Tips and Tricks: Aorto-ostial Coronary Lesions

Huu Tam Truong, MD, FSCAI
Interventional Cardiologist
VA Loma Linda Healthcare System
Assistant Professor of Medicine
Loma Linda University
Disclosures

None
Background

Aorto-ostial coronary interventions can be technically challenging

- Up to 54% geographic miss rates
  – identified by retrospective angio review
- Threefold increase in target lesion revascularization
- The misses were evident in experienced operator
  - Avg experience 20.7 years
  - Avg career PCI > 3,500 cases

- In a small CTA study – only 13% of the cases had optimal stent placement

Types of Geographic Miss

Figure 2. Location of the proximal stent edge in relation to the aorta-ostial plane and aorto-ostial landing zone (AOLZ). A) Optimal stent location; B) partial distal geographic miss; C) total distal geographic miss; D) partial proximal geographic miss; E) total proximal geographic miss.

How to know you have missed?

Most accurate:
1. Intracoronary imaging (IVUS) – preferred!
2. Coronary CTA – not done during the procedure

If use angiogram, consider:
Collimate to the area of interest and use high frame rate cine

Signs of geographic miss:
Unable to re-engage the vessel after stent deployment (prox miss)
Pressure still “damped” after PCI (distal miss)
Angio Alone May Not Identify A Geographic Miss

Unrecognized miss on angio due to PTCA result
Dealing with Pressure Dampening and Delineating the True Ostium

1. Use “non-aggressive” guiding catheters – minimize deep engagement
2. “Floating wire technique”
   - Prevents the guide from intubating the vessel
   - Demarcates the true ostium
3. Dedicated Ostio Pro™ device
4. Guides with side holes - controversial
Floating Wire Technique
Fluoroscopic views

- If the patient had prior CTA - an optimal view can be estimated from the CT
- RCA $\rightarrow$ usually steep LAO
- LM $\rightarrow$ use both LAO caudal and LAO cranial
- SVGs $\rightarrow$ usually LAO (but should check in both LAO and RAO)
Know the stent radial strength:

Szabo Technique


Truong HT, Acharya D. 2018
Deploying the Stent

If Guide / wire / stent are stable.
Partial Deployment of Stent/Balloon in Guide

Courtesy of Dr. Hoang Thai
Excessive Motion During Stent Deployment

- More common with ostial RCA lesions and transradial approach.
- Breath-hold to minimize respiratory motion
- If excessive cardiac motion of the RCA
  - Can administer 50-100 mcg of IC adenosine which will result in a few seconds of asystole

(Courtesy of Dr. Kapildeo Lotun)
Intravascular Ultrasound

IMHO – mandatory

Pre-stenting
- Identify lesion that may need more aggressive preparation (e.g. atherectomy)
- Accurate stent sizing

Post-stenting
- Identify underexpansion
- Geographic miss
Flare the Ostium
Take Home Points

1. Geographic misses are very common for aorto-ostial lesions
2. Various techniques can be employed to make sure the lesion is covered
3. Know the stent – location of edge on the balloon and radial strength
4. Use IVUS
Thank you

Huu Tam Truong, MD, FSCAI
Huutam.truong@va.gov