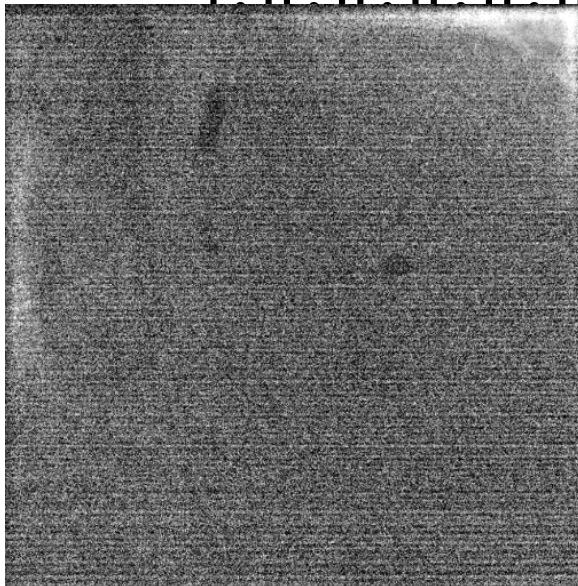
7.5 cm axial travel  
Recommend 1-3 mm/sec traverse speed

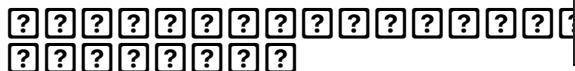
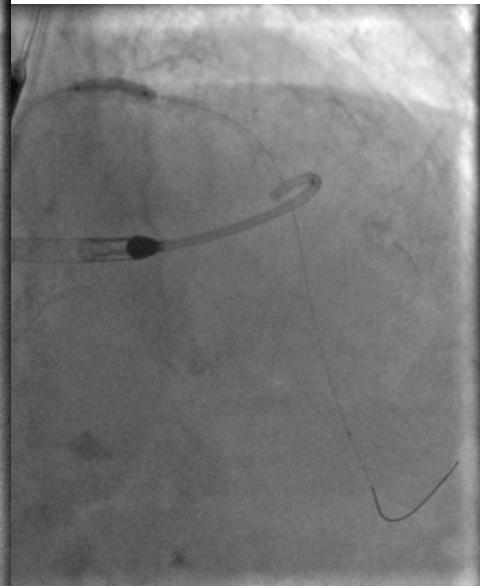
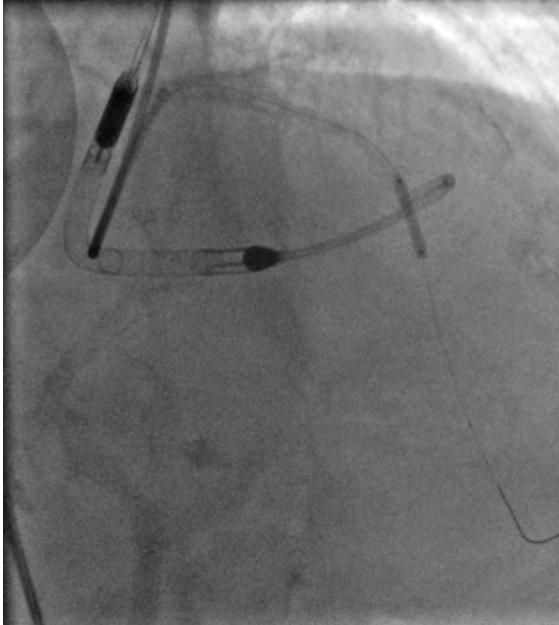


Guidewire Brake

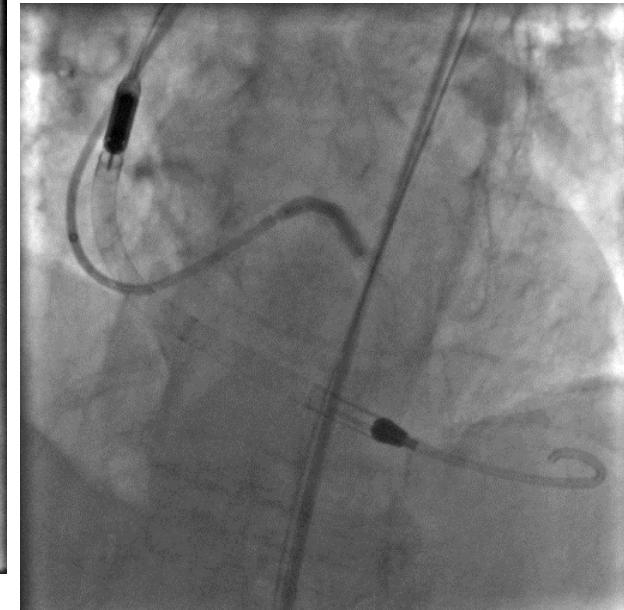
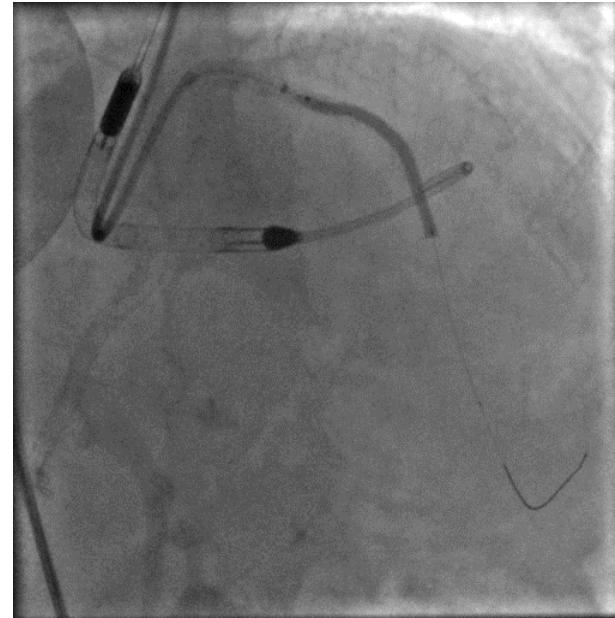
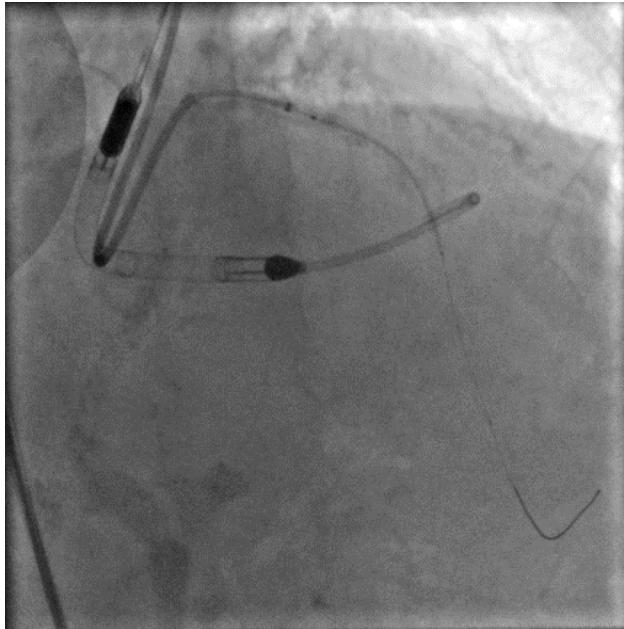
Keeps the wire from rotating or moving axially.  
The OAD will not rotate the crown if the brake is up.

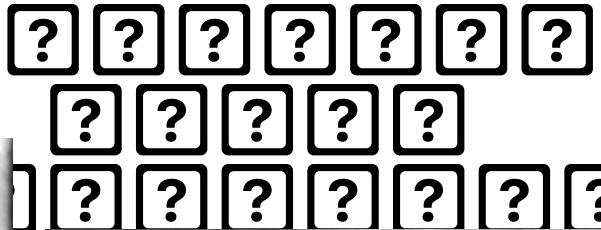






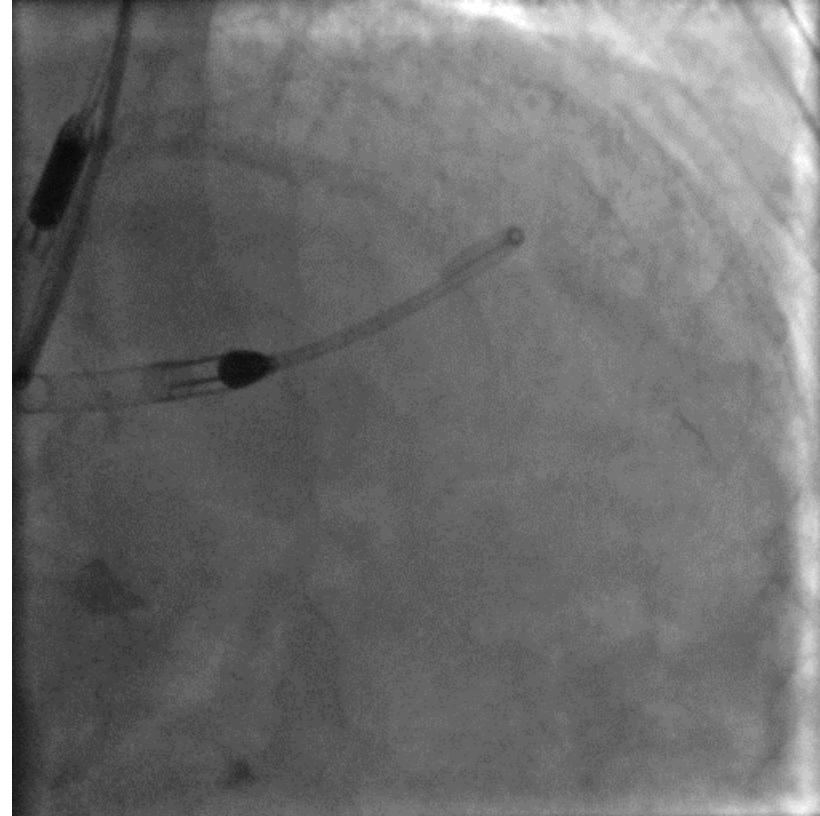
# LM-LAD Stenting





**NC Emerge 3.0/15mm-3.5/15mm- 4.0/15mm**

# LM-LAD Final result



# Conclusions

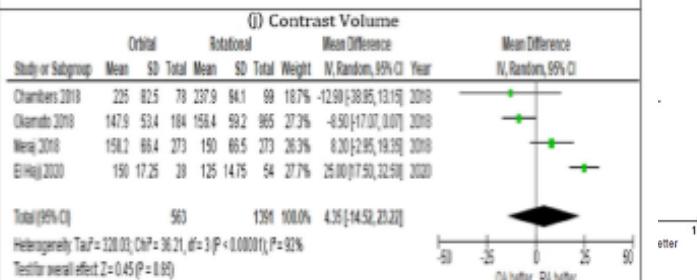
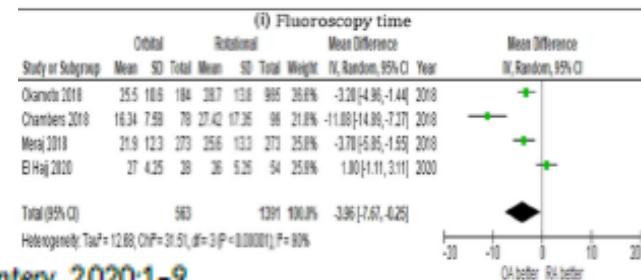
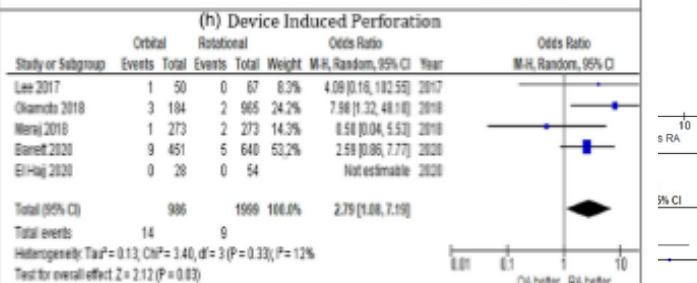
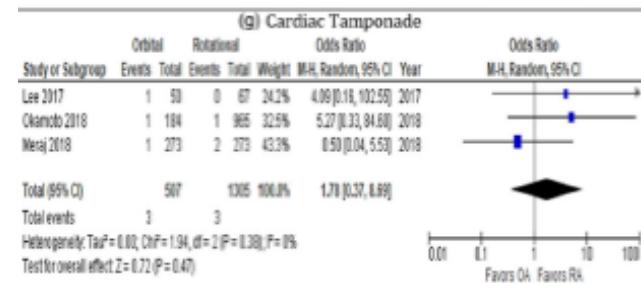
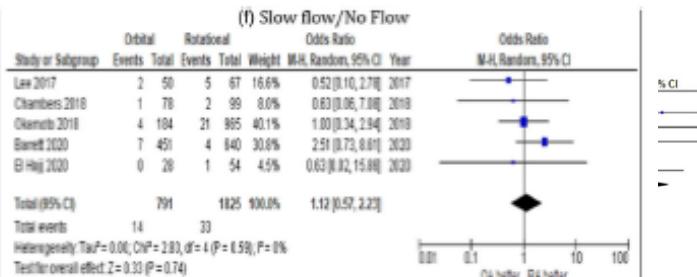
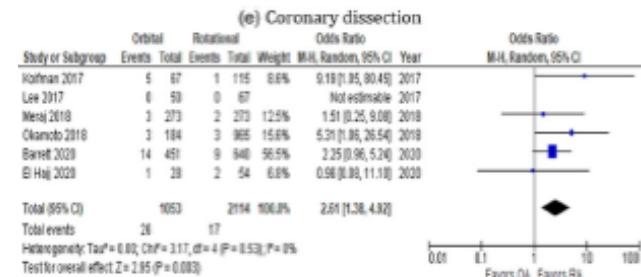


- ✓ Valid and effective treatment for coronary calcific lesions
- ✓ Significative plaque debulking
- ✓ Excellent for large vessels with heavy concentric calcium
- ✓ Quick setup
- ✓ 6F vascular access
- ✓ Reduced slow-flow
- ✓ Single device for all lesions (long segments)

# Thank you for your attention



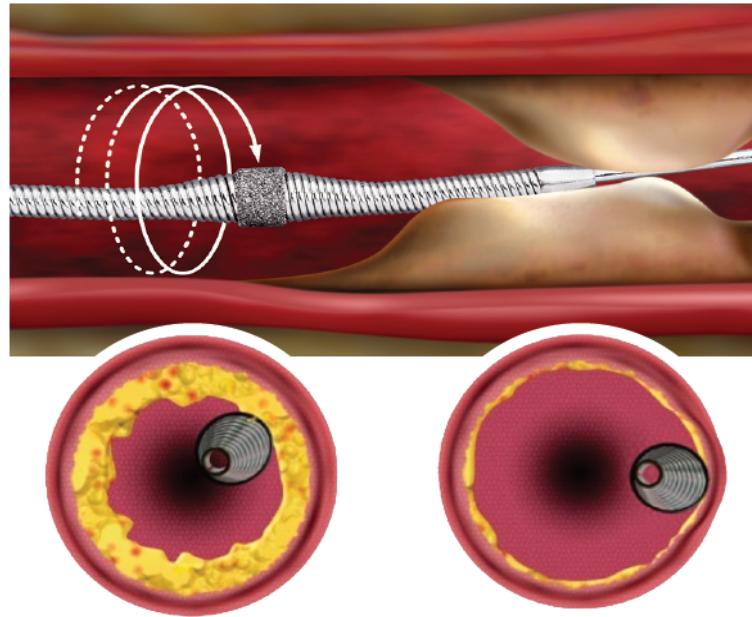
# Backup Slides



# ORBITAL ATHERECTOMY MECHANISM OF ACTION

## ORBITING, BI-DIRECTIONAL, DIAMOND-COATED CROWN

- Single, 6 Fr, 1.25 mm crown treats 2.5 to 4.0 mm vessels<sup>1,2</sup>
  - Eccentrically mounted crown sands hard plaque and deliver pulsatile force °
  - Healthy, elastic tissue flexes away from crown minimize vessel damage
- Continuous flow of blood and saline reduces risk of thermal injury during orbit, minimizing heat damage, slow flow and subsequent need for revascularization<sup>2</sup>
- With Diamondback 360™ Coronary Orbital Atherectomy devices we safely sand the intimal calcium, with average particulate size of 2 µm - which is smaller than a capillary vessel<sup>2</sup>



<sup>1</sup> Based on minimum reference vessel diameter as determined by orbit testing in a carbon block model system

<sup>2</sup> Shlofmitz E, et al. Expert Rev Med Devices. 2017;14:11,867-79.

BEFORE ORBITAL  
ATHERECTOMY

AFTER ORBITAL  
ATHERECTOMY