1135 **A Case of Successful Complete Revascularization in STEMI with Multivessel Disease Including a Heavily Calcified RCA-CTO**

Yoshimi Numao1, Junji Yajima2, Ayumi Harada1, Akira Murohashi1, Hirotaka Senju1, Chihiro Aoshima1, Yusuke Nakatsu1, Tetsuya Numata1, Takahiko Otsuka1, HIroshi Ohta1

[1]The Department of Cardiology, Itabashi Chuo Medical Center, Japan

[2]The Department of Carviovascular Medicine, The Cardiovascular Institute, Japan

Background:

Heavily calcified chronic total occlusions (CTO) often present significant challenges in guidewire passage and device delivery. In patients with impaired cardiac function, optimal strategy selection becomes particularly critical.

Summary:

A 66-year-old man with diabetes and chronic kidney disease was admitted with anterior-septal STEMI. Emergent coronary angiography revealed LAD #6 occlusion, LCX #11 and high lateral branch 99% stenoses, and RCA #2-3 CTO. After IABP support, PCI was performed for the LAD and LCX lesions with DES and DCB, achieving stabilization. LVEF decreased to 35%, complicated by LV thrombus and heart failure. After recovery and resolution of the thrombus, NYHA II symptoms persisted. Myocardial viability in the RCA territory was confirmed, and staged PCI for RCA-CTO was planned.

[Target Lesion]

A long CTO of the RCA, extending from just distal to the RV branch to the #4 bifurcation. The lesion was blunt at entry, heavily calcified and had a J-CTO score of 4.

[Strategy]

A primary antegrade approach was chosen considering the patient’s reduced cardiac function.

Antegrade access was obtained via right femoral using 8Fr Hyperion SAL 1.0 SH and retrograde access was via left radial with 6-7 glide slender sheath using 7Fr Hyperion SPB 3.75.

Lesion modification with intravascular lithotripsy (Shockwave C2, 2.5×12mm) was performed at the proximal calcified segment to enable microcatheter and IVUS delivery.

Antegrade wiring was performed using a Corsair Pro 135mm microcatheter. Initial attempts with Gladius EX failed to penetrate the proximal cap; successful penetration was achieved using Gaia Next 3. After step-down to Gaia Next 2 for tracking, final crossing required return to Gaia Next 3. Retrograde injection confirmed true lumen wiring. Balloon anchoring from the RV branch and gradual upsizing allowed microcatheter passage.

[Final Result]

Stenting with DES in #1?2 and DCB treatment of #3 achieved optimal angiographic results. Total contrast volume was 100 mL and radiation dose 2.1 mGy. Renal function remained stable, and LVEF improved to 50%. The patient remains stable with improved heart failure symptoms under outpatient follow-up.

Discussion:

This case demonstrates the feasibility of achieving complete revascularization in a patient with STEMI, multivessel disease, and heavily calcified RCA-CTO. Despite the complexity, antegrade-only success was possible through lesion preparation with IVL, careful wire selection, and strategy adaptation. Heavily calcified CTOs, often considered for retrograde strategies, may still be approached antegradely if anatomical visualization and plaque modification are adequate.

Conclusion:

Complete revascularization in multivessel STEMI with heavily calcified RCA-CTO can lead to favorable outcomes. A flexible, imaging-guided approach using IVL and tailored wire techniques may enable antegrade success even in highly complex CTO scenarios.