

Egypt meets Germany  
Joint sessions of the Egyptian and German Working Groups of Interventional Cardiology  
CardioEgypt 2018



Lessons learned from complex percutaneous coronary interventions

## PCI in a patient with a chronic total occlusion: A case that went well

Mohamed Abdel-Wahab  
Heart Center Bad Segeberg  
Germany

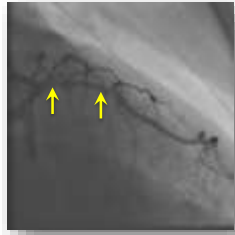
SEGEBERGER  
KLINIKEN

## Case presentation

- 79 years old man with hypertension and dyslipidemia and a history of permanent atrial fibrillation on oral anticoagulation
- Clinical problem (December 2017):
  - Dyspnea NYHA II, Angina CCS II
  - Transthoracic echo: Impaired LV systolic function (LVEF 40%), inferior hypokinesia
  - Pathological stress test

SEGEBERGER  
KLINIKEN

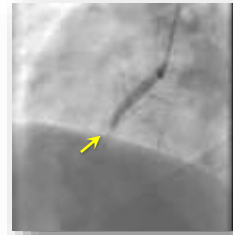
## Coronary angiography



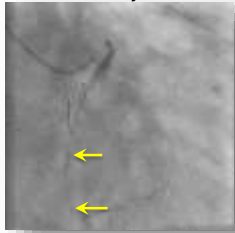
Eccentric lesion of proximal  
Left anterior descending  
artery



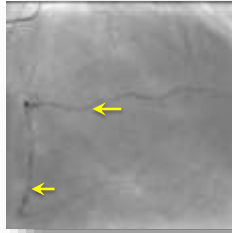
Short lesion of the  
circumflex



Right coronary artery with  
atypical origin +  
CTO at the mid segment



Minimal flow during  
antegrad injection



Retrograde collaterals to  
the dominant right  
coronary artery

**SYNTAX Score: 20**  
**J-CTO Score: 3**  
**Logistic EuroSCORE:**  
**9.5**

SEEBERGER  
KLINIKEN

## Patient referred for complete revascularization with PCI

- Anticipated challenges for the RCA-CTO:
  - Unstable guiding catheter (atypical take-off)
  - Long calcified CTO
  - Severe lesion in the proximal LAD at the origin of big septal branches that could serve as a retrograde track
- First strategy:
  - Antegrade attempt to revascularize the RCA

SEEBERGER  
KLINIKEN

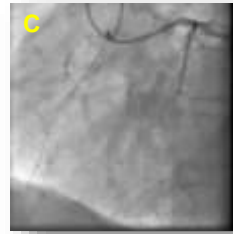
## Antegrade attempt to recanalize the RCA



Bilateral femoral access 6F  
AL1.0 SH and EBU4.0



Whisper wire and 2x12 mm balloon in  
a small proximal branch as anchor



Fielder XT wire + Finecross  
microcatheter

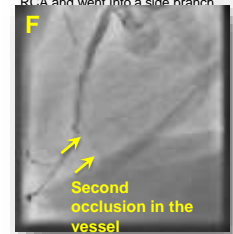
The wire could not reach peripheral  
RCA and went into a side branch



Super-selective injection to confirm  
wire position



Balloon predilatation with 2.5x20  
mm balloon



Second  
occlusion in the  
vessel

Unsuccessful guidewire  
escalation (Progress 40, Gaia II,  
Pilot 150, and Confianza PRO  
12)

SEGEBERGER  
KLINIKEN

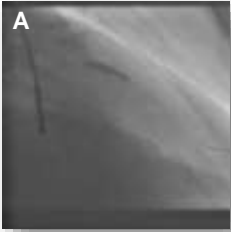
## What would you decide at this stage?

1. Stop here and send patient to surgery
2. PCI of LAD and LCX and leave RCA for medical ttt
3. Ad hoc retrograde attempt to recanalize RCA
4. Staged retrograde attempt to recanalize RCA
5. None of the above

SEGEBERGER  
KLINIKEN

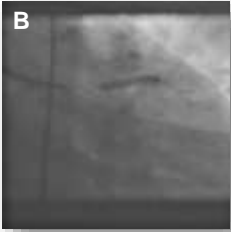
**Second strategy:**  
**PCI of LCA to facilitate staged retrograde recanalization of RCA**

PCI of Left anterior descending artery



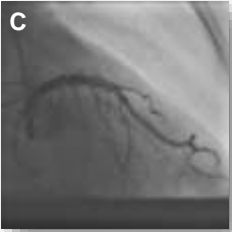
**A**

Pre dilatation with 3x15mm non-compliant balloon



**B**

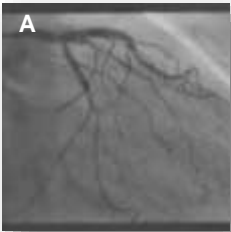
Stenting with 3.5x26 mm DES (14 atm)



**C**

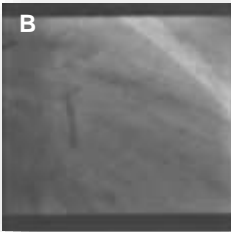
Result after post dilatation with 3.5x15 non-compliant balloon (24 atm)

PCI of Circumflex



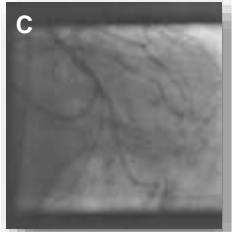
**A**

0.014" wire in Circumflex



**B**

Direct stenting with 2.5x15 mm DES (14 atm)

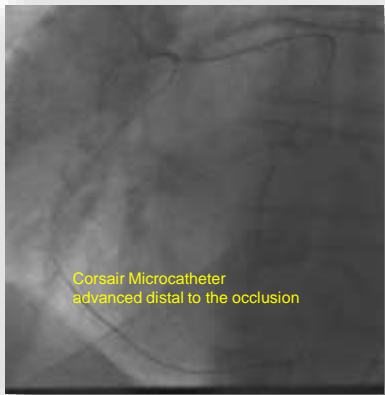


**C**

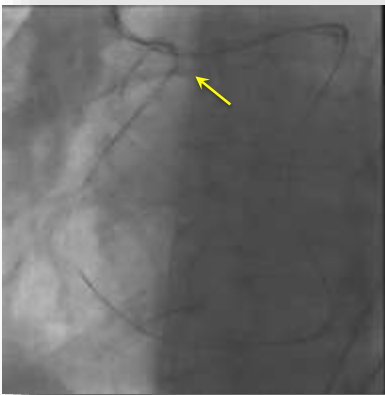
Final result

SEEBERGER  
KLINIKEN

**Retrograde PCI of the RCA**



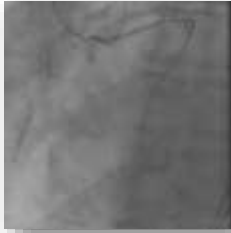
Corsair Microcatheter advanced distal to the occlusion



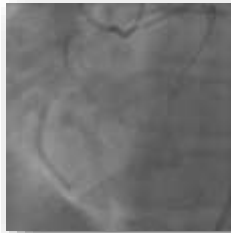
Progress 40 guidewire crossed the lesion and advanced into the antegrade guiding catheter

SEEBERGER  
KLINIKEN

## Retrograde PCI of the RCA



Predilatation with 1.5x20 mm and 2.5x20 mm compliant balloons



3x38 mm DES



4x33 mm DES



Result after 2 DES and post dilatation with non-compliant balloons.....  
Job finished ??

SEEBERGER  
KLINIKEN

## Lessons learned

- Modern PCI techniques allow treatment of complex patients and lesions previously thought to be classical surgical candidates.
- These techniques strongly rely on planning and strategic thinking.
- Advanced CTO interventions (including retrograde ones) further enhanced our strategic abilities but require training and tools!
- Carefully evaluate both ante- and retrograde angiograms when approaching a CTO.
- Do not remove your retrograde guide before a final angiogram!

SEEBERGER  
KLINIKEN