17

LASER ATHERECTOMY FOR A DISTAL BIFURCATION CALCIFIC LESION IN CHRONIC CORONARY SYNDROME

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Rational: Undilatable coronary lesions pose a major concern in percutaneous coronary intervention (PCI) especially in complex and distal vessels, often leading to technical failure, incomplete revascularization and complications. Excimer laser coronary atherectomy (ELCA) is recognized as a treatment strategy for balloon failure due to calcified lesions as an alternative to rotational atherectomy and shockwave when these are not feasible. We present the case of an undilatable and severely calcific lesion involving CFx-OM1 bifurcation and a distal OM2 with high calcium burden and demonstrate the successful use of this device in complex and distal calcified stenotic disease.

Technical resolution: A 68 years old male presented to our clinic after evidence of reversible ischemia of the inferior and postero-lateral wall at stress/rest myocardial scintigraphy and CCTA finding of a moderate lesion of OM artery. These investigations were requested due to dyspnea on exertion. Coronary angiography, performed via 6 Fr right radial access, showed a highly calcific and complex lesion involving CFx-OM1 bifurcation and a distal OM2. The distal OM2 lesion proved undilatable; cutting balloon could not cross the lesion. Due to the distality and complexity of the lesion, laser atherectomy (ELCA) was preferred as a debulking method. After multiple runs of high energy laser with contrast medium, lesion was crossed and dilated with non compliant balloon, with subsequent successful stent implantation. After ELCA debulking, bifurcation lesion was treated with DK crush technique.

Clinical implications: At 1 month follow up the patient refers no symptoms at rest or on exertion. EKG was perfomed, showing no changes from discharge. Transthoracic echocardiography showed a normal biventricular function with no wall motion anomalies at rest.

Perspectives: ELCA may be indicated as a valid tool in heavily calcified lesions when rotablator or shockwave are unfeasible or more challenging to permit successful PCI, such as distal and bifurcation lesions. This technique may play a valuable role not only in uncrossable lesions, but also in distal and small vessels with a complex anatomy, especially in acute setting, when simplifying procedure is crucial for the outcome, taking into account both continuing changes in the demographics of the PCI population and increasing case complexity.

CCS: Chronic Coronary Syndrome; CFx: Circumflex Artery; OM: Obtuse Marginal Artery; ELCA: Excimer Laser Coronary Atherectomy; DK: Double Kissing