Biofreedom Ultra in chronic total oclusion. Clinical case.

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Biofreedom Ultra in CTO.

- **Clinical data:**
  - 62 y.o. man.
  - CVRF: Ex-smoker, Diabetes type 2, hypertension.
  - Paroxismal atrial fibrillation on anticoagulant treatment (rivaroxaban 20 mg)
  - Current admision:
    - Pulmonary edema related to hypertensive emergency.
      - Intubation + mechanical ventilation.
      - Echocardiogram: severe left ventricular dysfunction (LVEF 15%) with global hypokinesia.
      - Low dose of inotropic drugs.
      - After 24 h improvement of clinical condition: coronariography.

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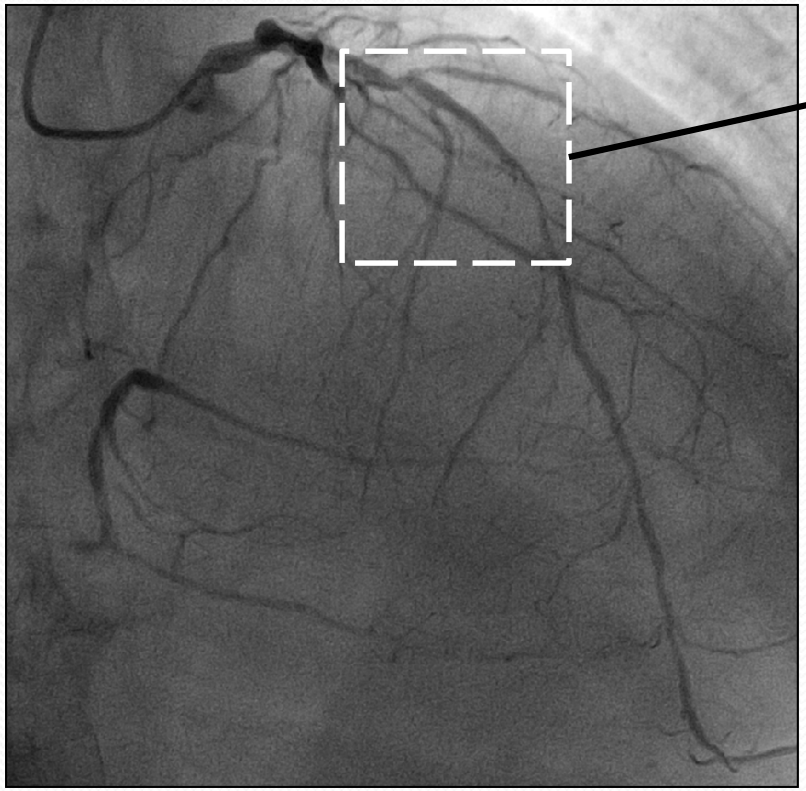
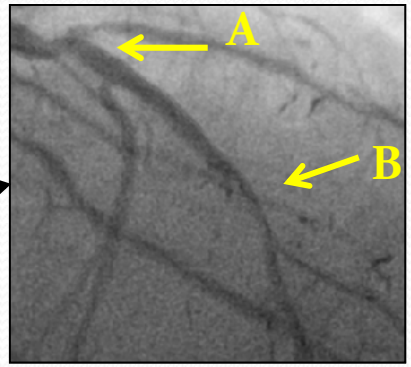
- **Coronariography:**





- LAD:
  - A) Moderate lesion in bifurcation with first diagonal.
  - B) Severe stenosis in mid LAD.
- CX: no significant lesion.

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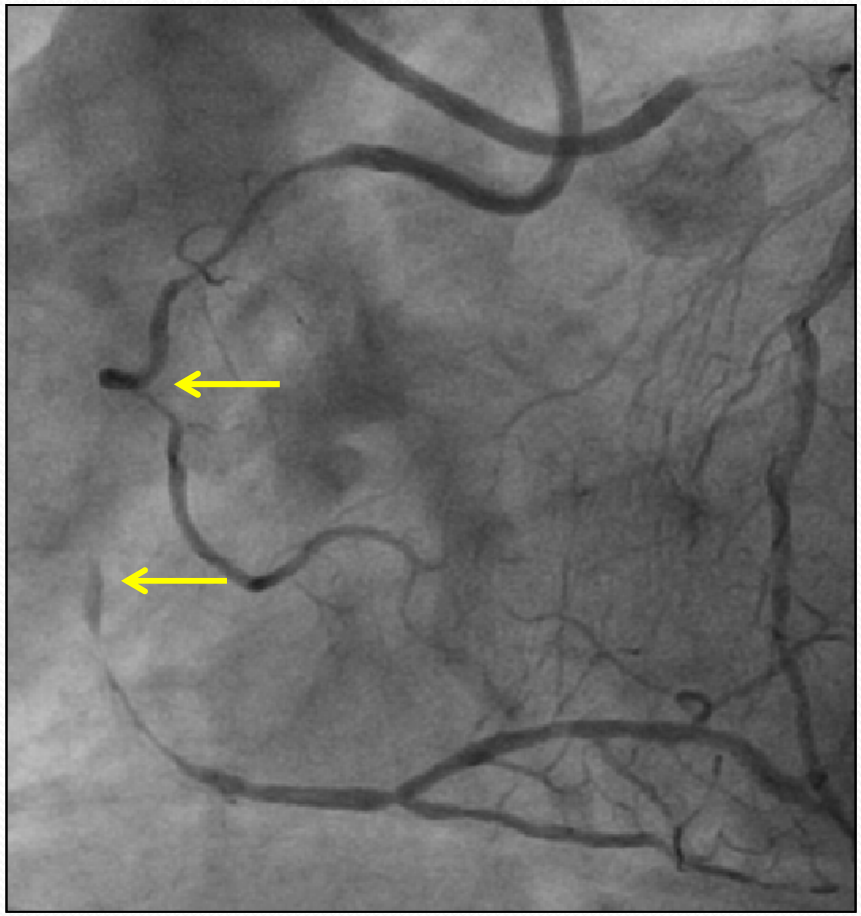
- **Coronariography:**



RCA:

- Chronic total oclusion in middle segment.
- Excellent distal vessel.
- Difuse disease into proximal segment of RCA.
- Blunt proximal cap.

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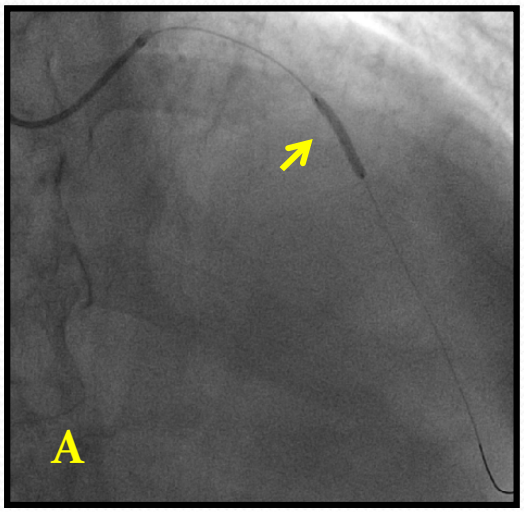
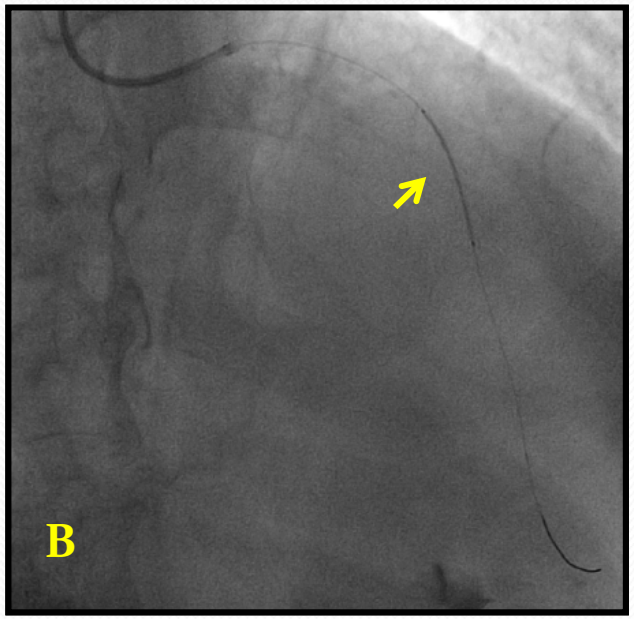
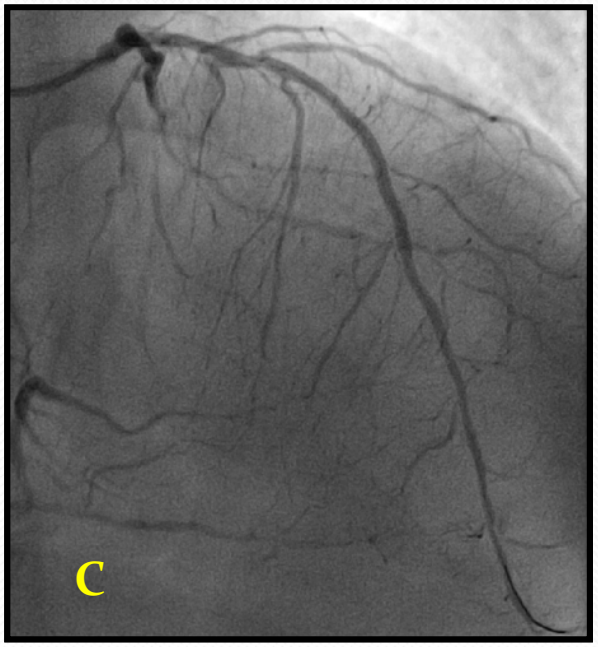
- **Coronary treatment:**

LAD treatment:

- A) Predilatation with semi-compliant ballon 2,5 x 20 mm.
- B) Implant of Biofreedom Ultra 2,75 x 24 mm stent.
- C) Final result.







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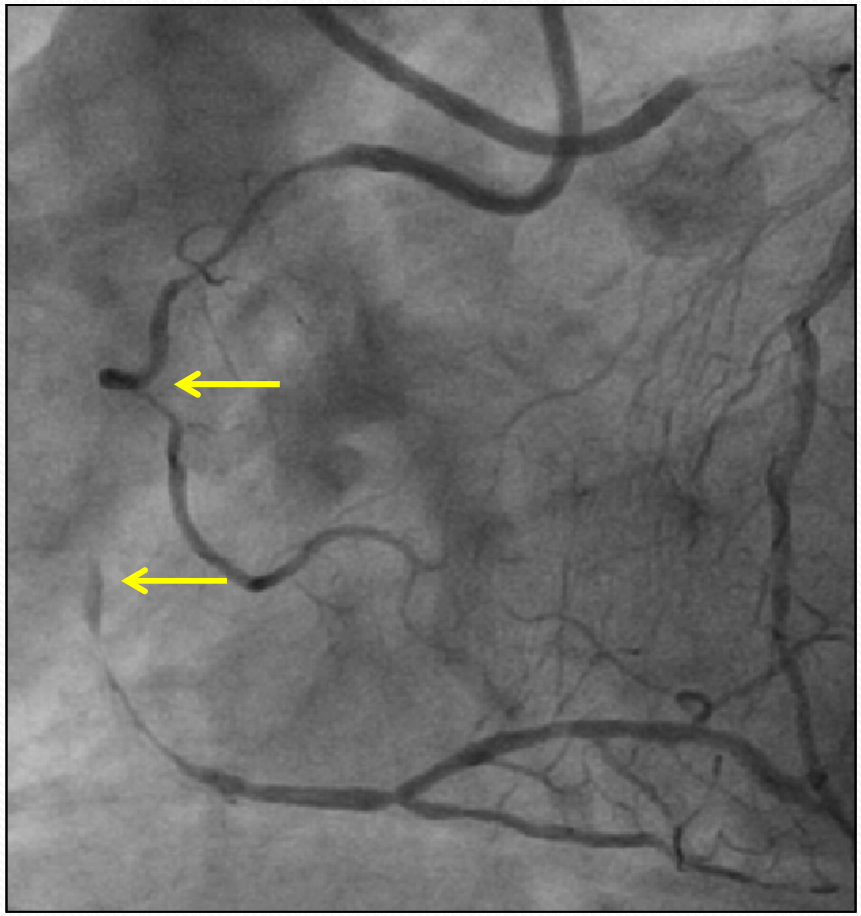
- **Coronary treatment:**



RCA treatment:

- Previous considerations:

- After the treatment of the LAD, the patient improves LVEF.

- The echo shows hypokinesia of the inferior and posterior LV wall. No dyskinesia or wall thinning are visualized. Viability of the territory is assumed.

- Due to the anatomical characteristics of the lesion (blunt stump, long lesion, good collaterals, good distal vessel), the retrograde approach is the preferred strategy.

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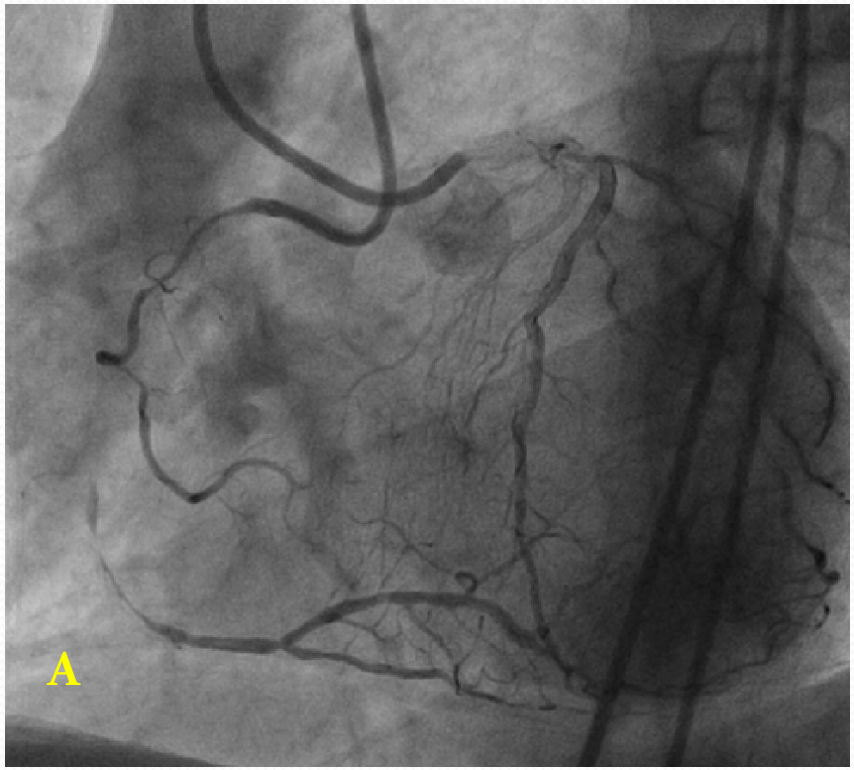
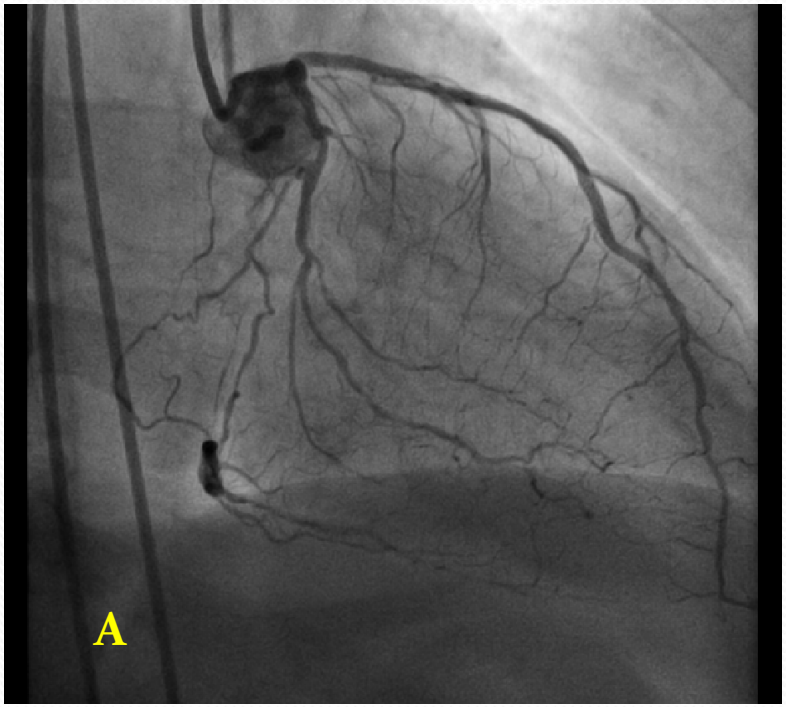
- **Coronary treatment:**



RCA treatment:

- A) Dual injection:
  - Bifemoral approach
  - Double guiding catheter:
  - 7French AR2 & JL4 80 cm SH.



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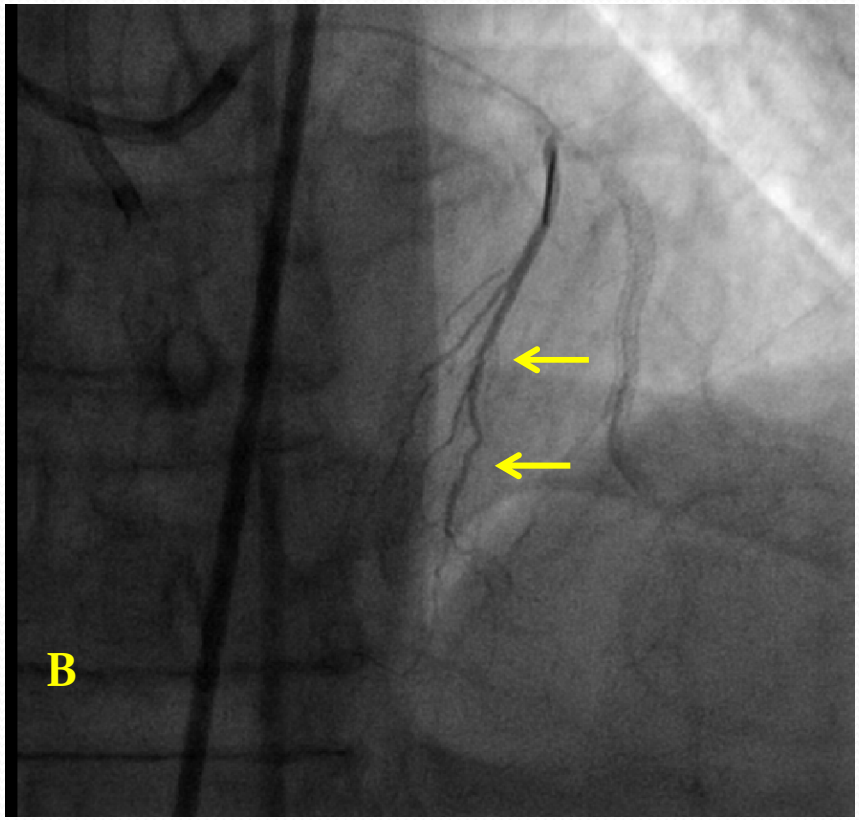
- **Coronary treatment:**



RCA treatment:

- B) Selective septal injection in LAD:
  - Corsair LP
  - Good collateral branches for retrograde approach

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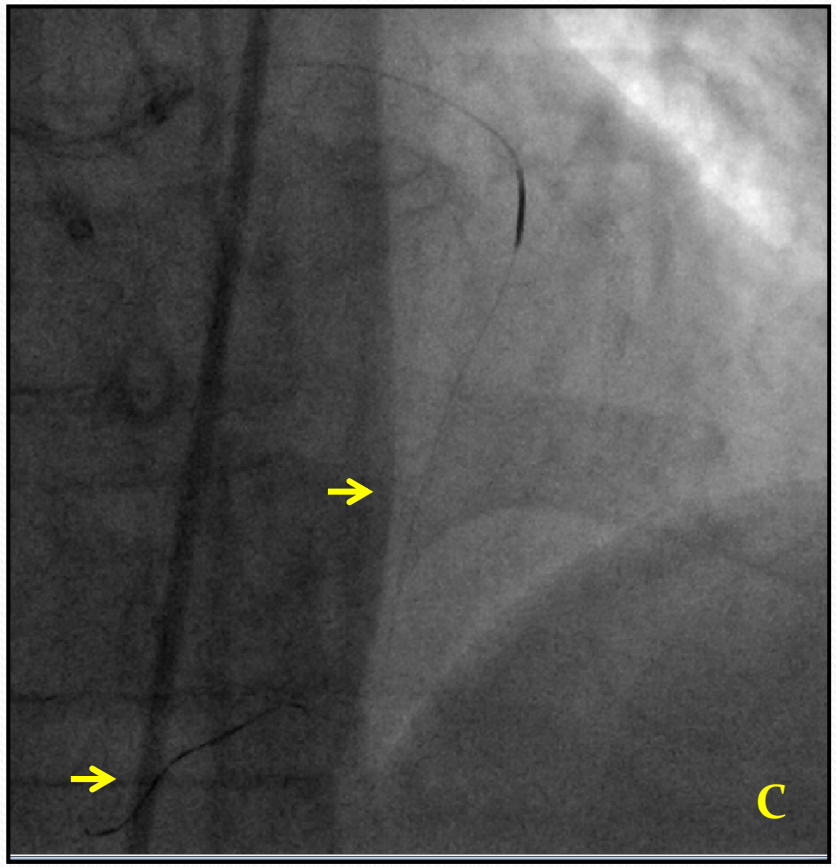
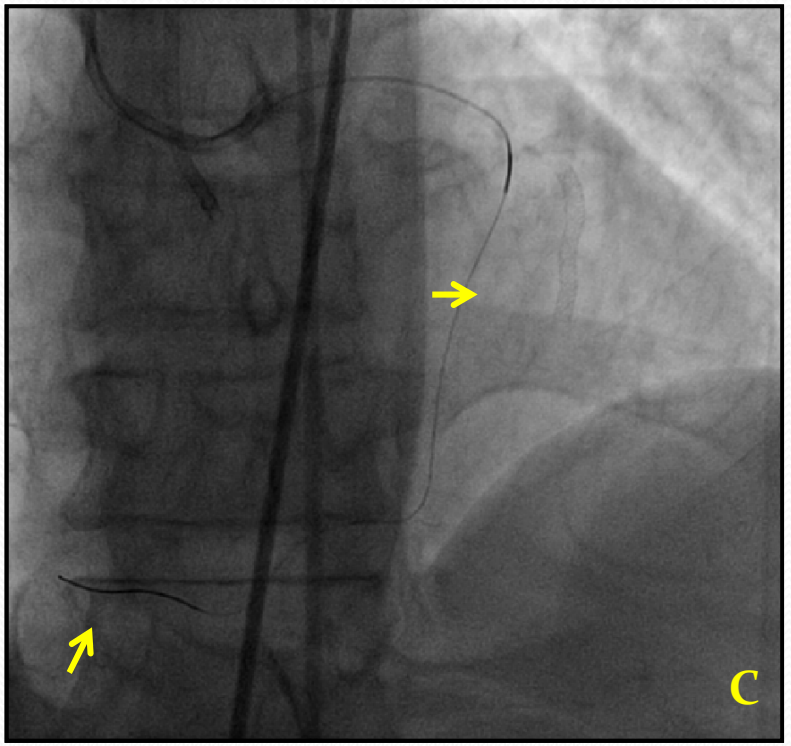
- **Coronary treatment:**



RCA treatment:

- C) Selective wiring of septal branch in LAD:
  - Sion wire over Corsair LP



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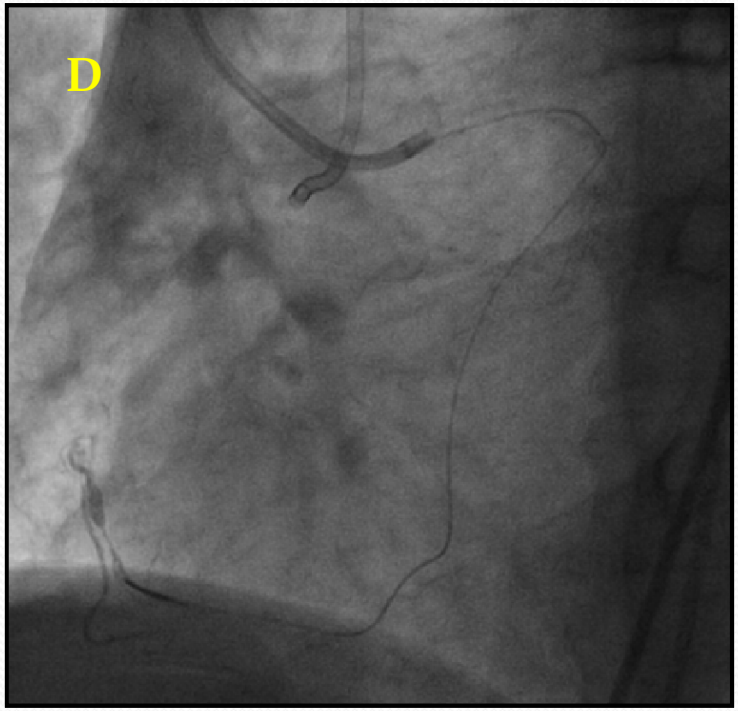
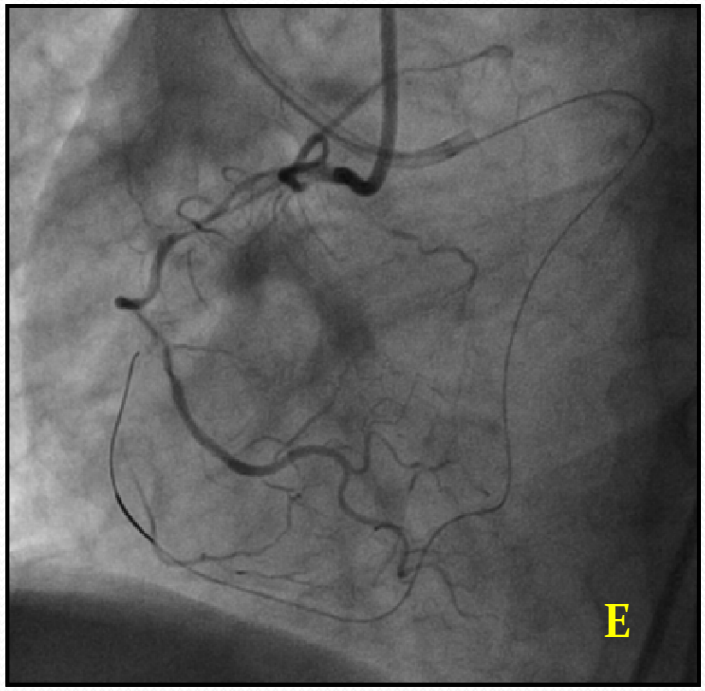
- **Coronary treatment:**



RCA treatment:

- D) Advance of Corsair :
  - Selective injection through Corsair LP

- E) Injection in RCA. Wire advancing into CTO



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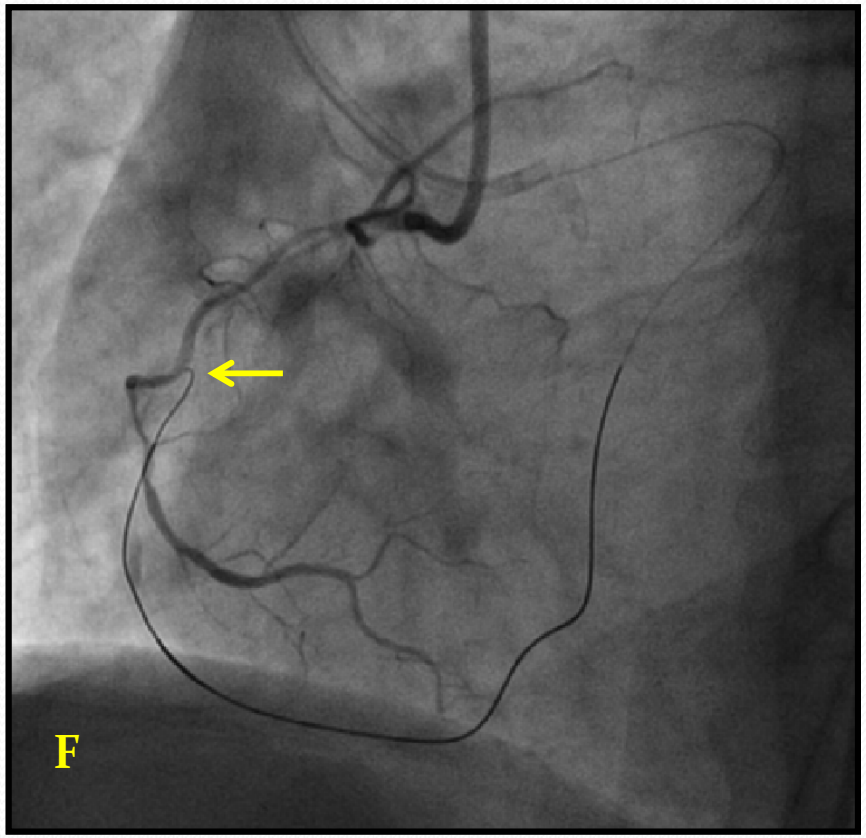
- **Coronary treatment:**



RCA treatment:

- F) Retrograde approach:
  - Gaia Second wire reaches distal cap.
  - Imposible to enter the proximal vessel.

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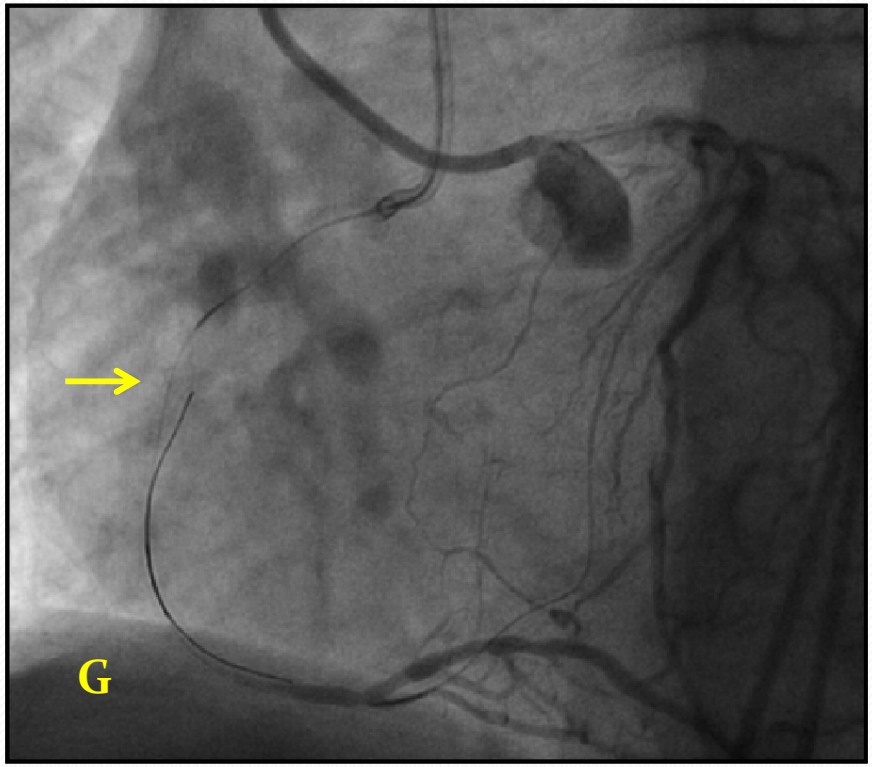
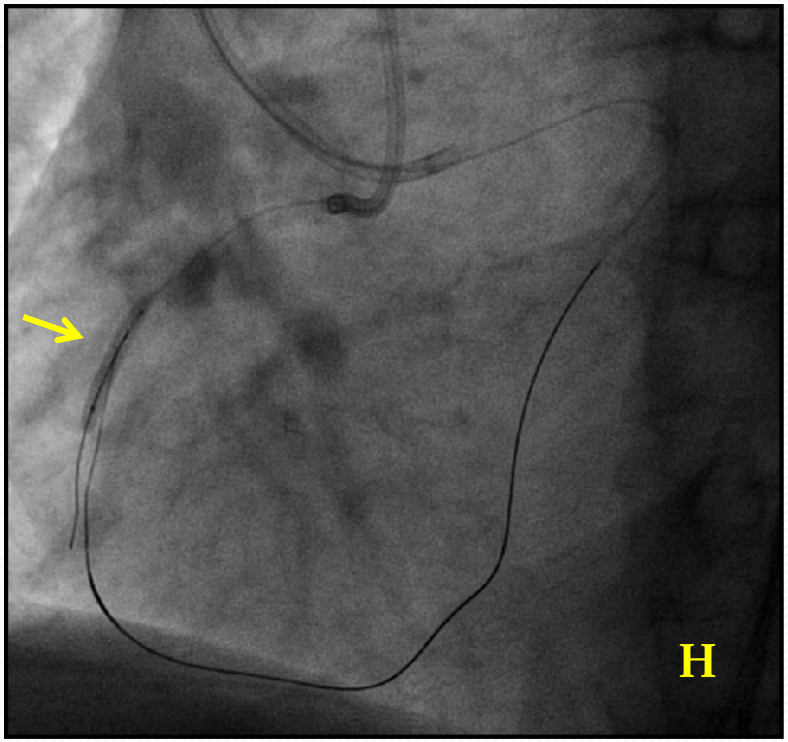
- **Coronary treatment:**



RCA treatment:

- G) CART reverse technique:
  - Antegrade advance of Progress 8o wire into occlusion.
- H) CART reverse technique:
  - Antegrade ballon into the occlusion



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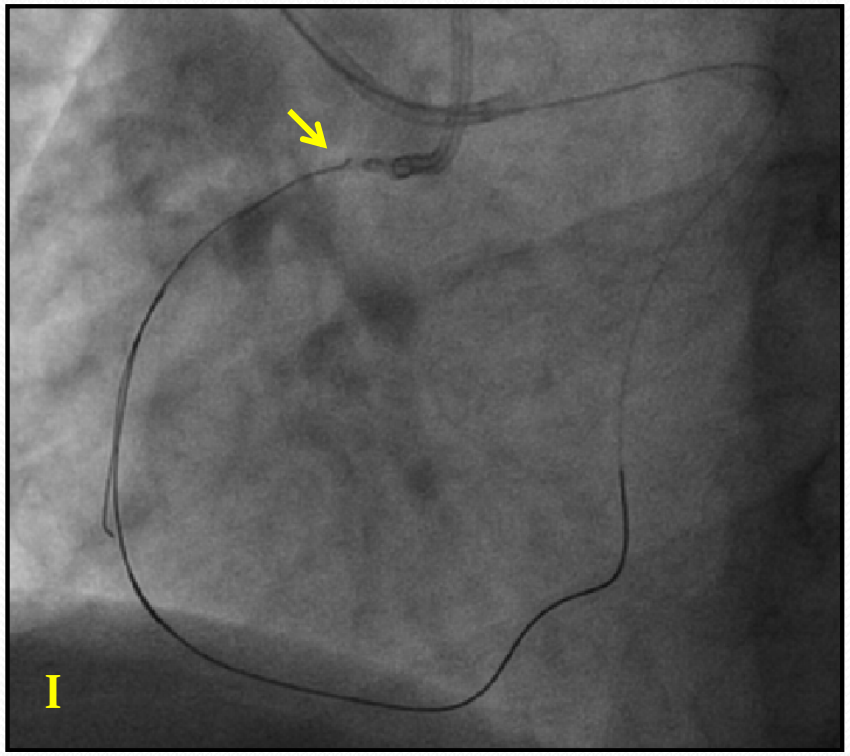
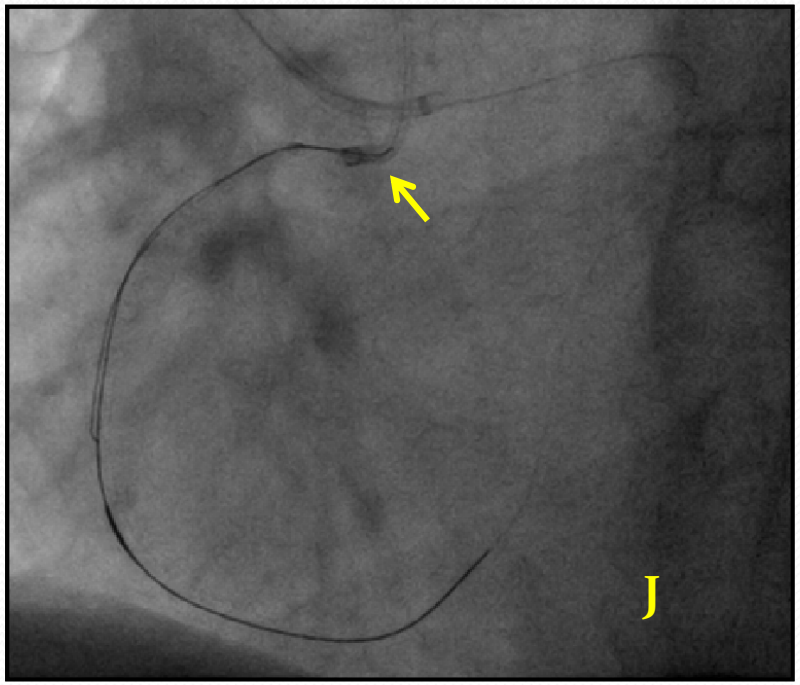
- **Coronary treatment:**



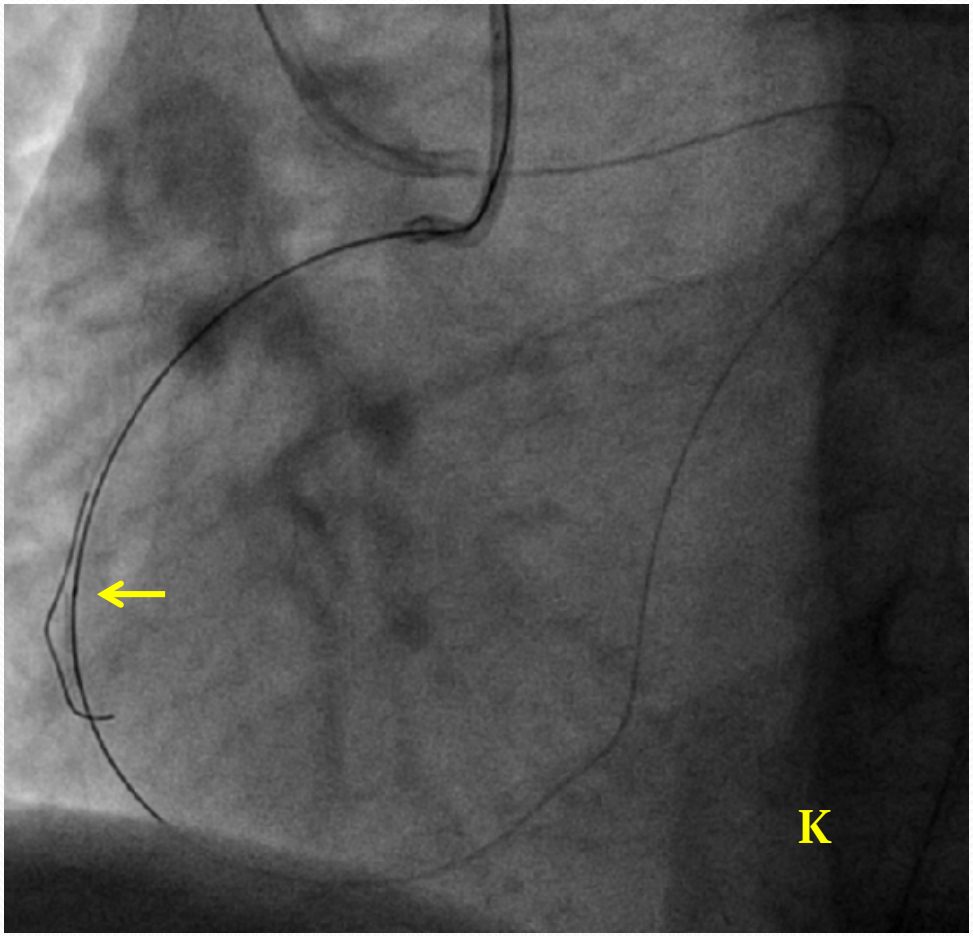
RCA treatment:

- I) CART reverse technique:
  - Succesful retrograde crossing of proximal cap and wiring into proximal vessel (Sion wire).
- J) CART reverse technique:
  - Succesful access to antegrade guiding catheter.



Biofreedom Ultra in CTO.

- **Coronary treatment:**



RCA treatment:

- K) CART reverse technique:
  - Impossible to cross distal cap with the retrograde microcatheter, despite ballon trapping into the antegrade catheter.
  - 1,5 mm balloon advanced from the retrograde approach to the distal cap.
  - Classical CART technique into the distal cap (arrow).

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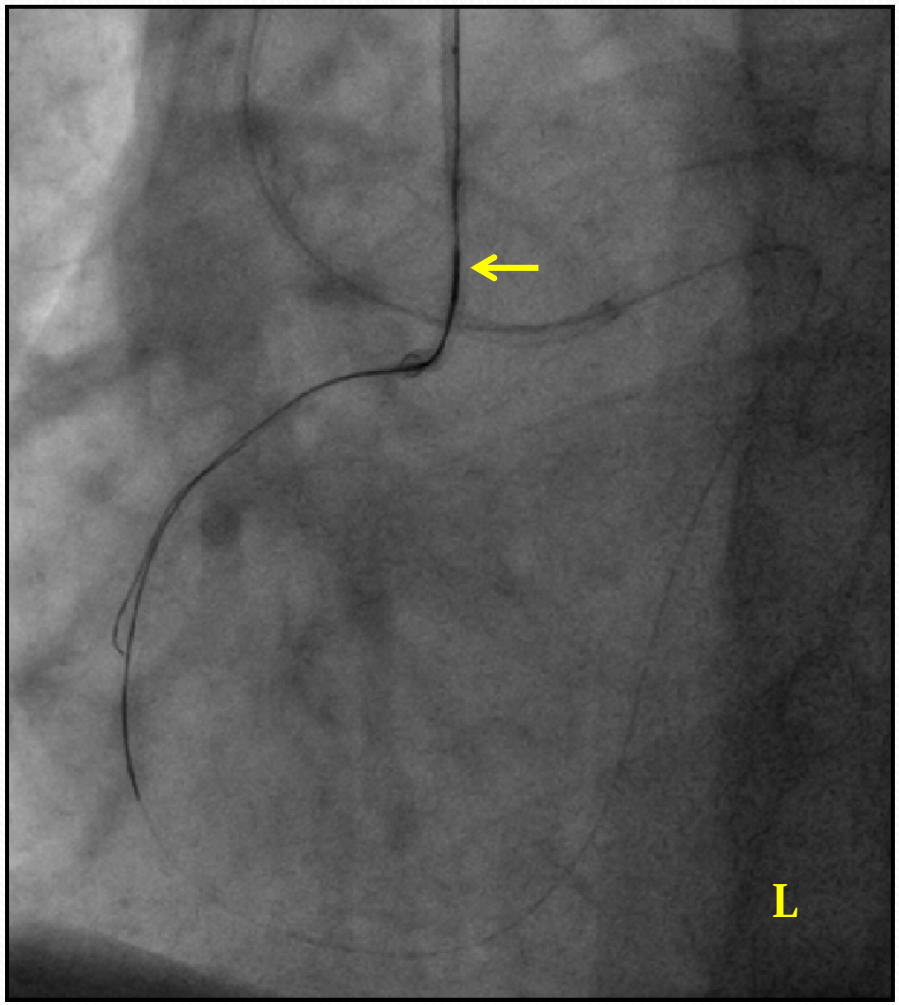
- **Coronary treatment:**



RCA treatment:

- L) CART reverse technique:
  - After Cart, gently advance of the retrograde microcatheter to the antegrade guiding catheter (arrow).

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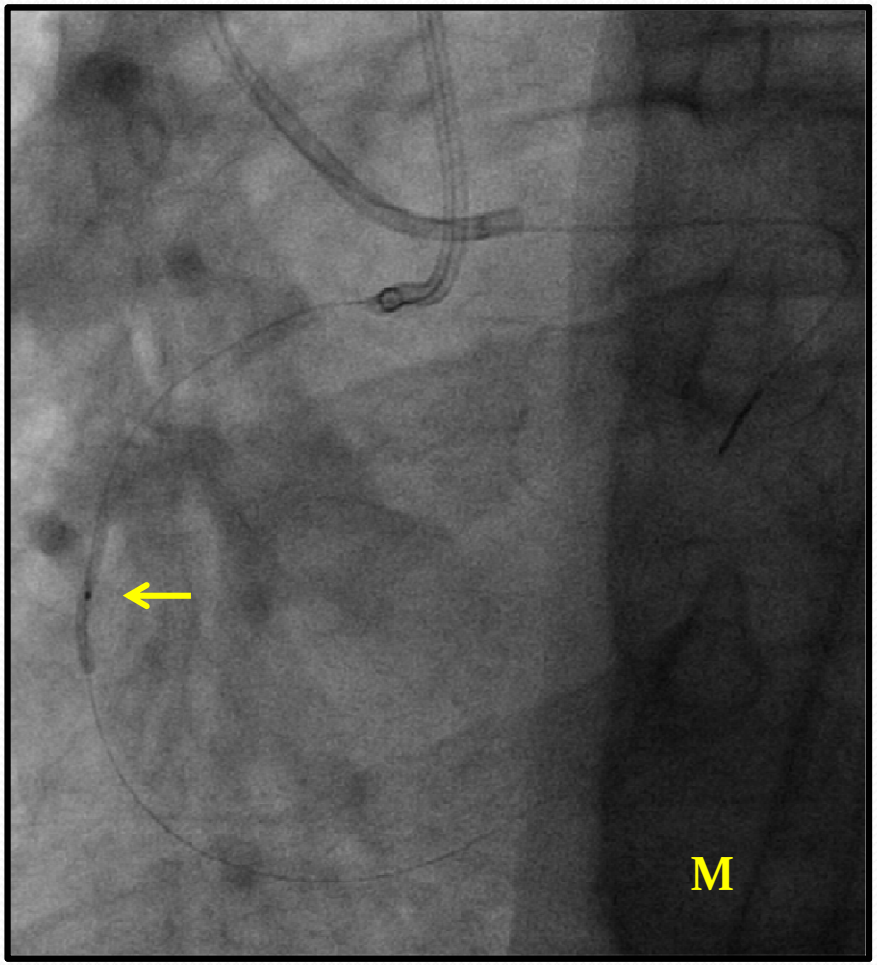
- **Coronary treatment:**



RCA treatment:

- M) CART Reverse technique:
  - Wire externalization (RG3 wire)
  - Antegrade treatment of the lesion through the RG3 wire:
  - 1.5 mm balloon dilatation into the occlusion (arrow)

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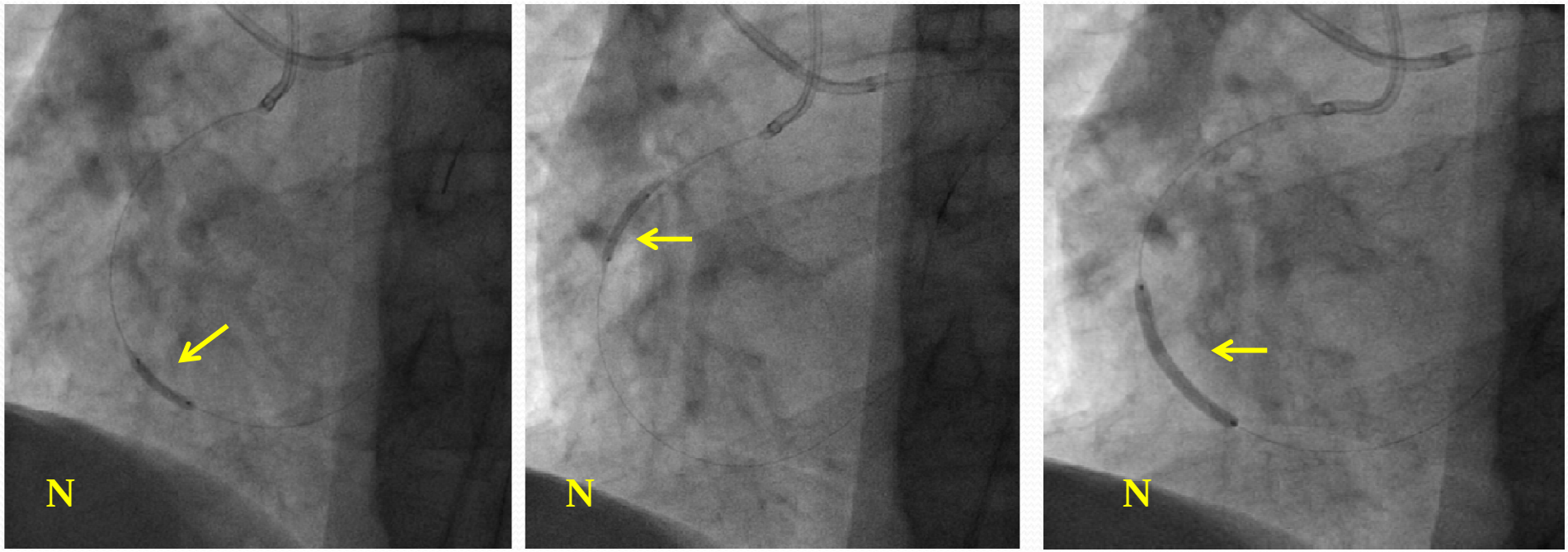
- **Coronary treatment:**

RCA treatment:

- N) Balloon dilatation:
  - Multiple inflations into the lesion with 2.5 and 3.0 balloons (arrows).

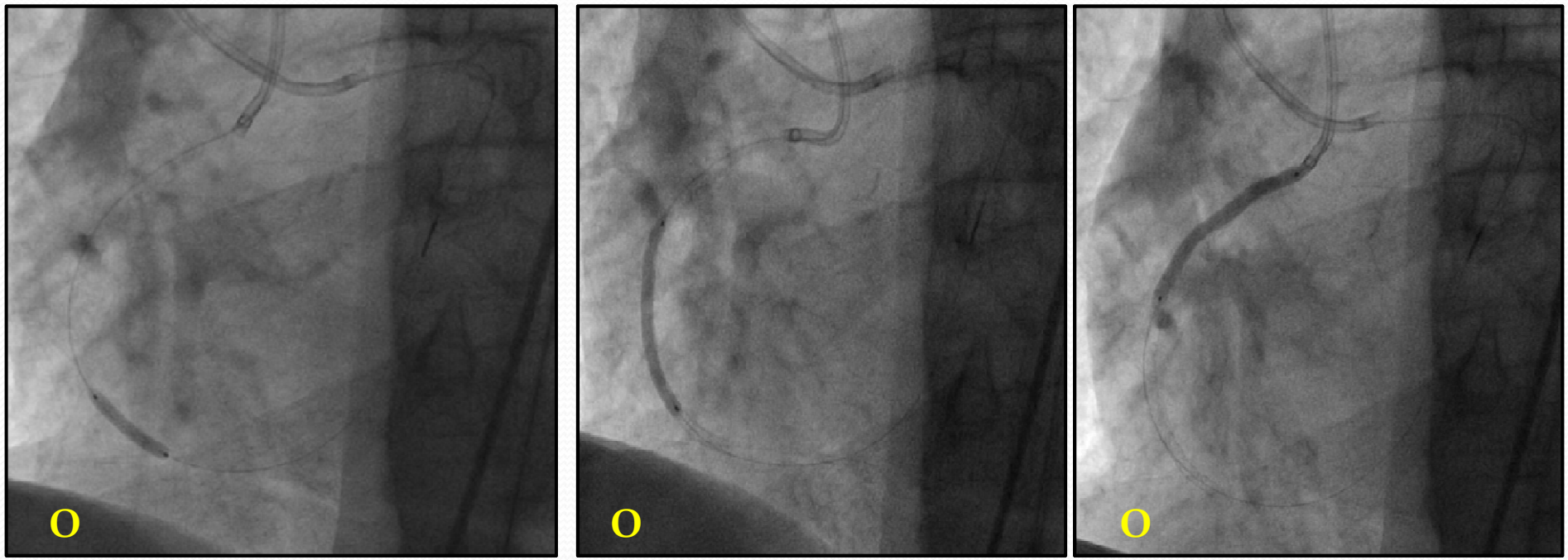


Biofreedom Ultra in CTO.

- **Coronary treatment:**

RCA treatment:

- O) Stent implantation:
  - Implant of 2.5 x 19, 3.0 x 36 and 3.5 x 36 mm overlapped Biofreedom Ultra® stents from distal to ostial RCA.



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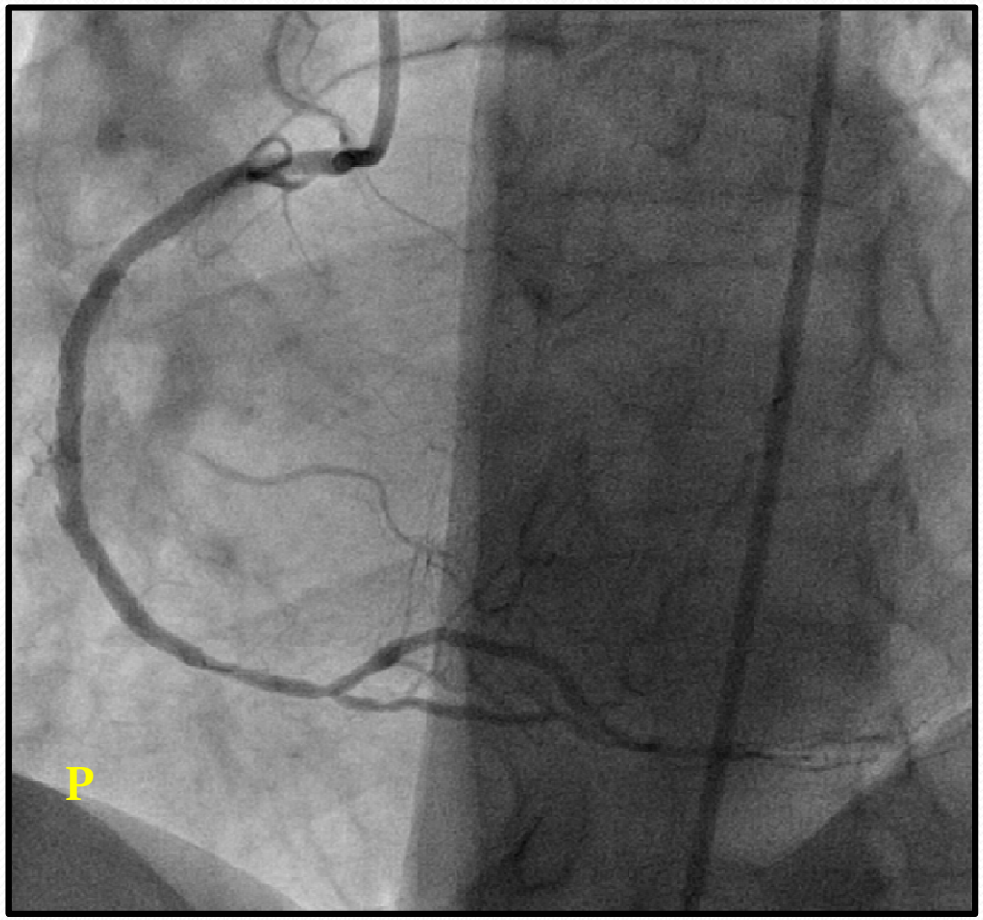
- **Coronary treatment:**

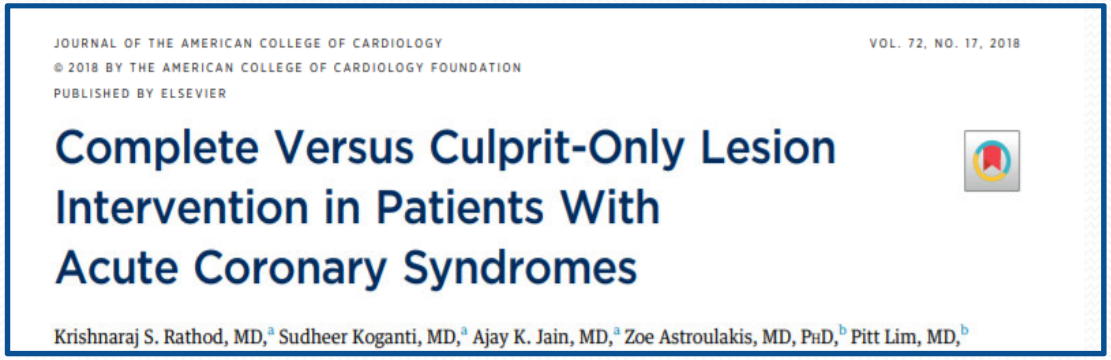


RCA treatment:

- P) Final result:
  - Patent RCA with TIMI 3 distal flow.

Biofreedom Ultra in CTO.

- **Discussion:**
  - Multivessel disease in patients with clinical instability and cardiogenic shock is a challenging scenario.
  - Complete revascularization has been shown to improve the prognosis of patients with multivessel disease, both with surgical or PCI treatment.


JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY VOL. 72, NO. 17, 2018
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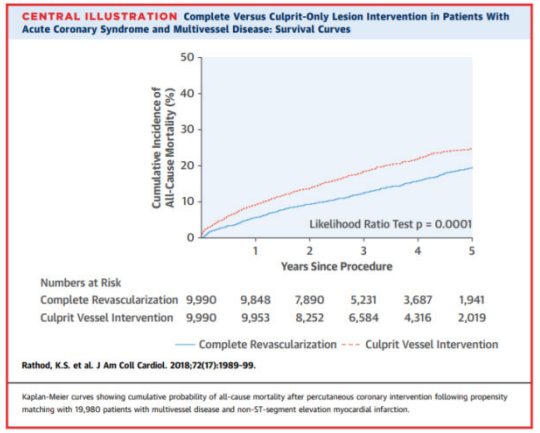
Complete Versus Culprit-Only Lesion Intervention in Patients With Acute Coronary Syndromes

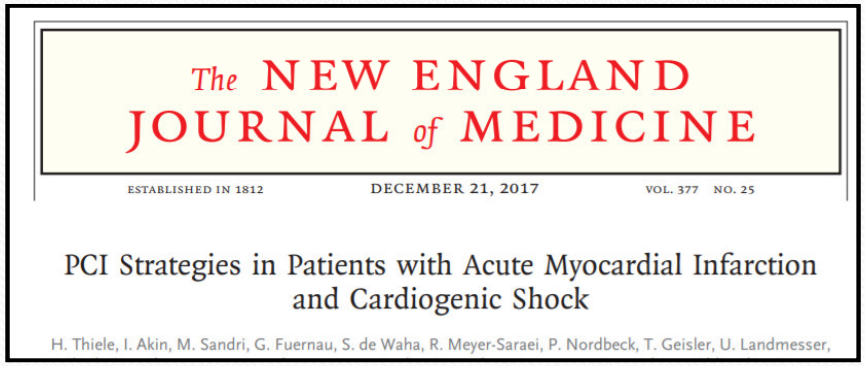
Krishnaraj S. Rathod, MD,[a] Sudheer Koganti, MD,[a] Ajay K. Jain, MD,[a] Zoe Astroulakis, MD, PhD,[b] Pitt Lim, MD,[b]

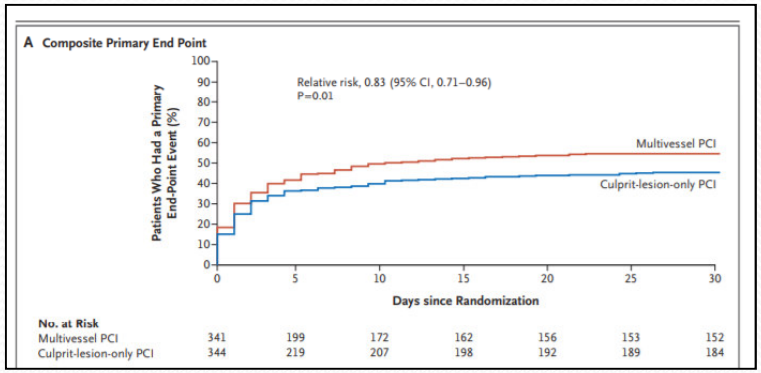


Biofreedom Ultra in CTO.

- **Discussion:**

  - However, recent studies have shown that the best strategy is to defer the treatment of non-culprit lesions.

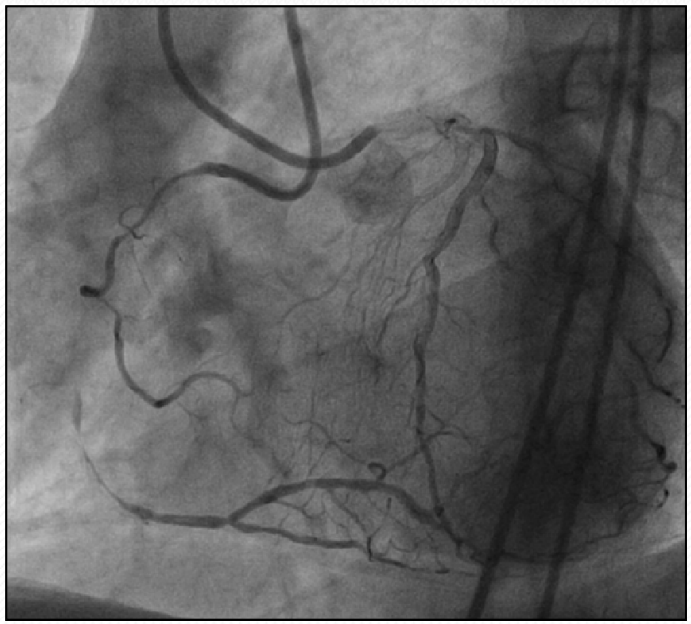




  - CULPRIT-SHOCK trial led to a change in the ESC revascularization guidelines, which now advise against routine revascularization of non–infarct-related artery (non-IRA) lesions during primary PCI (class IIIB recommendation)

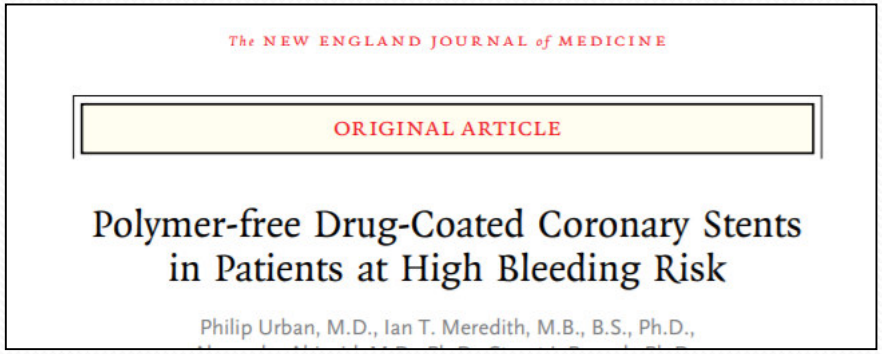
Biofreedom Ultra in CTO.

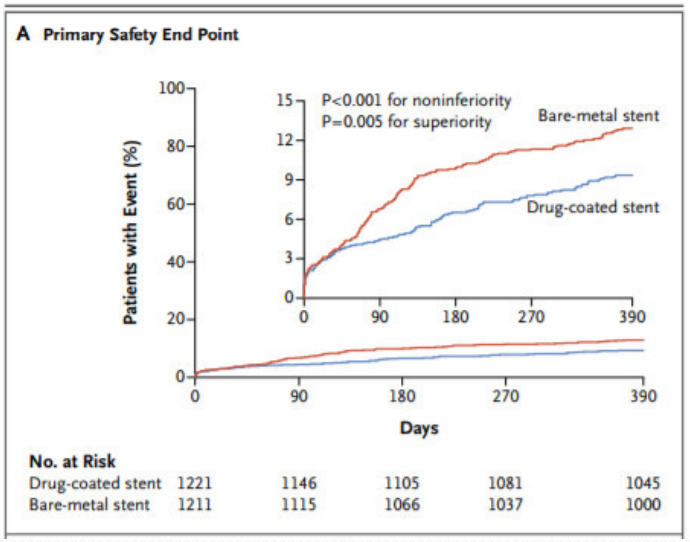
- **Discussion:**
  - Although there are no randomized control studies demonstrating the improvement of survival after the treatment of CTO lesions, in the setting of multivessel disease and viability of the affected territory, it seems a reasonable strategy to complete the revascularization of the CTO arteries.



Biofreedom Ultra in CTO.

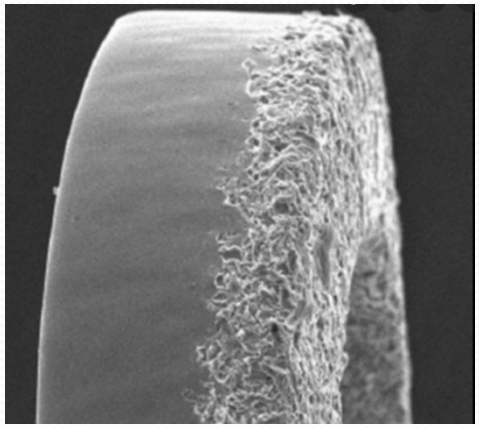
- **Discussion:**
  - Biofreedom has shown excellent results in the setting of patients with high risk of bleeding (aged, oral anticoagulation, prior stroke…), similar to the one presented in our case.

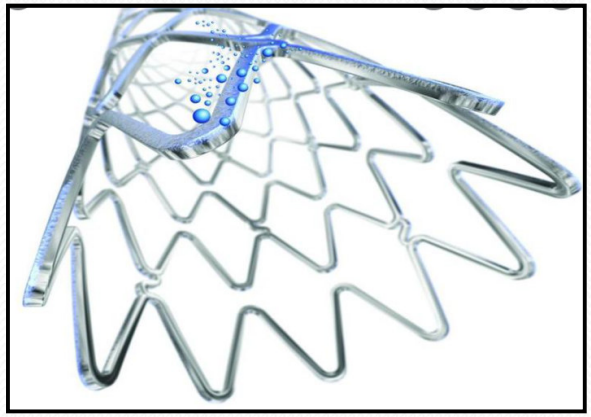




Biofreedom Ultra in CTO.

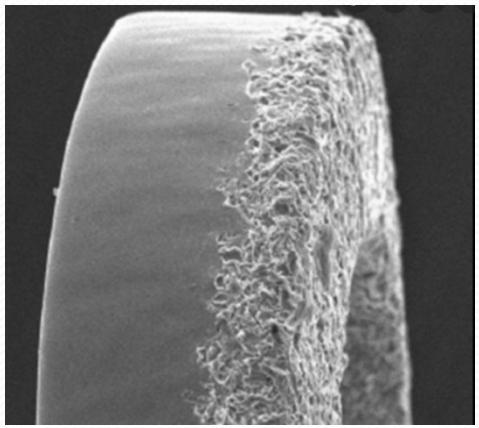
- **Discussion:**
  - Biofreedom Ultra has improved the stent design of the previous Biofreedom (chromo-cobalt alley, thinner struts, better deliverability), allowing a better access to challenging lesions (calcified, tortuous), maintaining the same original concept (Biolimus coating and polymer-free)

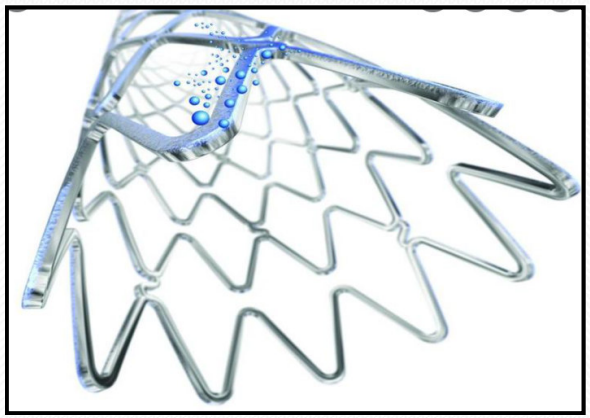




Biofreedom Ultra in CTO.

- **Discussion:**
  - The present case combined several high-risk characteristics:
    - High risk procedure due to clinical instability.
    - High risk of bleeding due to previous oral anticoagulation.
    - High complexity due to the CTO lesion.

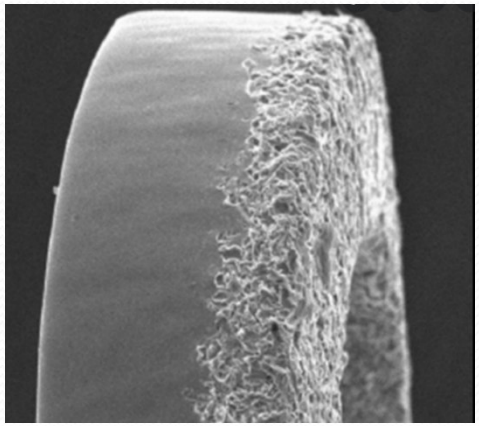


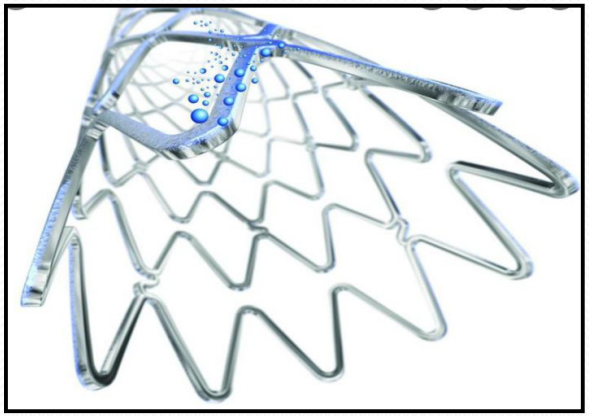


Biofreedom Ultra in CTO.

- **Discussion:**

  - In the present case, we decided to perform a two-staged strategy of revascularization:
    - Infarct related artery in the first procedure.
    - CTO lesion in a staged procedure (after checking the viability of the affected territory).





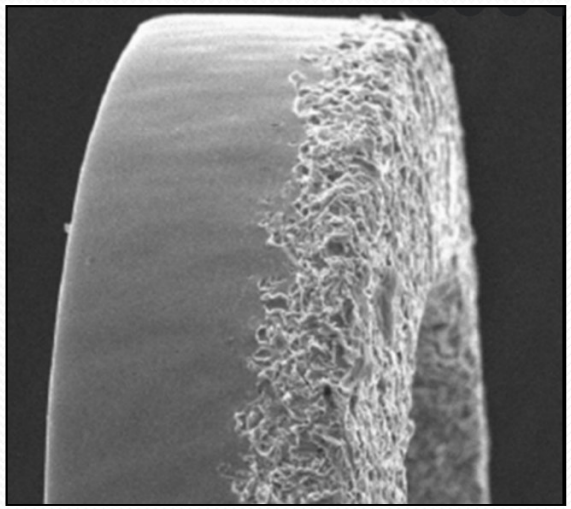
Biofreedom Ultra in CTO.

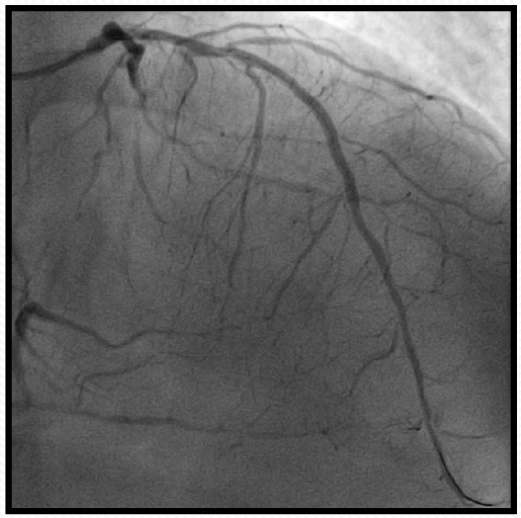
- **Discussion:**

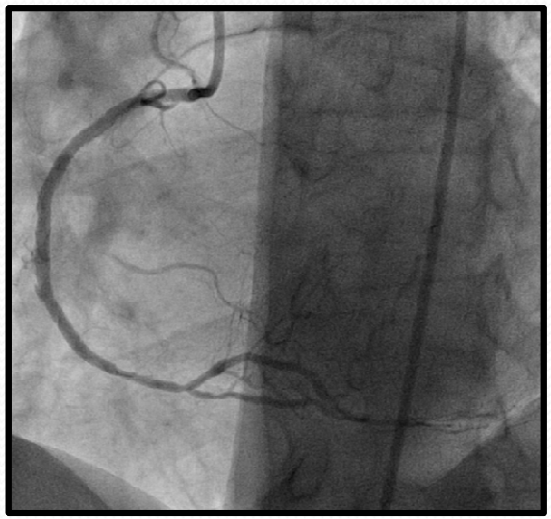
- We selected the Biofreedom Ultra stent for both procedures due to:

  - Its optimal results in patients with high risk of bleeding.

  - Its great performance in complex anatomy (CTO lesions).







Biofreedom Ultra in CTO.

- **Conclusion:**
  - High risk patients with multivessel disease requires an optimal management of haemodinamic situation, bleeding/thrombosis balance and complete revascularization.

- Biofreedom Ultra is a great stent for high risk /complex cases due to:
  - Its optimal results in patients with high risk of bleeding.
  - Its great performance in complex anatomy (CTO lesions).