





# **Meticulous Coronary CT and IVUS Exam Lead to Successful Stumpless CTO Intervention**

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# Clinical Presentation

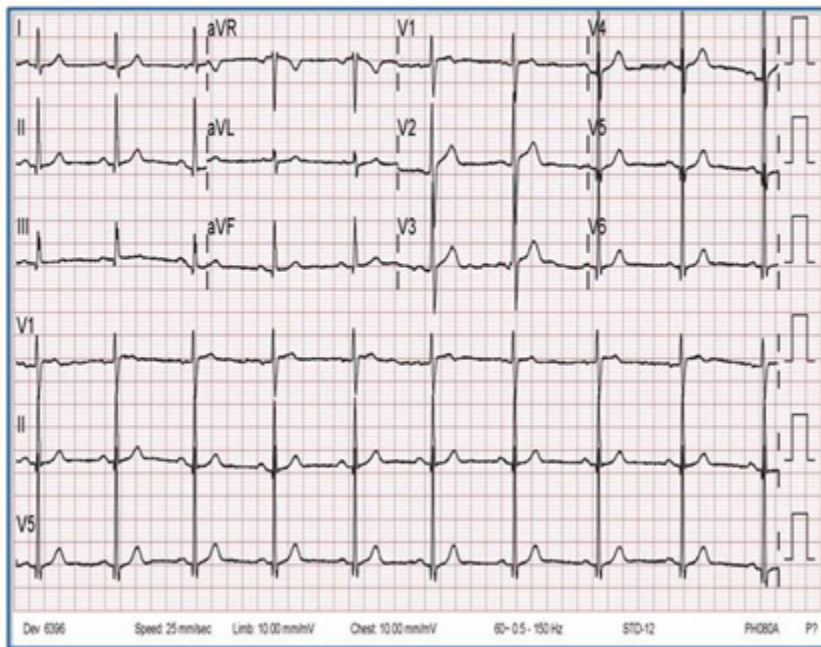


-  **A 50 year old male patient presented with effort chest pain (CCS II) for about 6 months**
-  **He had 20 pack year smoking for coronary risk factor**
-  **BP: 110/60 mmHg, HR: 84/min, RR: 20/min**
-  **CK-MB: 0.5 ng/mL, Troponin-I: 0.05 ng/mL**

# Chest PA



# Electrocardiogram



# Echocardiogram

## 1. Left Ventricle normal

|       |       |    |       |       |    |      |       |    |        |        |    |
|-------|-------|----|-------|-------|----|------|-------|----|--------|--------|----|
| IVSd  | 7.56  | mm | IVSs  | 15.12 | mm | LA   | 40.08 | mm | Aorta  | 31.00  | mm |
| LVIDd | 54.45 | mm | LVIDs | 31.00 | mm | ESV  | 23.74 | mL | EDV    | 79.10  | mL |
| LVPWd | 8.32  | mm | LVPWs | 13.23 | mm | LVEF | 69.99 | %  | LVmass | 155.12 | gm |

## 2. Right Ventricle preserved

|       |  |    |       |  |    |
|-------|--|----|-------|--|----|
| RVIDd |  | mm | RVIDs |  | mm |
|-------|--|----|-------|--|----|

## 3. Mitral Valve mild thickening & calcification

|                 |                    |          |            |                 |             |                  |                      |      |     |      |
|-----------------|--------------------|----------|------------|-----------------|-------------|------------------|----------------------|------|-----|------|
| Peak E vel      | 48.93              | cm/s     | Peak A vel | 38.57           | cm/s        | E/A ratio        | 1.27                 | DT   | 169 | msec |
| septal S'/E'/A' | 8.77 / 7.51 / 8.67 |          |            | cm/s            |             | lateral S'/E'/A' | 11.25 / 11.92 / 7.13 |      |     |      |
| E/E' ratio      | 6.52               | MR grade | Trivial    |                 | MR jet area | cm <sup>2</sup>  |                      | PISA | mm  |      |
| MVA (2D/PHT)    | /                  |          |            | cm <sup>2</sup> |             | PG (max/mean)    | /                    |      |     |      |

## 4. Aortic Valve mild thickening & calcification

|           |         |  |          |      |                  |                   |    |                 |         |    |
|-----------|---------|--|----------|------|------------------|-------------------|----|-----------------|---------|----|
| AR grade  | Trivial |  | Peak vel | 1.34 | m/s              | PG (max/mean)     | /  |                 | mmHg    |    |
| AV TVI    | cm      |  |          |      | AVA (2D/Doppler) | /                 |    | cm <sup>2</sup> |         |    |
| LVOT vel  | m/s     |  | LVOT TVI | cm   |                  | LVOT PG(max/mean) | /  |                 | mmHg    |    |
| LVOT size | mm      |  | Sinus    | mm   |                  | ST junction       | mm |                 | tubular | mm |

## 5. Tricuspid Valve normal

|            |         |  |             |                 |  |             |       |      |           |       |      |
|------------|---------|--|-------------|-----------------|--|-------------|-------|------|-----------|-------|------|
| TR grade   | Trivial |  | TR jet area | cm <sup>2</sup> |  | Peak TR vel | 2.07  | m/s  | PG(RV-RA) | 17.14 | mmHg |
| Peak E vel | cm/s    |  | Peak A vel  | cm/s            |  | S' vel      | 10.23 | cm/s | TAPSE     | 20.42 | mm   |

## 6. Pulmonic Valve normal

|          |         |    |             |        |      |               |     |  |          |    |  |
|----------|---------|----|-------------|--------|------|---------------|-----|--|----------|----|--|
| PR grade | Trivial |    | Peak PR vel | m/s    |      | PR ED vel     | m/s |  | MPA size | mm |  |
| RVOT TVI | 19.8    | cm | AT          | 147.88 | msec | PG (max/mean) | /   |  | mmHg     |    |  |

## Conclusion

1. Normal LV systolic function.
2. Relaxational abnormality of LV filling pattern (Grade I).

# Exercise EKG

0 20012

31

00

44 ym

31

00

PRETEST

DRIVE

31

00

100%/min

STAGE 2

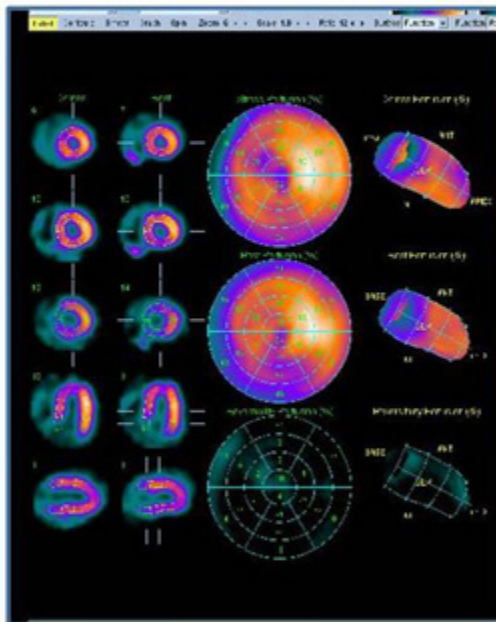
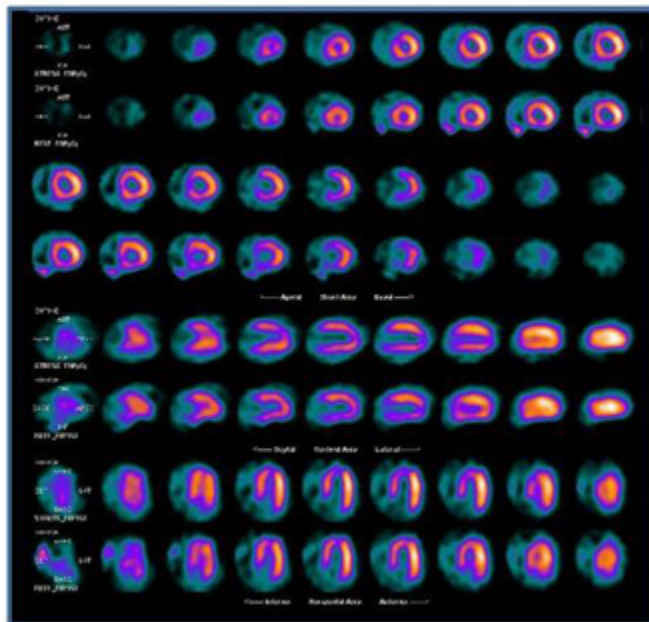
524

44 km/h

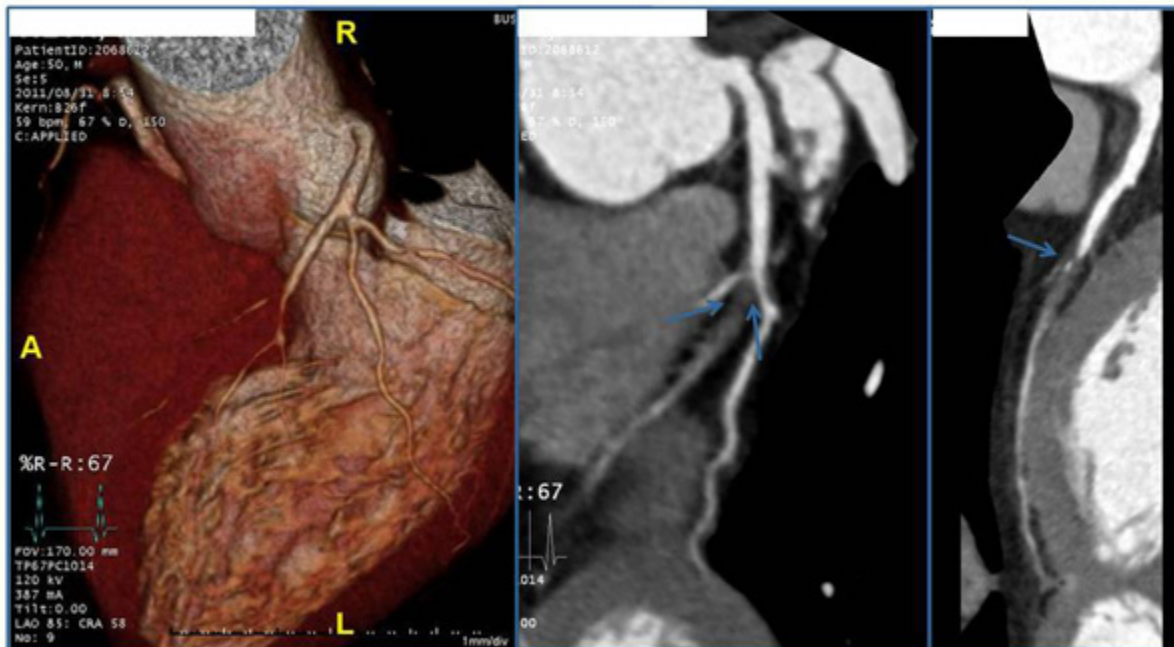
12.0%



# Myocardial Perfusion Scan

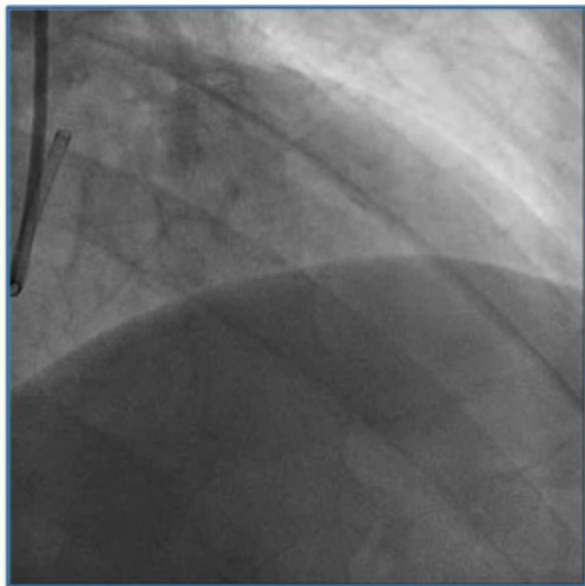


# Coronary CT

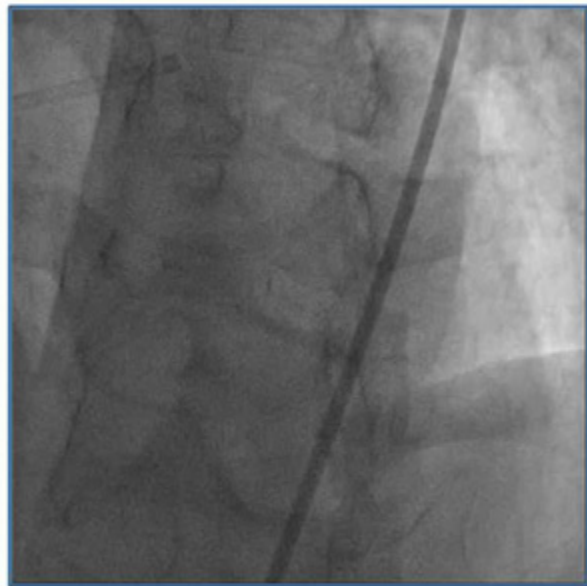




# Baseline Coronary Angiogram



# Baseline Coronary Angiogram

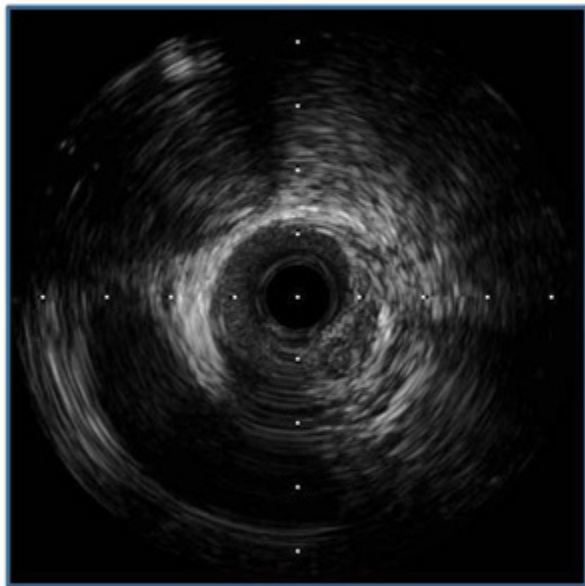


8F Left XB 4.0 and 5F JR 4.0

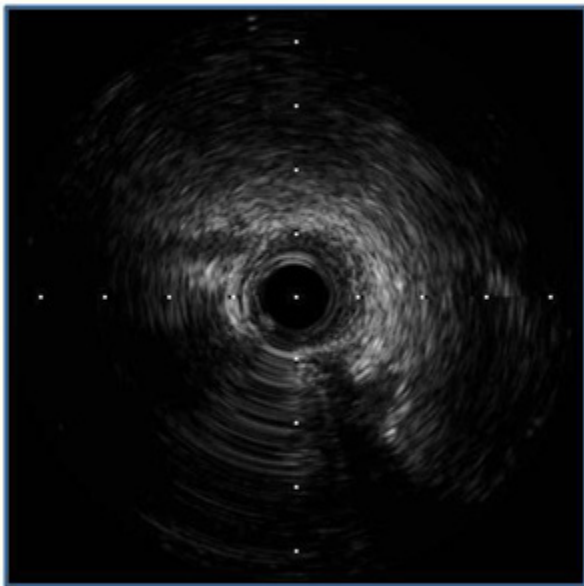
# CTO Intervention Plan

- First, IVUS guided antegrade approach
- Second, retrograde approach

# Baseline IVUS

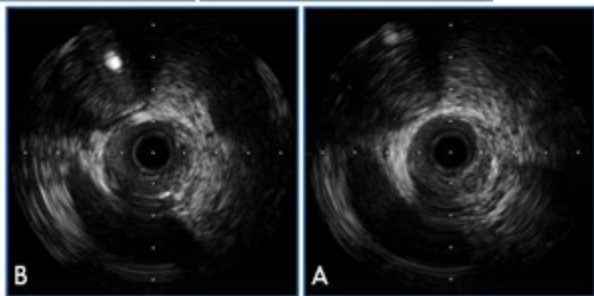
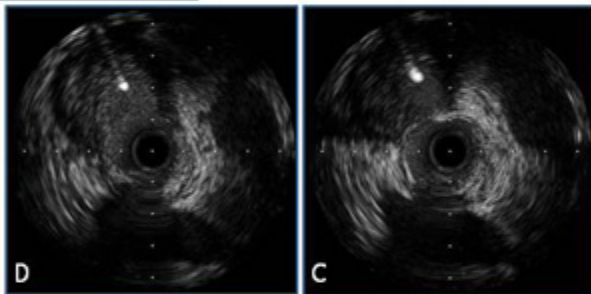
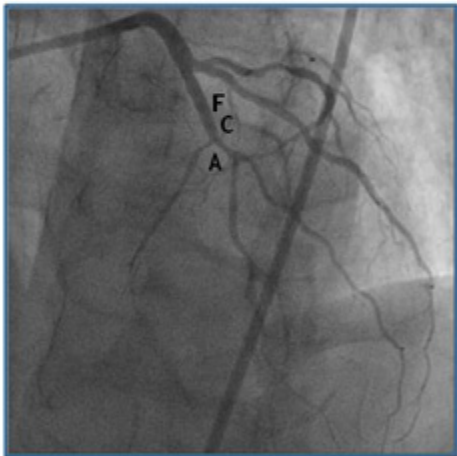
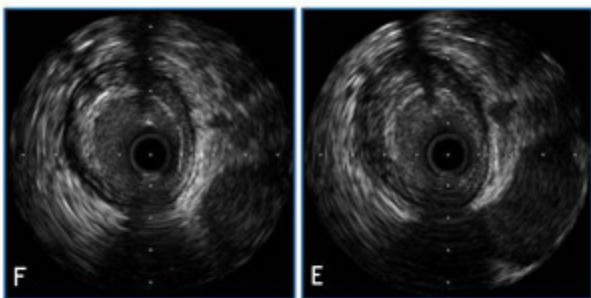


From diagonal br. to LAD

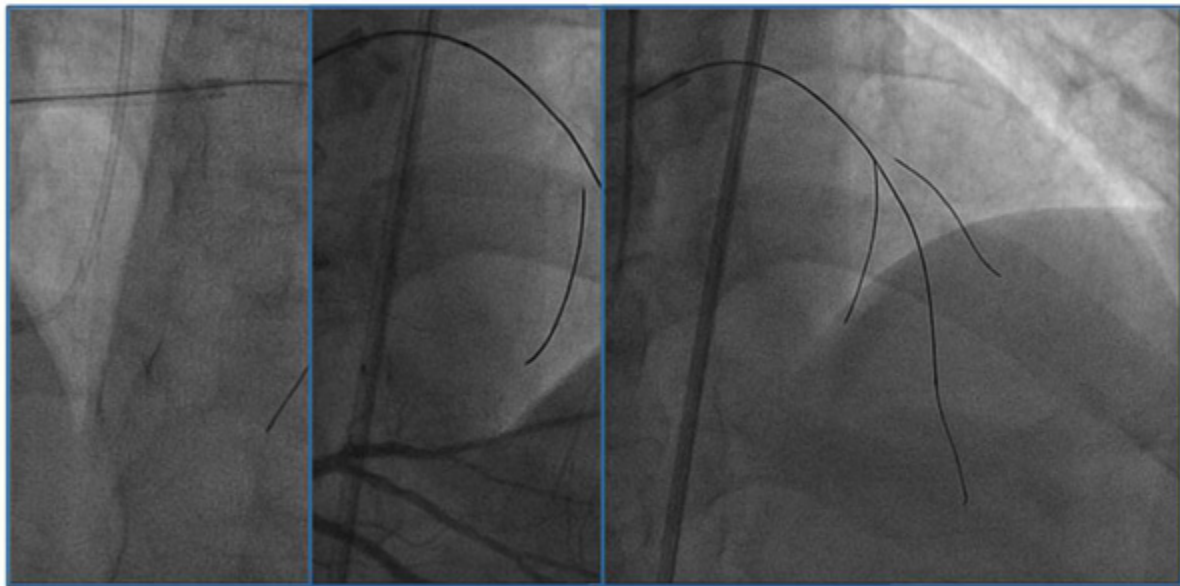


From septal br. to LAD

# Baseline IVUS



# IVUS Guided CTO Intervention

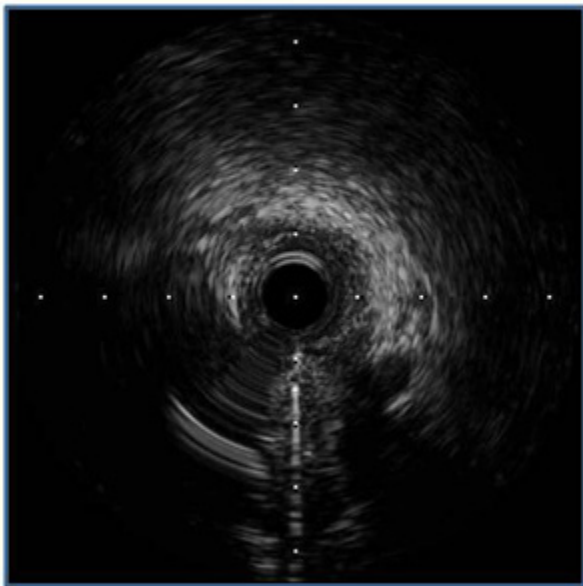
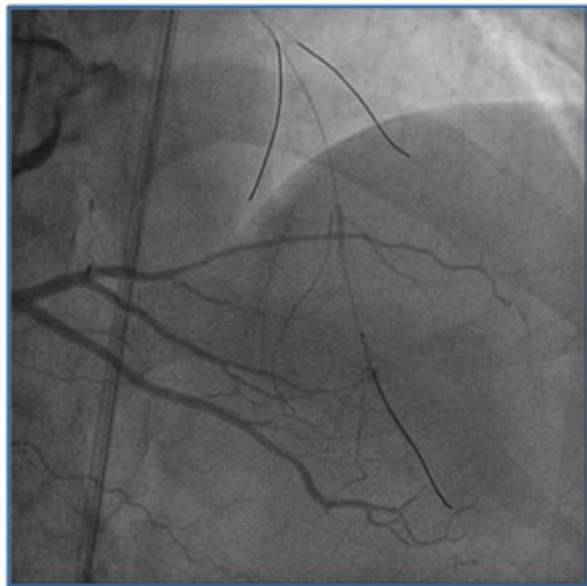


Fielder XT (Asahi)

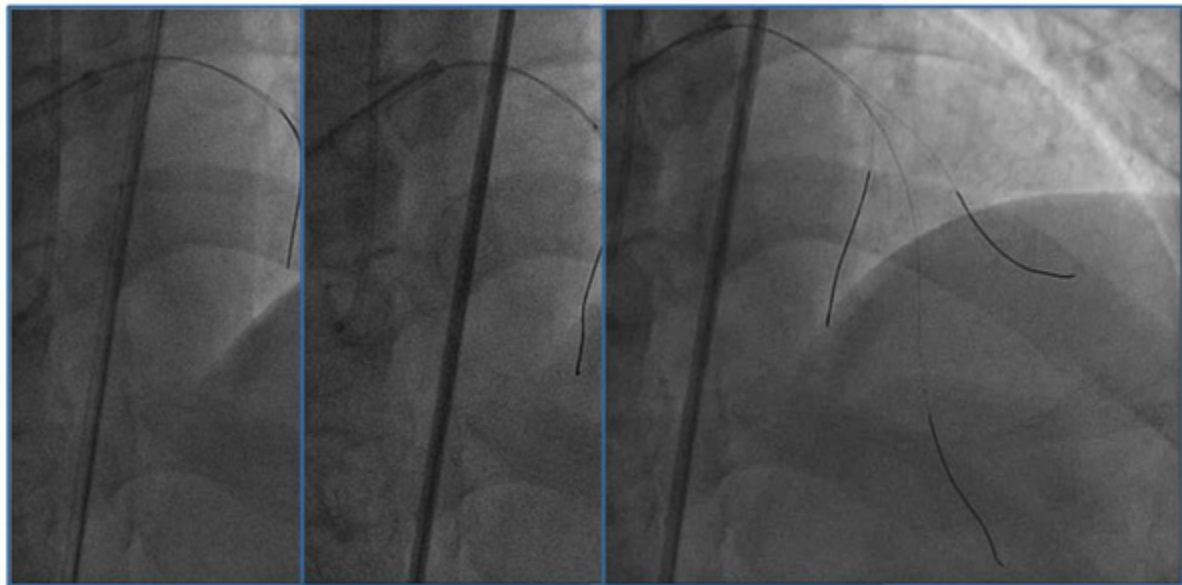
Miracle 6g (Asahi)

Miracle 6g (Asahi)

# IVUS Guided CTO Intervention



# Pre balloon dilatation

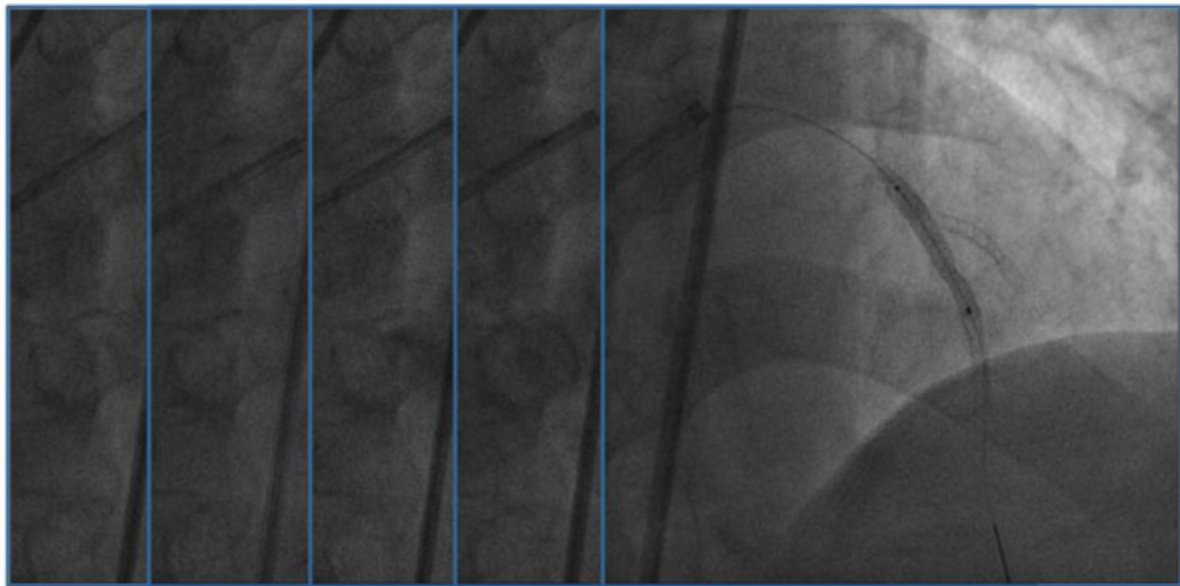


Sprint legend 1.5x1.

Trek 2.0x30 mm (Abbott)

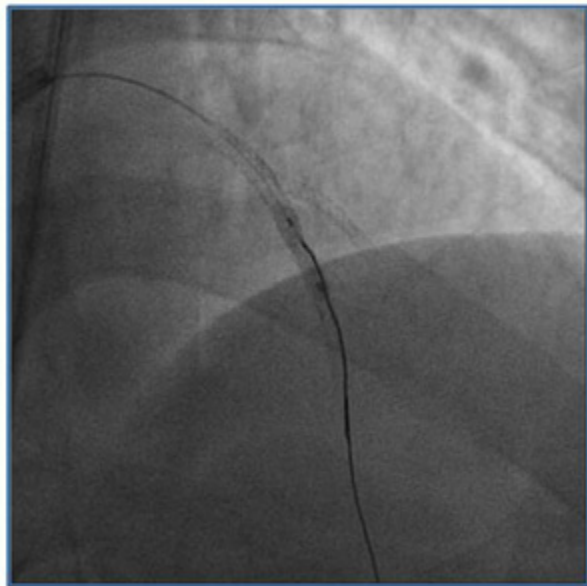


# Stenting

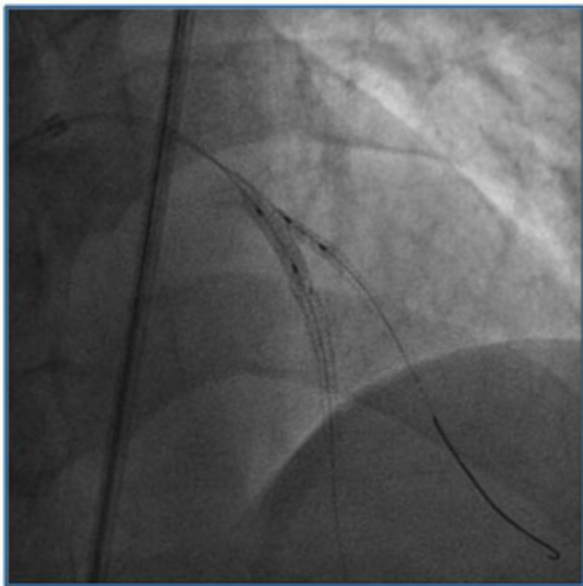


I Maverick Xience : Xience 3 Xience 3.5 x 23 /Xience 2.75 x 23 mm

# Post balloon dilatation

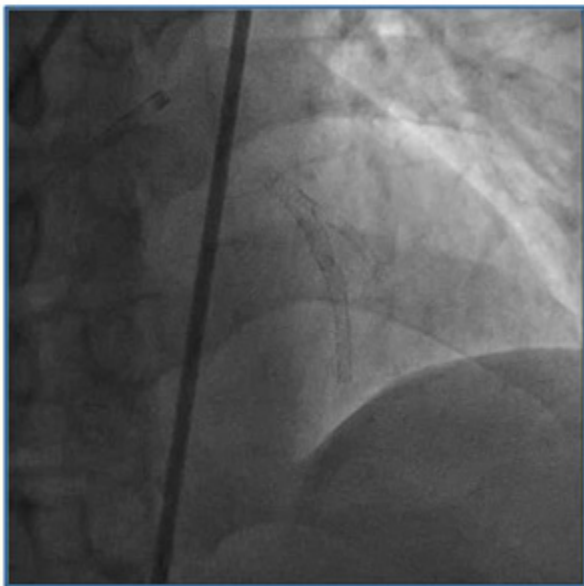
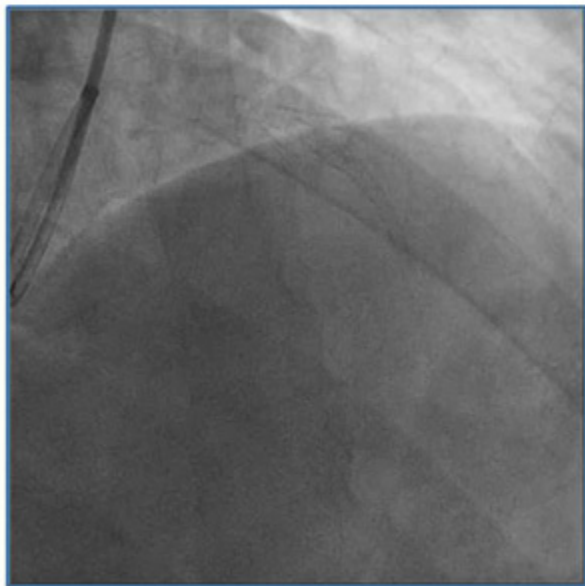


Quantum 3.5 x 15 mm



Quantum 3.5 x 15/Quantum 2.5 x 12 mm

# Final Results



# Final Results

