



ROTATIVE ATHERECTOMY (ROTABLATOR) IN CALCIFIED LESIONS: BETWEEN DISAPPOINTING HISTORY AND CURRENT EFFECTIVENESS (ABOUT 02 CASES)

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INTRODUCTION

Rotary atherectomy, through its selective abrasion principle, allows a reduction and no longer simple redistribution of the volume of atherosclerotic plaque. Developed in the late 80s and disappointing in terms of restenosis rate when combined with the balloon, the Rotablator finally reasserted itself in the 2000s; The era of the evolution of angioplasty equipment and in particular with the advent of the stent in 1995, with a procedural success rate of around 95%.

Observation 1

This is a 52-year-old patient, with type 2 diabetes on insulin and no significant pathological history followed for ischemic heart disease with bitroncular coronary artery disease (significant lesion of the proximal circumflex artery and a significant lesion of the calcified middle anterior interventricular artery) stented in 1st stage on the circumflex artery. Clinical examination revealed a conscious patient with hemodynamically and respiratory stability. On auscultation, the heart sounds were well perceived without breath, no sign of right or left heart failure. Absence of breath on the paths of the major vascular axes. Pulmonary auscultation is clear, vesicular murmur is symmetrical. The rest of the physical examination is abnormal. The electrocardiogram records a regular sinus rhythm, HR at 73 bpm, normal axis, no elongation of the PR space, QRS complexes are fine, presence of an inferolateral subshift.

Transthoracic ultrasound showed an undilated left ventricle with good systolic function with no disorder of global or segmental kinetics no significant valvular heart disease, atria not dilated, normokinetic right ventricle, dry pericardium. The biological assessment is without any significant abnormalities

Percutaneous coronary intervention shows (Figures 4, 5 and 6) the absence of proximal circumflex artery restenosis at the stent implantation site and successful milling of the calcified lesion of the middle interventricular artery by Rotablator with implantation of an active stent (2.5*22 mm) after NC balloon predilatation.

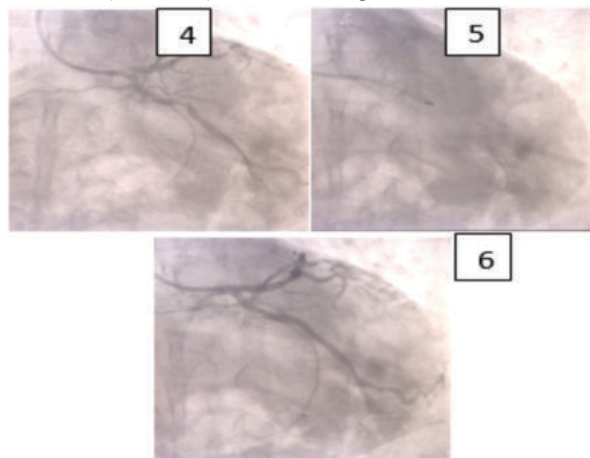


Figure 4, 5 and 6: Milling of the calcified lesion at the proximal circumflex artery

Observation 2

This is a 71-year-old patient with a male hypertension and a long smoking weaning as cardiovascular risk factors apart from age and sex, and a history of lower MI 2 months ago, following a tight bitroncular coronary lesion on the middle right coronary artery and the proximal circumflex artery, initially stented on the middle right coronary. Admitted for recurrence of angina under medical treatment. Clinical examination revealed the patient to be eupneic conscious, hemodynamically and respiratoryly stable. Well perceived heart sounds, regular, no murmur or superadded noises, no signs of right or left heart failure. Absence of breath on the paths of the major vascular axes. Pulmonary auscultation is clear, vesicular murmur is symmetrical. The rest of the physical examination is abnormal.

The electrocardiogram records a regular sinus rhythm, heart rate at 67 bpm, no prolongation of the PR space, QRS complexes are fine, presence of necrosis Q wave below.

Transthoracic ultrasound reveals an undilated left ventricle with hypokinesia of the inferolateral wall, LVEF at 45%, atria not dilated, no significant valvular heart disease, right ventricle of good systolic function, no PAH, dry pericardium.

Percutaneous coronary intervention shows (Figures 1, 2 and 3) successful milling of the calcified lesion of the proximal circumflex artery by Rotablator with implantation of an active stent (3.5*15 mm) after NC balloon predilatation.

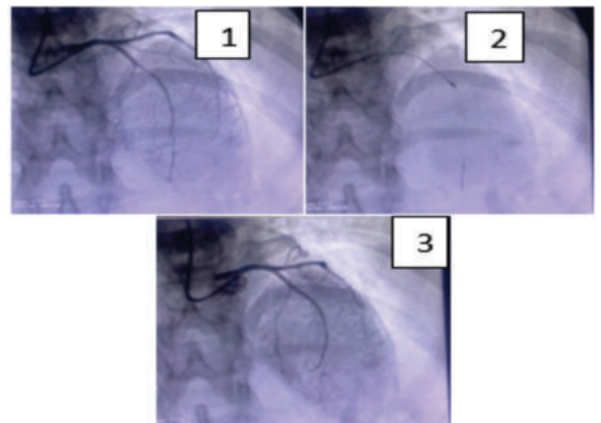


Figure 1, 2 and 3: Milling of the calcified lesion in the middle anterior interventricular artery.

DISCUSSION

The Rotablator was initially greeted with great enthusiasm, hoping for a lower restenosis rate, due to limitation of barotrauma and dissections generated by balloon inflations in conventional angioplasty. The immediate procedural success rate was significantly higher with the Rotablator. On the other hand, there was no difference in terms of periprocedural complications., no clinical events, restenosis at 6 months, so much so that the Rotablator was initially shunned in the late 1990s. [1]

In the mid-2000s, the arrival of active stents finally solved the conundrum of the high rate of bare in-stent restenosis. This was followed by a considerable increase in coronary angioplasty, generating the emergence of increasingly complex lesions, particularly calcified lesions. These emergent lesions reveal the limits of predilation alone. The interest of optimal lesion preparation before stenting then takes on paramount importance and the Rotablator legitimately takes its place in this indication. [1]

Rotational atherectomy allows a direct reduction in plaque volume by abrasion of lesions, especially the most calcified. The Rotablator has a unique selective abrasion characteristic for cutting inelastic plates (calcified or very fibrous) while sparing healthy elastic tissue. Essentially generating millions of microparticles, measuring 5 µm in diameter on average, and embolizing the coronal microcirculation in disdistance. It has been shown that they do not interfere with clinically detectable myocardial perfusion defects and that they are rapidly absorbed by the reticuloendothelial system and then eliminated by the liver and spleen. [2]

The Rotablator should be used by experienced angioplasticians who perform at least 75 angioplasties per year and who have undergone specific training. Its use requires a perfect knowledge of the equipment but also of potential complications, with a rate of peri-procedural complications and intra-hospital mortality comparable to conventional angioplasty [3], In addition, the Rotablator exposes to some specific complications such as coronal perforations (by the bur), bur blockages and Rotawire guide breaks. These complications are fortunately rare but associated with a poor prognosis. [1]

CONCLUSION

The Rotablator has demonstrated an undeniable benefit in the preparation (before stenting) of complex (type C) and calcified lesions which represent only a small percentage of coronary angioplasties (2-3%). However, complications are rare but serious. justify trained teams, perfect knowledge of the equipment and rigorous compliance with good practices.

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