Case Report: Boosting Catheter in Complex PCI

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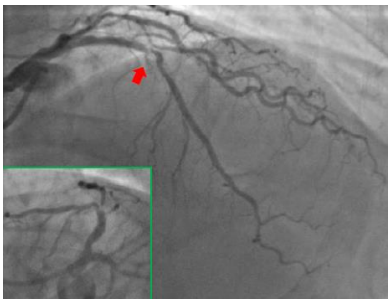

Figure 1: Diagnostic Angiogram

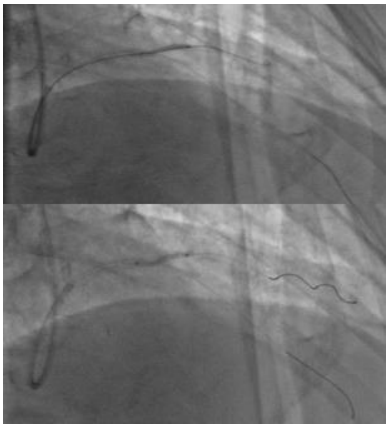

Figure 2.A: Side Branch Pre-Dilatation

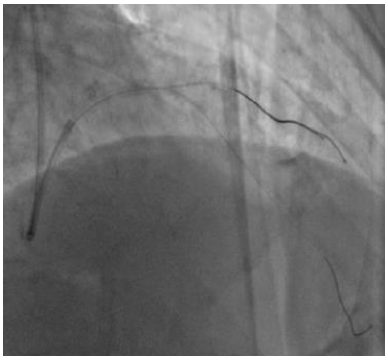

Figure 2.B: Side Branch Buddy Wire

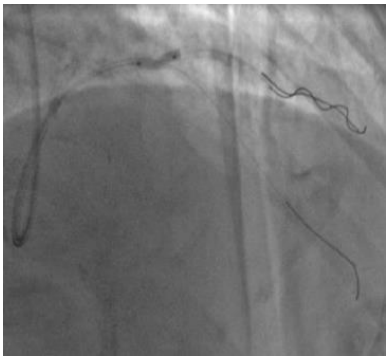

Figure 2.C: Side Branch Pre-Dilatation with Scoring Balloon

Patient History

A 62-year-old male with arterial hypertension, dyslipidemia, and history of family ischemic heart disease was admitted to our department because of unstable angina. His medical history included a recent hospitalization for acute right limb ischemia treated by percutaneous transluminal angioplasty on the right superficial femoral artery.

Previous PCI History

During that hospitalization the patient underwent coronary angiography, showing a heavily calcified three-vessel disease treated by PCI on the right coronary artery with implantation of three overlapping drug-eluting stents (DES) following rotational atherectomy (1.5mm burr at 180,000 rpm). A second staged PCI was then planned to complete myocardial revascularization.

Diagnosis

At admission, arterial pressure was normal as well as the EKG and the echocardiographic assessments. Coronary angiography was scheduled and performed through the right femoral access demonstrating the patency of the previously implanted DESs on the RCA, whereas a significant calcified Medina 1.1.1 bifurcation lesion involved the left anterior descending coronary artery (LAD) and the second diagonal branch (Diag2) with a challenging take-off (Figure 1) was considered as the target lesion.

Procedure Description

A 2-stent technique ("culotte") was chosen as intention for bifurcation management. The left coronary artery was engaged with a 6F 3.5 EBU guiding catheter. LAD and second diagonal branch (Diag2) were then wired (BMW on LAD and Fielder XT on Diag2 then exchanged with an extra support wire). LAD lesion was pre-dilated with a 2.0 mm non-compliant and a 2.5mm semi-compliant balloon. Instead, pre-dilation of Diag2's lesion resulted challenging due to difficult balloons advancement (because of heavily calcified lesion), despite a fully devices inflation was achieved (Figure 2.A). Deployment of a 2.0x18 mm DES in the Diag2 failed. In order to facilitate DES advancement, a second wire was positioned in the diagonal branch - "buddy wire" technique (Figure 2.B). Nevertheless, this maneuver did not allow the DES to cross the lesion. Further lesion debulking was performed with a full inflation of a 2.0x10mm scoring balloon (Figure 2.C). However, a new attempt to deploy the DES failed again.

Treatment

In order to increase the back-up support, a new generation 6F guiding catheter (internal lumen diameter 0.057") extension system (*Boosting Catheter*, QXMédical, Roseville, Minnesota, U.S.A.) was advanced at the mid-proximal LAD. The increased back-up support facilitated the delivery and implantation of two DESs (2.0x18mm and 2.5x18mm, respectively), toward the Diag2-LAD (Figure 3.A and Figure 3.B) while LAD wire was still in place. PCI was then successfully completed with LAD stenting ("culotte"

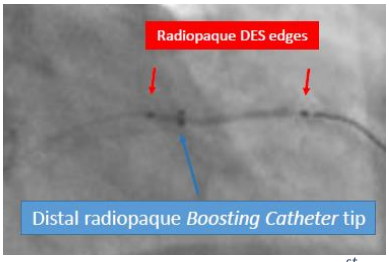

Figure 3.A: Boosting Catheter and 1st DES

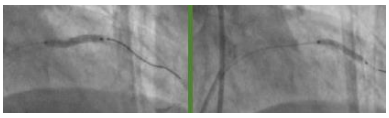

Figure 3.B: Proximal & Distal DES – Post-implantation

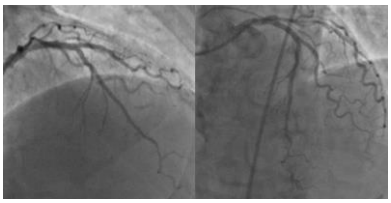

Figure 4: Final Result

fashion) with final kissing balloon. Final angiographic result was excellent (Figure 4). No post-procedural complications occurred, and the patient was discharged the day after with prescription of 6-months dual antiplatelet therapy (aspirin 100 mg plus clopidogrel 75 mg daily).

Comments of the Boosting Catheter Performance

Boosting Catheter guide extension is a new generation device, able to increase back-up support during complex PCIs. In the described case, its use allowed us to deliver DES through a heavily calcified bifurcated and angulated lesion, where previous debulking maneuvers (despite effective), did not allow a proper stent delivery and deployment. Its distal, atraumatic radiopaque tip permits a precise angiographic localization, helping operators to reach the nearest vessel segment next to the "resistant" lesion to be treated. Furthermore, the distal tube design and coating (multi-stiffness shaft with proprietary low-particulate hydrophilic coating) enhance the trackability through tortuous anatomies maximizing the support for device placement. Based on these features, the *Boosting Catheter* was highly effective in our complex PCI case

Alfonso Ielasi, MD is a resident interventional cardiologist at Istituto Clinico Sant'Ambrogio in Milan. Dr. Ielasi has authored more than 150 manuscripts and abstracts, published in peer-reviewed literature. His areas of expertise include interventional therapies of coronary and peripheral artery disease, aortic valve stenosis, mitral regurgitation and patent foramen ovalis.

Andrea Buono, MD is a resident cardiologist at Istituto Clinico Sant'Ambrogio in Milan. His main field of interest is percutaneous coronary interventions. He got specialty training at Niguarda Hospital in Milan. He attended two fellowships in interventional cardiology, at University Vinohrady Hospital (Prague, Cech Republic) and at Universitätsmedizin Mainz (Germany). He is author of several scientific articles published inpeer-reviewed journals.

Study and cines courtesy of Alfonso Ielasi, MD, and Andrea Buono, MD (Istituto Clinico Sant'Ambrogio, Milan, IT). Results from case studies are not necessarily predictive of results in other cases. Results in other cases may vary.

Boosting Catheter

Indications for Use: The Boosting Catheter is intended for use in conjunction with guiding catheters or sheaths during coronary and peripheral interventional procedures to guide and support interventional devices, including guidewires, traverse discrete portions of the vasculature, allow for interventional device exchanges and provide a conduit for infusion of saline solution, diagnostic contrast agents and therapeutic agents.

QXMédical

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