An 83-year-old female showed bifurcation disease at the proximal left anterior descending (LAD) artery. The patient complained of chest pain after the LAD stenting (Orsiro® stent 2.5×40 mm; Biotronik, Berlin, Germany), and angiography demonstrated compromised diagonal side branch (SB). Even though we tried to pass the SB, we made a huge dissection propagating into the distal SB. The systolic blood pressure decreased to 64 mmHg.

A Novel ‘Bailout Switch Crush Technique’ for a Jailed Side Branch Unable to Rewire

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An 83-year-old female showed bifurcation disease at the proximal left anterior descending (LAD) artery (Figure 1A, Supplementary Videos 1 and 2). The patient complained of chest pain after the LAD stenting (Orsiro® stent 2.5×40 mm; Biotronik, Berlin, Germany), and angiography demonstrated compromised diagonal side branch (SB) (Supplementary Video 3). Even though we tried to pass the SB, we made a huge dissection propagating into the distal SB (Figure 1B, Supplementary Video 4). The systolic blood pressure decreased to 64 mmHg.

Figure 1. Coronary angiographic findings. Severe stenosis involving bifurcation of the left anterior descending coronary artery (A). During the dissection spreads to the distal SB, blood flow was blocked (arrowhead; B). The guide extension catheter is inserted into the SB (C) and the final angiography (D).

SB = side branch.
Conflict of Interest
The authors have no financial conflicts of interest.

Data Sharing Statement
The data generated in this study is available from the corresponding authors upon reasonable request.

Author Contributions
Conceptualization: Roh JH, Yoon YH, Oh JK, Kim M, Lee JH; Data curation: Lee JH; Methodology: Lee JH; Supervision: Lee JH; Writing - original draft: Roh JH; Writing - review & editing: Lee JH.

We performed the ‘rescue’ balloon jailing and a switch crush technique to open the jailed SB (Figure 2). First, we dilated the compromised SB ostium over the jailed SB wire with 1.5-mm and 2.5-mm balloons sequentially (Figure 2A-C). Externally, we introduced a second stent long enough to cover from the proximal part to the LAD stent and beyond the dissection flap into the jailed SB (two Orsiro® stents 2.5×35 and 2.75×40 mm; Biotronik), facilitated by the guide extension catheter minimizing friction with the pre-implanted LAD stent (Figure 1C and Figure 2D-F, Supplementary Videos 5 and 6). Following SB stent implantation (Figure 2G), we rewired the LAD lesion through the LAD stent struts and performed a final kissing balloon inflation (two NC Emerge™ balloons, 3.0×15 and 2.75×15 mm; Boston Scientific Corporation [BSC], Natick, MA, USA) (Figure 2H, Supplementary Videos 7 and 8).

Even after applying the ‘rescue’ balloon jailing technique,1)2) we could not rewire the SB due to severe SB dissection. Under such emergency, the novel 'switch crush technique' represents the last option to save the significant SB in danger.

We obtained informed consent from the patient and her son to report the case.
SUPPLEMENTARY MATERIALS

Supplementary Video 1
Baseline angiogram; RAO cranial view.
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Supplementary Video 2
Baseline angiogram; LAO cranial view.
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Supplementary Video 3
Jailed diagonal ostium after LAD stenting.
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Supplementary Video 4
Propagation of diagonal artery dissection during the guidewire manipulation.
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Supplementary Video 5
Delivery of Guidezilla catheter to the diagonal artery.
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Supplementary Video 6
LAD stent crushed due to diagonal stenting.
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Supplementary Video 7
The final kissing balloon angioplasty.
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Supplementary Video 8
The final angiogram.
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