
Left Main Coronary Revascularization

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To Luigi and Guglielmo, my Sons
who inspire my life,
give me fuel,
give me heart,
and are the best gift God could give me.

Foreword

Although the first percutaneous treatment of unprotected left main coronary artery (ULMA) using balloon angioplasty dates back to the early Andreas Gruentzig days, this practice was promptly stopped due to initial disappointing results showing substantial procedural mortality, high restenosis rates, and poor long-term survival. The concomitant publication of randomized studies demonstrating higher survival rates in surgically treated patients with ULMA as compared to those treated medically proclaimed coronary artery surgery as the gold standard procedure for treatment of this insidious form of coronary artery disease. In the 1990s however percutaneous treatment of ULMA gained renewed momentum, fueled by the advent of coronary stents that reduced restenosis rates and by the use of dual antiplatelet therapy that decreased thrombotic complications. Since then, despite the publication of randomized trials comparing the two modalities of coronary revascularization and the thoughtful recommendations of international guidelines, this topic is still a subject of controversy and even of harsh confrontation between radical advocates of either interventional procedure. Two recent trials, NOBLE and EXCEL, rather than dissipate doubts, added fuel to the fire and sparked further discussion and opposing views. A recently published patient-level meta-analysis of four randomized trials with 5-year follow-up did not apparently cool off tempers.

Against this background the present book edited by Bernardo Cortese is an appropriate and timely initiative. It contains a series of chapters written by renowned experts in the field focusing on all aspects of the clinical decision making and analyzing technical details, also providing clues to operators to tackle practical difficulties. Although the Editor is a skillful interventional cardiologist, the book is well balanced, leaving equal room to PCI and surgical advocates in discussing respective advantages and limitations of the procedures. Both positions agree that Heart Team assessment taking into considerations clinical and anatomic findings has a crucial role in recommending the best treatment modality for patients with ULMA.

Five chapters in the book are devoted to intravascular imaging by both intravascular ultrasound and optical coherence tomography, in preoperative and postoperative assessment of patients treated with PCI. Intravascular ultrasound use has been shown to provide a clinical benefit particularly for distal left main treatment and is now endorsed by European Society of Cardiology guidelines. Recent data show that optical coherence tomography gives similar results and may even be superior to intravascular ultrasound

thanks to a more detailed evaluation of stent apposition and final expansion. This is an area of current active research, whose recent achievements are presented and thoroughly discussed.

The book is a must-read for clinical and interventional cardiologists, but also for non-cardiologist members of the Heart Team who are facing in their practice the challenge of recommending or performing interventional procedures in these high-risk patients.

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Stefano De Servi

Preface

hey guys, being a good interventional cardiologist
is not only a matter of how can I accommodate a stent there!
DEB School, since 2013

Since the birth of coronary revascularization techniques, left main stem has always been the most complex, risky, and intriguing lesion setting. I mean the Pattern of coronary revascularization.

Today, left main revascularization still represents the milestone of any technique, mainly for two reasons: (1) prognostically, its treatment is associated with the strongest, hardest outcome a patient with cardiovascular disease may incur, and (2) it is often complex to treat coronary lesions located there.

Moreover, left main treatment is a growing field of technical and scientific attention, given the high calcific burden, the frequent need for bifurcation lesion treatment, and the increased risk of further revascularizations. Recently, several studies have analyzed which technique (coronary artery bypass grafting or percutaneous coronary intervention) is associated with improved long-term outcome, the role of intravascular imaging (1) and the type of optimal technique for bifurcation management (2), in order to achieve a persistent result for years.

However, the main controversy here remains on who should be the gate keeper for left main revascularization: cardiac surgeon or interventional cardiologist? Long-term data of the Excel trial have generated so much controversies and a clear winner is not there yet (3).

In this book some among the most reliable experts on the matter will give their point of view according to the latest scientific developments.

Personally, I have several questions on the matter which will be hopefully answered:

- Why penetration of intravascular imaging is not 100% here?
- Is there a role for drug-coated balloons, to spare the total amount of metal in such a complex lesion setting?
- After left main revascularization with any technique, is short-to-mid-term invasive follow-up mandatory, to catch up eventual initial signs of restenosis, especially in case of percutaneous revascularization?
- Does a left internal mammary bypass to distal LAD make sense, if on top of left main disease the patient also has proximal or mid-LAD severe narrowings?
- In the setting of left main and 3-vessel coronary artery disease, does hybrid revascularization therapies, with mini-invasive CABG, small amount of

stents, and drug-coated balloons make sense, as an alternative to complex CABG or diffuse coronary paving?

Dear Reader, you may understand that the goal of this book is dual: to update you on the most recent developments in this field thanks to the inputs by some of the most eminent experts, and specifically, to understand that this setting is the most complex you will ever face.

So when you face a complex left main lesion, please stop, understand, think, plan, and go.

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Contents

1	History of Left Main Revascularization	1
	Amr S. Gamal and Patrick S. Serruys	
2	Historical Background of Left Main Stem Revascularization: A Step Further.	7
	Patrick W. Serruys, Masafumi Ono, Mattia Lunardi, Yoshinobu Onuma, and Scot Garg	
3	Anatomical and Pathophysiological Considerations on the Left Main Coronary Artery	13
	Luca Nai Fovino, Andrea Scotti, and Giuseppe Tarantini	
4	CABG Vs. PCI for Left Main Revascularization	21
	Anastasios Roumeliotis, Rishi Chandiramani, George Dangas, and Roxana Mehran	
5	CABG Should Be the First Option for Left Main Disease: A Cardiac Surgeon's Perspective.	35
	Guido Gelpi, Claudia Romagnoni, and Irene Binaco	
6	PCI Should Be the First Option for All Left Main Disease? An Interventional Cardiologist's Perspective.	47
	Daniel A. Jones, Anthony Mathur, and Andreas Baumbach	
7	Which Interventional Device for Left Main PCI? A Description of Available Stents.	65
	Vinayak Nagaraja and Samir Kapadia	
8	Which Interventional Technique for Left Main PCI?	77
	Antoinette Neylon and Thierry Lefèvre	
9	Which Surgical Technique for Left Main Coronary Artery Bypass? A Mini-Invasive Approach	93
	Bleri Çelmeta, Antonio Miceli, and Mattia Glauber	
10	Preoperative IVUS Assessment of the Left Main.	103
	Gianluca Caiazzo, Maria Scalamogna, Luigi Di Serafino, Luca Golino, Vincenzo Manganiello, Mario De Michele, Giovanni Esposito, Adrian Banning, and Luciano Fattore	

11 Preoperative Functional Assessment of the Left Main and Postoperative Side Branch Evaluation	119
Luigi Di Serafino and Emanuele Barbato	
12 Is There a Role for OCT for Left Main Assessment Before and After PCI?	129
Rocco Vergallo, Carlo Trani, Bernardo Cortese, and Francesco Burzotta	
13 A Clinical Appraisal of Optical Coherence Tomography for Left Main Stem Intervention	141
Erick Sanchez-Jimenez and Bernardo Cortese	
14 The Role of Intravascular Imaging for Post-procedural and Long-Term Evaluation of the Revascularized Left Main	157
Akiko Maehara, Gary S. Mintz, and Martin B. Leon	
15 Follow-up of Left Main Patients Treated with PCI or CABG	169
Ahmad Alkhalil, Miguel Alvarez Villela, Y. Kobayashi, and Azeem Latib	