The Egyptian Heart Journal (2014) 66, 1–10

Egyptian Society of Cardiology

The Egyptian Heart Journal

www.elsevier.com/locate/ehj
www.sciencedirect.com

INVITED ARTICLE

Current technical and clinical features of the antegrade and retrograde approaches to percutaneous transluminal coronary intervention for chronic total occlusion – 2013 version

Toshiya Muramatsu [1,*]

Division of Cardiology, Saiseikai Yokohama-City Eastern Hospital, Japan

Received 15 October 2013; accepted 16 October 2013
Available online 15 December 2013

KEYWORDS

Percutaneous transluminal coronary intervention;
Chronic total occlusion;
Retrograde approach

Abstract PCI for the treatment of CTO has made remarkable progress in recent years, and interventional cardiologists in Japan have made a great contribution to this progress. Innovative techniques, including the retrograde approach, are hot topics in the CTO field. The long-term prognosis after initial success is also attracting considerable attention. Strategies for treating CTO are continually evolving, and the author's strategy also continues to change over time. The author's strategy as of 2013 is described here.

1. Introduction

Percutaneous coronary intervention (PCI) for chronic total occlusion (CTO) has made great progress during the past few years, and Japanese interventional cardiologists have made a particularly important contribution. New innovative techniques, including the retrograde approach, are among the recent topics with regard to PCI for CTO. During the past year, several new devices have been developed and changes to some therapeutic strategies for CTO have occurred. Here, I will review recent advances in the treatment of CTO and also explain my current strategies for managing CTO lesions.

1.1. Approach and guiding catheters to use in PCI for CTO

The first step to achieving success with PCI for CTO is to perform appropriate coronary angiography (CAG) and to properly interpret the angiograms before starting the procedure. An important point when performing baseline CAG is to serially adjust the image size without panning. At our center, close-up images are obtained for detailed assessment of CTOs, while other images are obtained with a wider field of view to display the anatomy of collateral channels. For both purposes, at least three different views in which major branches are not superimposed should be obtained to show the pattern and length of the CTO, the course and branches of the occluded

* Tel.: +81 45 582 7298.
E-mail address: t-mura@tj8.so-net.ne.jp
[1] MD.

Peer review under responsibility of Egyptian Society of Cardiology.

ELSEVIER Production and hosting by Elsevier

1110-2608 © 2013 Production and hosting by Elsevier B.V. on behalf of Egyptian Society of Cardiology.
http://dx.doi.org/10.1016/j.ehj.2013.10.002

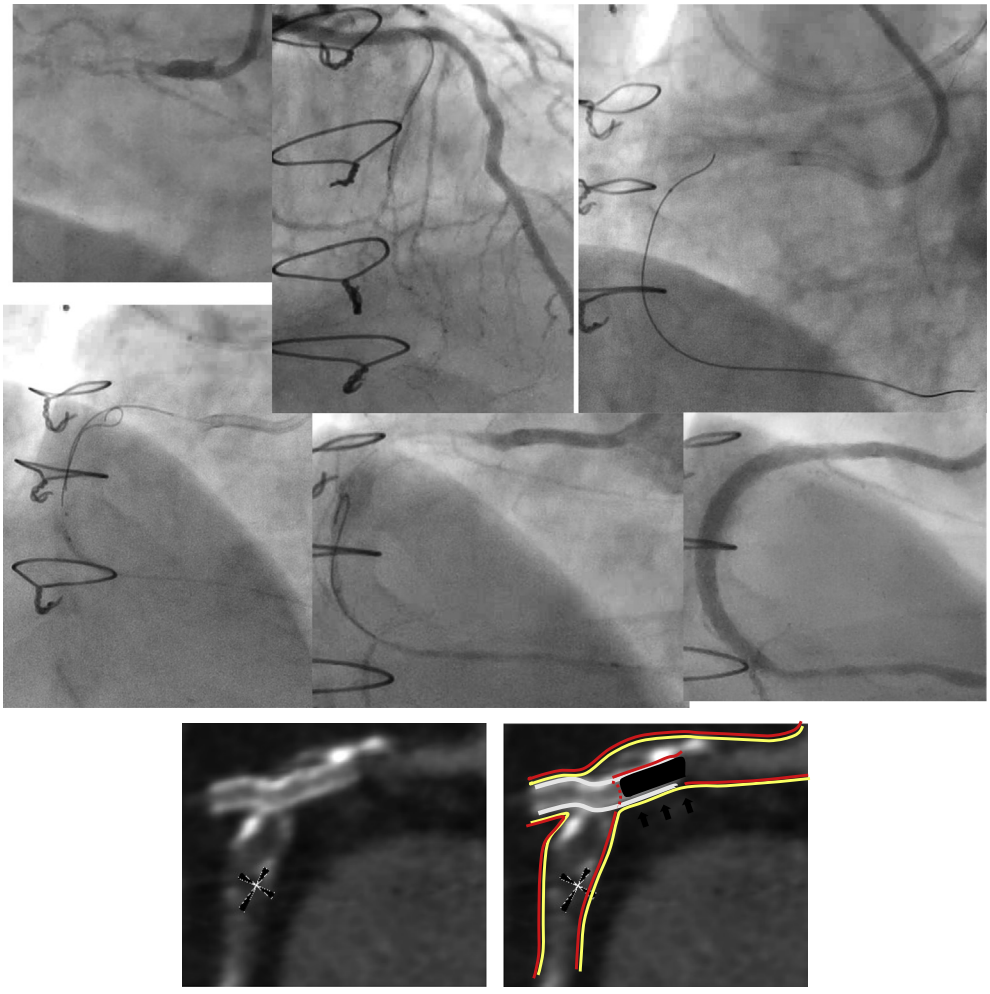

Figure 1 Retrograde PCI guided MSCT.

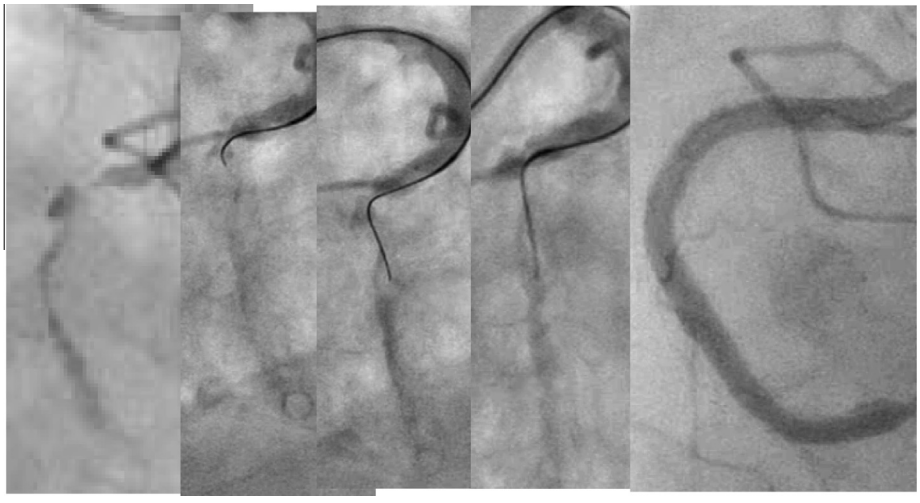

Figure 2 Bend CTO crossed by Miracle guidewire.

artery, the anatomy of the arteries distal to the CTO, and the extent of vascular calcification. The features to be checked for a collateral channel include the extent of its development, its origin and course, and the entry point of the channel into the artery distal to the CTO. The RAO caudal, RAO, RAO cranial, and lateral views are necessary to delineate a septal channel, which is the type of channel most commonly used for the retrograde approach. However, use of epicardial