

Images in
Cardiovascular Medicine



First Asian Experience with the BASILICA Technique in Failed Bioprosthetic Aortic Valve

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OPEN ACCESS

Received: Feb 10, 2021

Revised: Mar 19, 2021

Accepted: Apr 1, 2021

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Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest

The authors have no financial conflicts of interest.

Coronary obstruction is a deadly complication of transcatheter aortic valve replacement (TAVR), more frequent in valve-in-valve (VIV) procedure.¹⁾ With smaller annulus and low coronary ostia, TAVR for Asians may increase the risk of coronary obstruction.²⁾ A Bioprosthetic Aortic Scallop Intentional Laceration to prevent Iatrogenic Coronary Artery obstruction (BASILICA) reduces the risk of coronary obstruction.³⁾ We report the first Asian experience with the BASILICA procedure.

An 84-year-old female with bioprosthetic aortic valve replacement 9 years ago visited our institution with dyspnea. Echocardiography confirmed bioprosthetic valve failure with severe aortic stenosis. Both coronary heights were low (**Supplementary Video 1, Figure 1**). The predicted valve-to-sinotubular junction distance in the left coronary cusp (LCC) side was 2.6 mm and the leaflet length of the 20 mm Soprano bioprosthesis at the LCC side was 11.1 mm. The heart team decided to perform VIV-TAVR (STS 8.257%) after BASILICA for the LCC given high risk of coronary obstruction due to sinus sequestration.⁴⁾

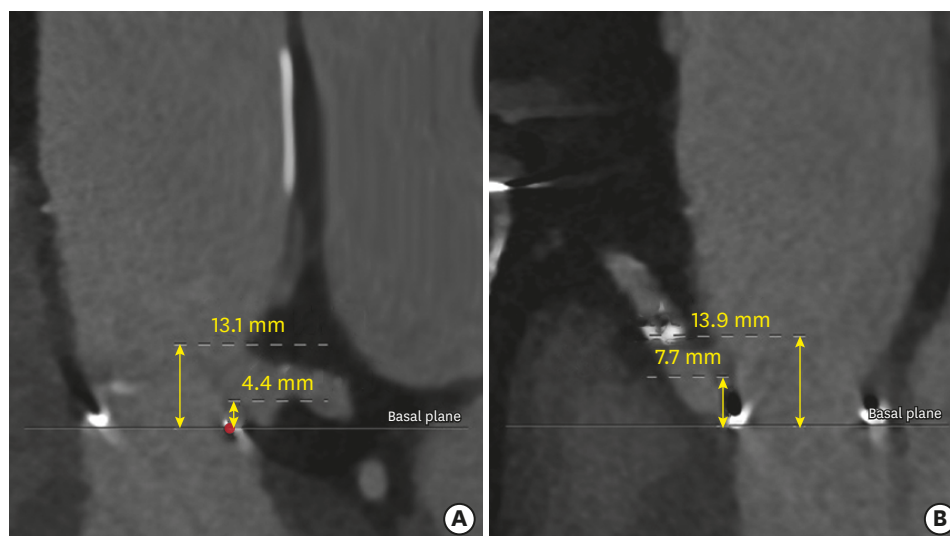


Figure 1. Heights of coronary ostia and sinus of Valsalva measured in reconstructed computed tomography imaging. Coronary ostium height was defined as vertical distance between neo-annulus to coronary ostium. Sinus of Valsalva height was defined as vertical distance between neo-annulus to sinotubular junction. (A) denotes coronary height from neo-annulus to left coronary ostium (short arrow, 4.4 mm) and sinus of Valsalva height from left coronary cusp side (long arrow, 13.1 mm). (B) denotes coronary height from neo-annulus to right coronary ostium (short arrow, 7.7 mm) and sinus of Valsalva height from right coronary cusp side (long arrow, 13.9 mm).

Data Sharing Statement

The data generated in this study is available from the corresponding author(s) upon reasonable request.

Author Contributions

Conceptualization: Kook H, Kim MN, Yu CW; Data curation: Kook H, Kim MN; Formal analysis: Kook H; Investigation: Kook H; Methodology: Kim MN, Yu CW; Validation: Yu CW; Visualization: Kook H; Writing - original draft: Kook H; Writing - review & editing: Yu CW.

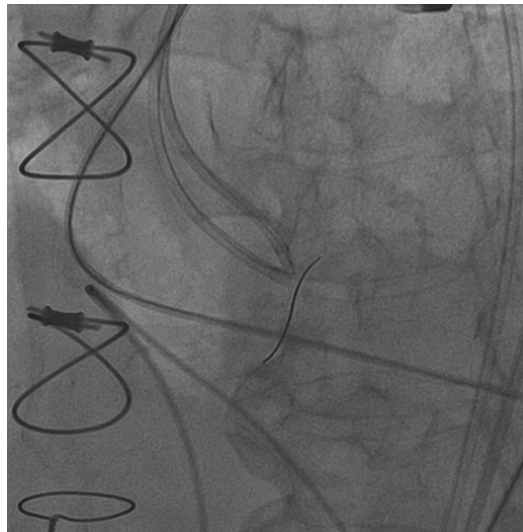


Figure 2. Transcatheter bioprosthetic valve leaflet laceration using Bioprosthetic Aortic Scallop Intentional Laceration to prevent Iatrogenic Coronary Artery technique.

Gooseneck™ Snare (Medtronic, Minneapolis, MN, USA) was positioned in the left ventricle. 6Fr IM catheter within 7Fr AL3 catheter was positioned to the base of the LCC. Astato wire (Asahi Intecc, Aichi, Japan) within Finecross® microcatheter penetrated the LCC under 50W (**Supplementary Video 2**).

After traversal and snaring, the “flying-V” was created by denuding only the inner lacerating surface of the wire to deliver focused charge to the leaflet.⁵⁾ The “flying-V” lacerated leaflet under 70W with dextrose flooding (**Figure 2, Supplementary Video 3**).⁴⁾

After BASILICA, VIV-TAVR was performed using 23 mm Evolut™ R (Medtronic) with 5 mm depth. Coronary obstruction did not occur (**Supplementary Video 4**).

ACKNOWLEDGMENTS

The authors would like to acknowledge Danny Dvir for proctoring the BASILICA technique and Yun Won Lee, Joon-Won Kang, Ha Jun Lee, Soyoung Kwon, Mooneon Song, Jin Woo Nam, and An-Sik Jeong for their contribution to this BASILICA case.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

Baseline aortography showing very low coronary heights of both coronary arteries.

[Click here to view](#)

Supplementary Video 2

Astato XS 20 wire penetrating the base of the left coronary cusp leaflet.

[Click here to view](#)

Supplementary Video 3

Laceration of the left coronary cusp leaflet using Bioprosthetic Aortic Scallop Intentional Laceration to prevent Iatrogenic Coronary Artery technique.

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Supplementary Video 4

Final aortography showing intact both coronary ostia.

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