

IMAGES IN INTERVENTION

Usefulness of the Jailed-Balloon Technique in Percutaneous Intervention for Severe Coronary Perforation Involving Left Main Bifurcation



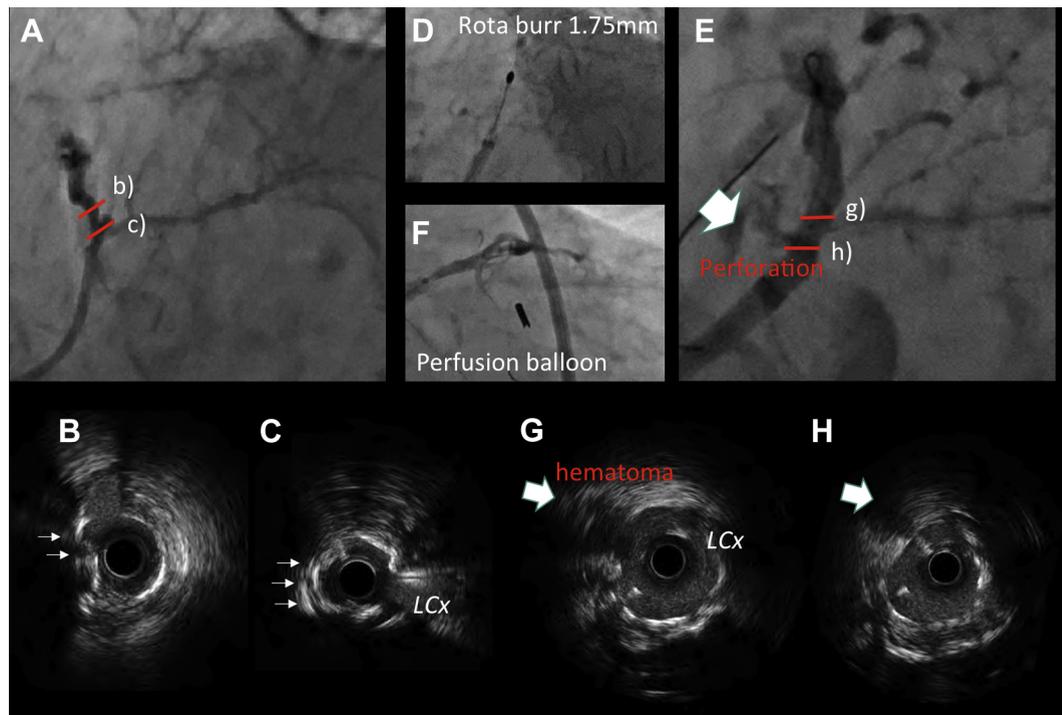
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An 83-year-old compromised female patient presented with unstable angina pectoris. Angiography and intravascular ultrasound (IVUS) revealed severe, calcified stenosis involving a left main (LM) distal bifurcation (Figures 1A to 1C). After rotational atherectomy (1.75-mm burr) (Figure 1D) and kissing balloon inflation, a 3.5/15-mm everolimus-eluting stent was implanted over the distal LM. Consequently, angiography revealed a severe coronary grade III perforation (Figure 1E, Online Video 1). Immediately, a 3.0 × 20-mm perfusion balloon was inflated for 30 min, resulting in arrest of the bleeding (Figure 1F). IVUS showed a large hematoma located at the opposite side of the ostial left circumflex (LCx) coronary artery (Figures 1G and 1H, Online Video 2). Again, however, angiography demonstrated a severe perforation at the same position. A 3.0/19-mm covered stent was implanted to cover the entire distal LM segment using the jailed balloon technique (JBT) with a 1.5/15-mm semicompliant balloon positioned in the proximal end of the LCx artery proximal to the stent (Figures 2A and 2B, Online Video 3). After the jailed

balloon was inflated, angiography showed good flow of the LCx artery (Figure 2C, Online Video 4), and IVUS showed complete coverage of the hematoma. A follow-up angiography at 6 months revealed good flow of the LCx artery without restenosis (Online Videos 5 and 6).

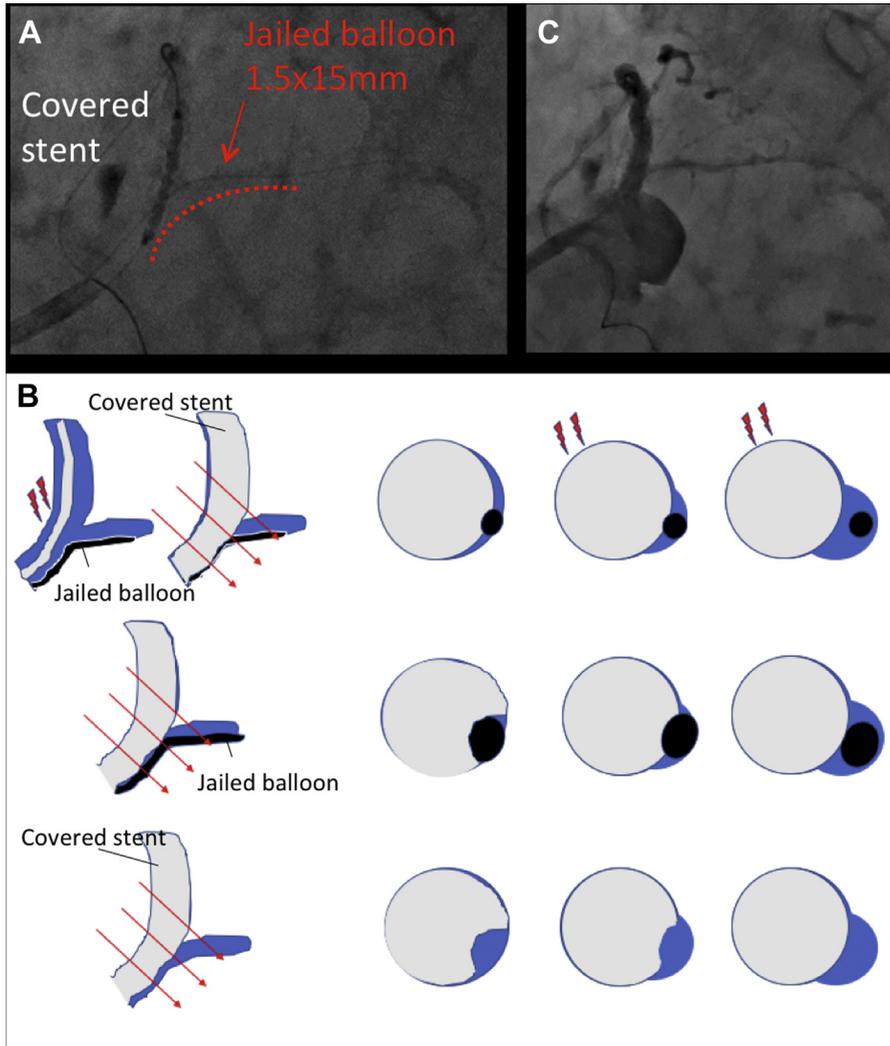
To the best of our knowledge, this is the first report of a bailout using JBT for an unprotected LM perforation, which had a high potential risk of hemodynamic collapse when the LCx artery was totally occluded. The risk of side branch occlusion is significantly reduced using JBT during main vessel stenting because of the higher occupation of the side branch ostium by the jailed balloon than conventional jailed wire protection (1,2). In conclusion, covered stent implantation using JBT should be considered when coronary perforation occurs in the distal LM segment.

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FIGURE 1 Angiography and IVUS Findings

Angiography revealed severe stenosis of the left main (LM) and proximal left anterior descending coronary artery with calcification (**A**) in spider view, and intravascular ultrasound (IVUS) showed severe calcified lesion (**small arrows**) at the opposite side of the ostial left circumflex (LCx) (**B and C**). (**D**) Rotational atherectomy was performed using a 1.75-mm burr, (**E**) perforation grade III occurred in the LM, and (**Online Video 1**) (**F**) a 3.0/20-mm perfusion balloon was inflated in the LM. IVUS showed a large hematoma without an external elastic membrane (**large arrows**) at the opposite side of the ostial LCx (**G and H**, **Online Video 2**).

FIGURE 2 Angiography and Illustration of the Covered Stent With JBT



A 3.0/19-mm covered stent was implanted with a 1.5/15-mm semicompliant balloon positioned in the left circumflex (LCx) proximal to the stent (A and B, [Online Video 3](#)). Final angiogram showed good flow of both the LCx and left anterior descending coronary artery ([Online Video 4](#)) (C) in spider view at the end of the procedure. JBT = jailed balloon technique.

REFERENCES

1. Depta JP, Patel Y, Patel JS, et al. Long-term clinical outcomes with the use of a modified provisional jailed-balloon stenting technique for the treatment of nonleft main coronary bifurcation lesions. *Catheter Cardiovasc Interv* 2013;82:E637-46.
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KEY WORDS covered stent(s), jailed balloon technique, left main disease, perforation

APPENDIX For supplemental videos, please see the online version of this paper.