Excimer Laser Atherectomy for In-Stent Total Occlusion of the RCA

OPERATOR / FACILITY

Anjan Gupta, MD and Romas Kirvaitis, MD
Cardiovascular Services
Aurora Medical Group
Aurora – St. Luke's Medical Center,
Milwaukee, WI

Case History

- 43-year-old female
- History: CAD with previous RCA stenting, hypertension, hyperlipidemia.
- Current: Presented with exertional angina and dyspnea, stress test positive for inferno-basal ischemia.

Significant Angiographic Findings

- OM2: 70% stenosis at the ostium
- RCA: 60-70% proximal lesion followed by a total occlusion mid segment after the RV branch, with L>R collateral from the LAD to the distal RCA and R>R collaterals via the RV branch to the distal RCA and PDA.

OM2 Lesion Intervention

- PTCA of the second obtuse marginal branch with a 2.0x10mm Flextome® Cutting Balloon at 6 ATM, with reduction in stenosis from 70% to 0%. No evidence of complication and TIMI 3 flow noted.

RCA Lesion Intervention

- 1.5x15mm Voyager balloon was advanced as back support over Whisper wire. The balloon and wire were advanced in a step-by-step method; unable to advance the balloon beyond the mid-distal segment, the Whisper wire was exchanged for a Miracle Bros wire. The Miracle Bros wire was then advanced across the occluded stent to the distal RCA. The balloon was unable to be advanced over the occluded stent and was exchanged for a1.5x6mm Sprinter. The Sprinter balloon was then advanced through the stent to the PDA. The Miracle Bros wire was then exchanged for an All Star wire.
- Laser atherectomy of the RCA was performed using a 0.9mm X80 ELCA catheter at 45/60 for one pass, with settings increased to 60/60 for a second pass, under continuous saline flush. Total lasing time was 72 seconds. Confirmation of true intraluminal channel to the distal RCA was confirmed with an LCA injection, which delineated the LAD collaterals to the PDA and distal RCA.
- Next, the 1.5x6mm Sprinter was used to predilate from the distal RCA proximally at 10 ATM, followed by multiple inflations with a 2.0x20 Sprinter at 12 ATM. Post PTA angiogram confirmed intraluminal position.
- Stenting was performed with a 2.5x2.8mm Xience stent in the distal RCA followed by a 2.5x28mm Xience stent in the mid-distal RCA, followed by a 3.0x28mm Xience stent in the mid RCA, and a percutaneous transluminal coronary angioplasty and stenting of the distal right, mid-to-distal right, and mid-right coronary artery using a 2.5x28 Xience stent each in overlapping fashion.
- Finally, a 3.5x23 Xience stent was placed in the proximal RCA.
- Final angiography revealed 0% residual stenosis throughout the RCA, with excellent flow in the distal RCA, PDA, PLA and terminal branches. There was no evidence of dissection or perforation and the TIMI 3 flow and excellent distal myocardial blushing.

DEVICES

Guide

- 6F JR4 guide catheter

Wires

- 0.014" Whisper™ wire (Abbott Vascular®)
- 0.014" Miracle Bros™ wire (Asahi®)
- 0.014" All Star™ wire (Guidant®)

Lasers

- 0.9mm X80 ELCA® Catheter (Spectranetics®)

Balloons

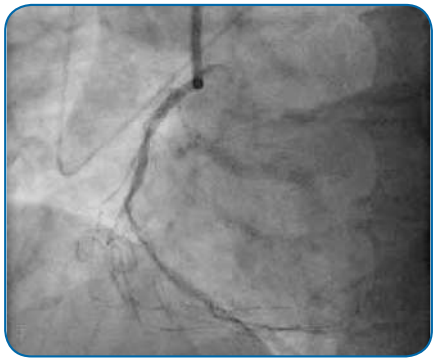
- 1.5x15mm Voyager™ (Abbott Vascular®)
- 1.5x6mm Sprinter® (Medtronic®)
- 2.0x20mm Sprinter® (Medtronic®)

Stents

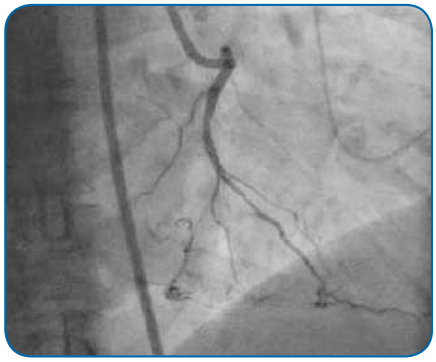
- 2.5x28mm, 2.5x28mm, 3.0x28mm and 3.5x23mm Xience® (Abbott Vascular®)

FEATURED SPECTRANETICS PRODUCT

- ELCA® Coronary Laser Atherectomy Catheter



RCA Pre Intervention



RCA Pre Intervention

Spectranetics®
Always Reaching Farther

Laser Ablation for Coronary Intervention: Case Study

Excimer Laser Atherectomy for In-Stent Total Occlusion of the RCA

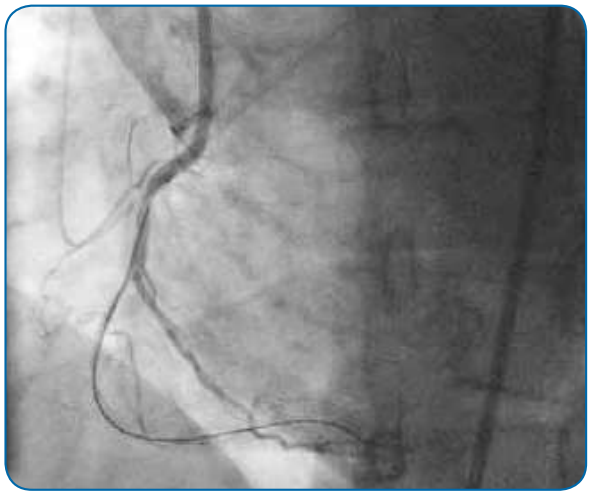
Results / Conclusions

- Successful PTCA of the bifurcation of OM2 branch and circumflex using a 2.0x10 Flextome Cutting Balloon, with reduction of the lesion from 70% stenosis to 0%.
- Successful laser recanalization of the RCA total occlusion using a 0.9mm X80 Vitesse catheter, followed by PTCA and stenting using Xience stents with 0% residual stenosis, TIMI 3 flow and excellent myocardial blushing.

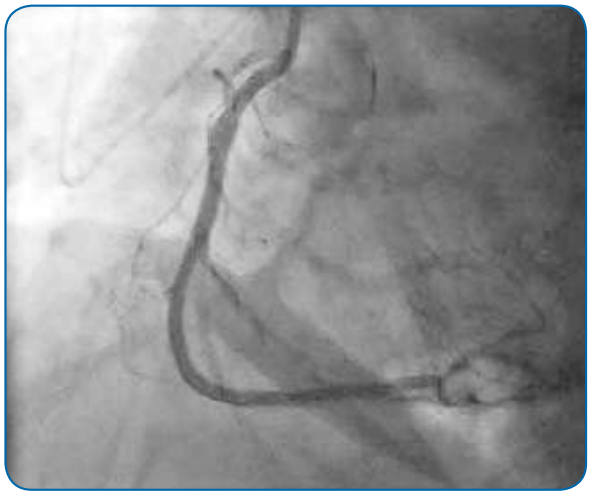
ELCA helped in debulking a long length of chronic total occlusion, facilitating successful angioplasty and stent placement with excellent final results.

– Anjan Gupta, MD

At the time of publication, Dr. Gupta and Dr. Kirvaitis did not have any consulting agreements with Spectranetics.



RCA Post 0.9mm Laser Channel



RCA Final Angiogram

Important Safety Information

ELCA® X-80 Coronary Laser Ablation Catheter

INDICATIONS

The X-80 Laser Catheters are intended for use as a stand-alone modality or in conjunction with Percutaneous Transluminal Coronary Balloon Angioplasty (PTCA) in patients who are acceptable candidates for coronary artery bypass graft (CABG) surgery. The following Indications for Use, Contraindications and Warnings have been established through multicenter clinical trials. The Spectranetics CVX-300® Excimer Laser System and the multifiber laser catheter models are safe and effective for the following indications:

- Occluded saphenous vein bypass grafts
- Ostial lesions
- Long lesions – (greater than 20mm in length)
- Moderately calcified stenoses.
- Total occlusions traversable by a guidewire.
- Lesions which previously failed balloon angioplasty - This includes those lesions that were treated unsuccessfully by PTCA. Lesions that have undergone a complicated PTCA procedure are not included in this category.

These lesions must be traversable by a guidewire and composed of atherosclerotic plaque and/or calcified material. The lesions should be well defined by angiography.

CONTRAINDICATIONS

- Patient has acute thrombosis.
- Lesion is in an unprotected left main artery.
- Patient has experienced an acute myocardial infarction.
- Patient has ejection fraction of less than 30%.
- Lesion is beyond acute bends or is in a location within the coronary anatomy where the catheter cannot traverse.
- Guidewire cannot be passed through the lesion.
- Lesion is located within a bifurcation.
- Patient is not an acceptable candidate for bypass graft surgery.

See complete IFU for more information before attempting use of ELCA X-80.

WARNINGS

Federal (USA) law restricts this device to sale by or on the order of a physician with appropriate training. A clinical investigation of the Spectranetics CVX-300® Excimer Laser System did not demonstrate safety and effectiveness in lesions amenable to routine PTCA or those lesions not mentioned in the Indications for Use, above. The effect of adjunctive balloon angioplasty on restenosis, as opposed to laser alone, has not been studied. The use of the CVX-300® Excimer Laser System is restricted to physicians who are trained in the use of the product.

PRECAUTIONS

This device has been sterilized using Ethylene Oxide and is supplied STERILE. The device is designated and intended for SINGLE USE ONLY and must not be resterilized and/or reused. Store in a cool, dry place. Protect from direct sunlight and high temperatures (greater than 60°C or 140°F). During the procedure, appropriate anticoagulant and coronary vasodilator therapy must be provided to the patient. Anticoagulant therapy should be administered per the institution's PTCA protocol for a period of time to be determined by the physician after the procedure. Percutaneous Excimer Laser Coronary Atherectomy (ELCA) should be performed only at hospitals where emergency coronary bypass graft surgery can be immediately performed in the event of a potentially injurious or life-threatening complication. The results of clinical investigation indicated that patients with the following conditions are at a higher risk for experiencing acute complications:

- Patients with diabetes.
- Patients with a history of smoking.
- Lesions with tortuous vessels.

www.spnc.com

Spectranetics®

Always Reaching Farther