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Original research article

Dedicated Tryton Side Branch Stents used in the treatment of coronary bifurcation lesions

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ABSTRACT

Introduction: Coronary bifurcation lesions account for 15–20% of all percutaneous coronary interventions.

Dedicated bifurcation stents have recently been introduced with the aim to simplify treatment and improve early and late outcomes following stenting of bifurcation lesions.

The purpose of our study was to assess the safety and effectiveness of the Tryton dedicated side branch stent at a 6-month clinical and angiography follow-up.

Methods: Forty-two patients with bifurcation lesions were included in our study. The primary endpoint was a 6-month MACE and angiographic stent patency was also evaluated by MS-CT coronarography.

Results: Twenty-two patients (52.38%) were treated for acute coronary syndromes, 39 (92.85%) lesions were ''true bifurcations''. The 6-month clinical follow-up was performed in all patients. The 6-month MACE rate (cardiac death, myocardial infarction and target lesion revascularization) was 9.52% (95% CI: 2.66–22.62%); of these one patient (2.38%; 95% CI: 0.06–12.57%) died

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Abbreviations: MS-CT, multi-slice CT coronarography; MIP, maximum intensity projection; PCI, percutaneous coronary intervention; MACE, major adverse cardiovascular events; ISR, in-stent restenosis; TVR, target vessel revascularization; LM, left main stem; LAD, left anterior descending artery; RD, diagonal branch; LCx, left circumflex artery; OM, obtuse marginal branch; RCA, right coronary artery; PDA, posterior descending artery; SB, side branch; RAO, right anterior oblique view; LAO, left anterior oblique view.

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due to cardiogenic shock caused by early stent thrombosis and three patients (7.14%; 95% CI: 1.50–19.48%) required repeated revascularization (TVR) due to in-stent restenosis, all of them in bare metal stents. Tryton stent implantation was successful in 100% lesions.

6-Month MS-CT coronarography was performed in 39 (92.85%) patients. The implanted bifurcation Tryton stents were satisfactorily visualized in 97.43% of them and a satisfactory 6-month angiographic patency was demonstrated in 37 patients (88.1%).

Conclusion: The usage of a dedicated bifurcation Tryton Side Branch Stent for PCI of the bifurcation lesions is technically feasible with satisfactory long-term results.

Introduction

Coronary bifurcation lesions account for 15–20% of all percutaneous coronary interventions [1]. When compared to non-bifurcation lesions, this lesion subset is considered complex to treat, with inferior angiographic and clinical results (acutely and at follow-up) [2].

Dedicated bifurcation stents have recently been introduced with the aim to simplify treatment and improve early and late outcomes following stenting of bifurcation lesions.

When compared to the ''classical'' culotte technique, the Tryton makes the procedure easier [3].

We aimed to assess in a prospective single-center registry, safety and effectiveness at 6-month clinical and angiography follow-up of the Tryton dedicated side branch stent.

Methods

Patient population

Patients with bifurcation lesions in whom a dedicated Tryton Side Branch Stent was implanted at our Department during 2010–2013 were included in our registry.

The primary endpoint was a 6-month major adverse cardiovascular events rate (MACE; cardiac death, myocardial infarction and target lesion revascularization) and angiographic stent patency was also evaluated by MS-CT coronarography.

Tryton device

The Tryton Side Branch Stent (Tryton Medical, USA), which was used by us, is a chromium–cobalt stent consisting of three parts: the distal segment is a common stent for implantation in the

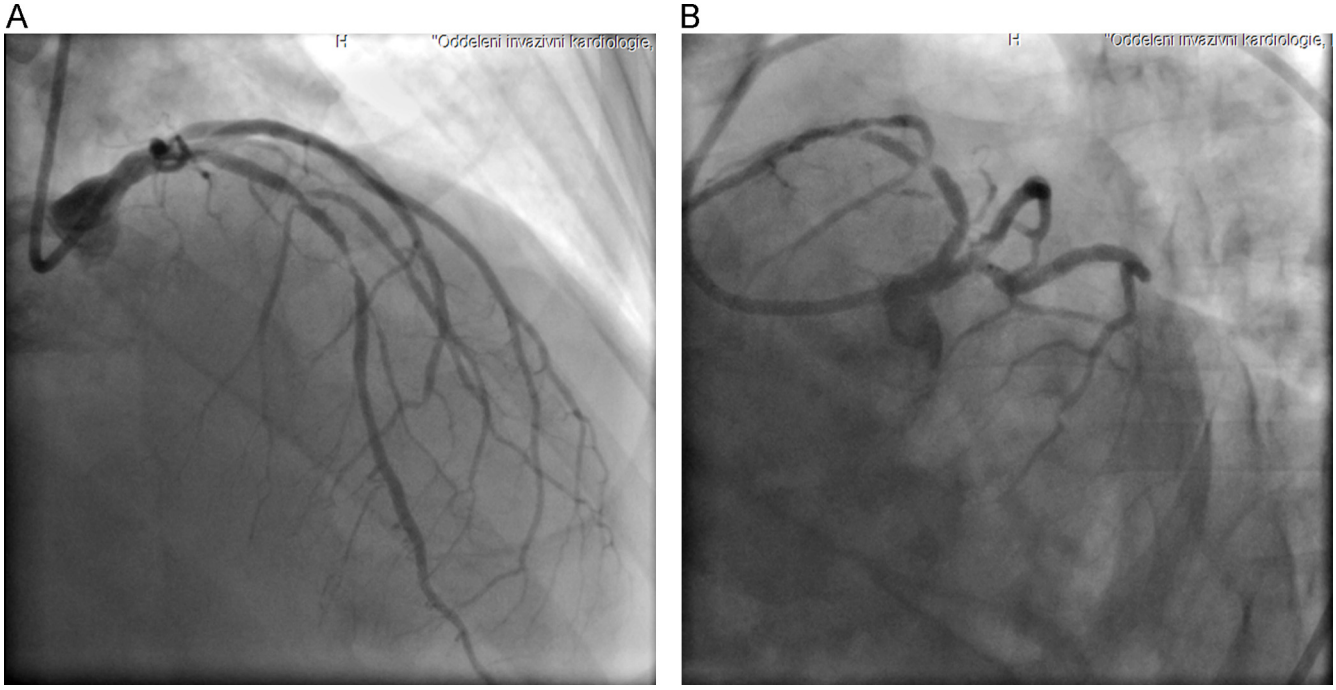

Fig. 1 – Case 1, tight bifurcation stenosis Medina 1,1,1 at proximal LAD and Dx1. (A) Left anterior oblique 45°, caudal 45° view; (B) right anterior oblique 25°, cranial 40° view.