

Intentional left main stentectomy to preserve coronary access before transcatheter aortic valve replacement

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ARTICLE INFO

Keywords:

Left main coronary artery
Percutaneous stentectomy
Protruding stent
Transcatheter aortic valve replacement
Coronary access
Drug-coated balloon
Intravascular ultrasound
Snare retrieval
Aorto-ostial stent
Case report

ABSTRACT

Protruding aorto-ostial coronary stents may compromise coronary access during and after transcatheter aortic valve replacement (TAVR). A 75-year-old woman with severe aortic stenosis, advanced chronic kidney disease, and a non-ST-elevation myocardial infarction was found to have a chronically implanted drug-eluting stent protruding from the ostial left main coronary artery into the aorta, precluding selective coronary engagement. After treating the calcified left circumflex artery with intravascular lithotripsy and stent implantation, the protruding stent was retrieved intact using a tri-loop snare through a guide extension catheter. Intravascular ultrasound confirmed complete removal with preserved luminal area. Drug-coated balloon angioplasty was performed to preserve a metal-free ostium. TAVR was performed successfully with preserved selective coronary engagement. At seven months, the stentectomy site remained patent; the patient died of cardiogenic shock from unrelated bilateral ostial in-stent restenosis. This case demonstrates that intentional left main stentectomy with a drug-coated balloon-only strategy can enable safe TAVR with preserved coronary access.

1. Introduction

Protruding aorto-ostial coronary stents represent a unique procedural challenge during and after transcatheter aortic valve replacement (TAVR). Stent protrusion can preclude selective coronary engagement, limit access for future coronary interventions, and increase the risk of coronary obstruction after valve deployment [10,11]. Aorto-ostial stent placement is technically challenging due to the rigid nature of the aorto-ostial segment, and high rates of geographic miss have been documented [7,12,15]. While strategies such as the Side Flap technique and chimney stenting have been proposed to manage protruding stents [11,13], intentional percutaneous stentectomy as a pre-TAVR strategy to restore an unobstructed left main ostium has not been reported.

We present the case of a high-surgical-risk patient with a chronically implanted protruding left main stent who underwent intentional stentectomy, drug-coated balloon angioplasty, and subsequent TAVR, with seven-month angiographic follow-up confirming stentectomy site

patency.

2. Case presentation

2.1. Patient information

A 75-year-old woman with known coronary artery disease, severe aortic stenosis (valve area 0.7 cm², mean gradient 42 mmHg), chronic kidney disease (eGFR 18 mL/min/1.73 m², creatinine 2.03 mg/dL), hypertension, and dyslipidemia was admitted with non-ST-elevation myocardial infarction. High-sensitivity troponin I was elevated at 4.46 ng/mL on admission (Fig. 3E). The admission electrocardiogram showed sinus rhythm (Fig. 3A). Coronary angiography revealed a fully deployed stent protruding from the ostial left main coronary artery into the aorta, precluding selective coronary engagement (Fig. 1A-B and Supplementary Video S1). The patient had left coronary dominance, with a severe, heavily calcified stenosis involving the ostium and

Abbreviations: AVR, aortic valve replacement; BEV, balloon-expandable valve; CABG, coronary artery bypass grafting; CTA, computed tomography angiography; DCB, drug-coated balloon; DES, drug-eluting stent; eGFR, estimated glomerular filtration rate; IVL, intravascular lithotripsy; IVUS, intravascular ultrasound; LAD, left anterior descending artery; LCx, left circumflex artery; LM, left main coronary artery; NSTEMI, non-ST-elevation myocardial infarction; NYHA, New York Heart Association; PCI, percutaneous coronary intervention; RAO, right anterior oblique; STS-PROM, Society of Thoracic Surgeons Predicted Risk of Mortality; TAVR, transcatheter aortic valve replacement; TIMI, Thrombolysis in Myocardial Infarction.

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<https://doi.org/10.1016/j.crmic.2026.100169>

Received 21 May 2026; Accepted 23 June 2026

Available online 24 June 2026

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proximal segment of the left circumflex artery.

The protruding stent was a Xience Sierra 3.0×23 mm drug-eluting stent (cobalt-chromium platform, $81 \mu\text{m}$ strut thickness, 3 inter-ring connectors), implanted in 2020 at another institution during an acute coronary syndrome. During complex percutaneous treatment of a severely calcified left anterior descending artery, a flow-limiting left main dissection occurred and was treated with bail-out stent implantation, resulting in a protruding configuration with the stent extending into the aorta. The circumstances of the original procedure were reconstructed from referral documentation; pre-procedural computed tomography was deferred at the time of the index admission because of advanced renal dysfunction, and CT angiography was subsequently performed after coronary intervention exclusively for TAVR planning.

2.2. Diagnostic assessment and surgical risk

Surgical risk assessment estimated an STS-PROM of 12.5% for combined coronary artery bypass grafting (CABG) and aortic valve replacement (AVR + CABG) and a EuroSCORE II of 15.9%, placing the patient in a high surgical risk category. Key contributors to the elevated operative risk included advanced chronic kidney disease, reduced left ventricular ejection fraction, insulin-dependent diabetes mellitus, peripheral artery disease, NYHA class III heart failure, and recent non-ST-elevation myocardial infarction. After Heart Team discussion, surgical aortic valve replacement was deemed prohibitively high-risk, and a staged percutaneous approach was selected, consisting of coronary intervention with mechanical circulatory support, intentional retrieval of the protruding left main stent, and subsequent TAVR.

2.3. Therapeutic intervention

2.3.1. Procedural setup and wiring

Bilateral femoral access was obtained, and an intra-aortic balloon pump was inserted via the left femoral artery. A 7F XB 3.0 guiding catheter from the right femoral artery was positioned at the left coronary sinus. Non-selective engagement of the left coronary artery due to severe stent protrusion is illustrated in Fig. 1A, with baseline angiography shown in Fig. 1B. Using an airmailing technique, a J-tip soft polymeric wire was advanced through the true stent lumen (Fig. 1C). Intravascular ultrasound (IVUS) confirmed correct intraluminal guidewire positioning (Fig. 1D). Baseline IVUS assessment demonstrated a stent cross-sectional area of 15.43 mm^2 (perimeter 14.5 mm) at the protruding segment (Fig. 4A), with severe ostial left circumflex artery compromise (lumen area 3.1 mm^2 , perimeter 8.16 mm ; Fig. 4B). The left anterior descending artery distal reference measured $3.75 \times 3.91 \text{ mm}$ (area 7.88 mm^2 ; Fig. 4C) and the left circumflex distal reference area measured 7.72 mm^2 (perimeter 9.9 mm ; Fig. 4D). A second workhorse wire was advanced into the left circumflex artery using a dual-lumen microcatheter.

2.3.2. Left circumflex artery treatment

Following lesion preparation with non-compliant balloons and intravascular lithotripsy, a drug-eluting stent (Synergy Megatron $3.5 \times 24 \text{ mm}$) was deployed from the distal left main to the proximal left circumflex artery, without overlapping the protruding stent (Fig. 1E).

2.3.3. Stent retrieval

The protruding stent was retrieved using a 12–20 mm tri-loop snare advanced through a 7F guide extension catheter (SnareZilla technique; Fig. 1F–G, Fig. 2, and Supplementary Video S2). The stent was removed intact (Fig. 1H).

2.3.4. Confirmation of complete removal

Complete stent extraction was verified by a triple-confirmation strategy: (1) direct visual inspection of the retrieved device, confirming structural integrity with no missing segments; (2) fluoroscopy demonstrating absence of residual metallic structures at the left main

ostium; and (3) intravascular ultrasound excluding residual metallic fragments along the entire extraction corridor (Fig. 1I). Post-stentectomy IVUS demonstrated a minimum lumen area of 13.25 mm^2 (perimeter 16.0 mm) at the extraction site, with a mild, non-flow-limiting dissection flap (Fig. 4E).

2.3.5. Post-extraction strategy

Post-retrieval IVUS revealed a mild, non-flow-limiting dissection at the ostial left main coronary artery, with a minimum lumen area of 13.25 mm^2 and TIMI 3 flow. Rather than deploying an additional stent, a metal-free strategy was deliberately adopted. Drug-coated balloon angioplasty (Vesselin/Elutax $3.5 \times 35 \text{ mm}$ for the left main-left anterior descending segment and $3.0 \times 30 \text{ mm}$ for the mid-left anterior descending artery) was performed to treat the denuded surface and any residual dissection while avoiding additional metallic layers at the left main ostium (Fig. 1J). This decision was guided by IVUS findings demonstrating preserved luminal area, the absence of flow limitation, and the imperative to maintain an unobstructed ostium for future coronary access after TAVR. Recent consensus statements have supported the use of drug-coated balloon angioplasty as a viable strategy in selected coronary lesions, particularly when metal avoidance is desirable [8].

2.3.6. Final result and TAVR

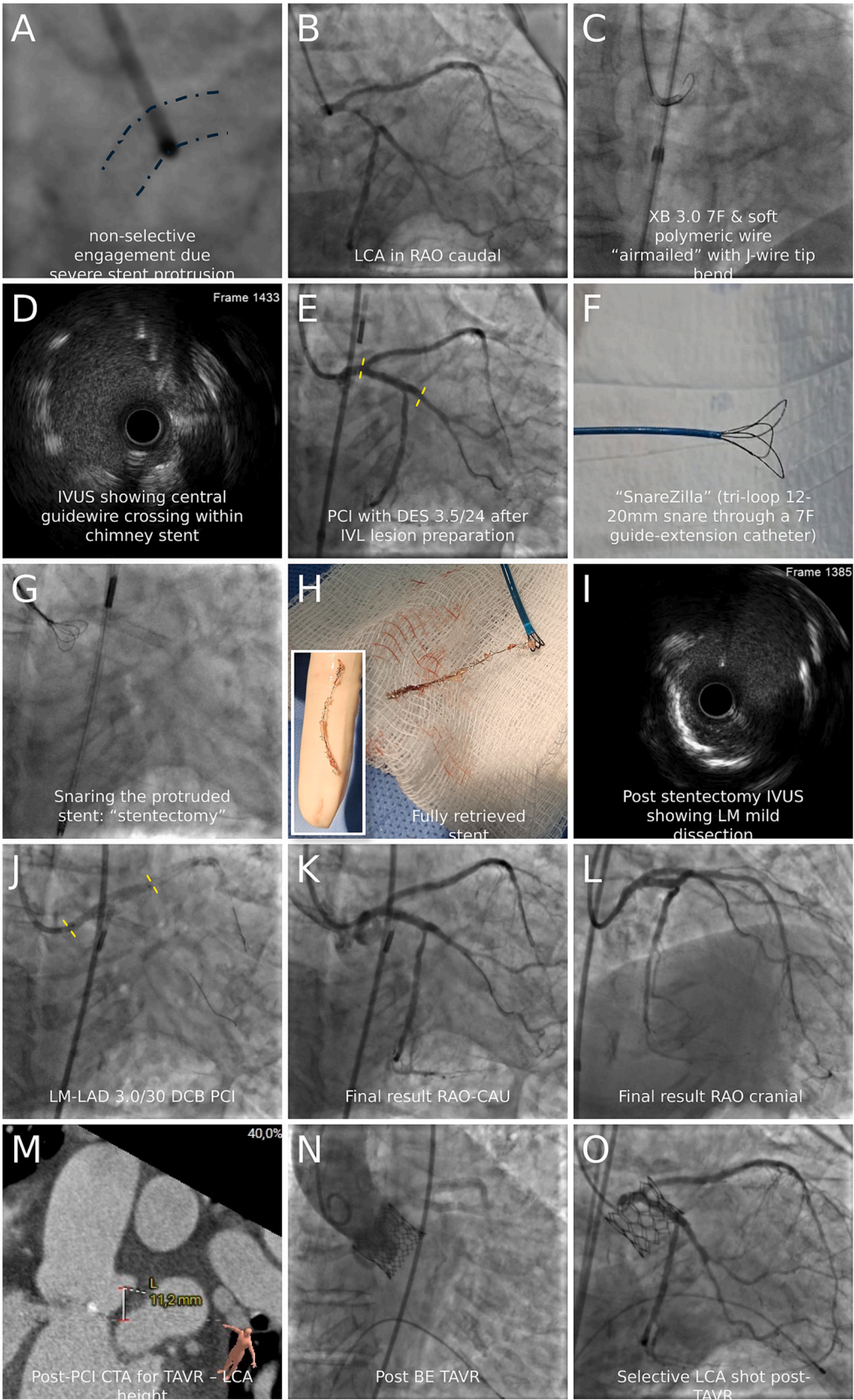
Final IVUS assessment confirmed satisfactory results: left anterior descending ostium minimum lumen area of 8.39 mm^2 (perimeter 10.4 mm) after drug-coated balloon angioplasty (Fig. 4F), and left circumflex ostium minimum stent area of 10.77 mm^2 (perimeter 12.1 mm) after drug-eluting stent implantation (Fig. 4G). Final angiographic results after the coronary intervention are shown in Fig. 1K–L. Computed tomography angiography was performed after the coronary procedure to support TAVR planning. The aortic annulus measured 23.1 mm (area-derived diameter; area 420 mm^2 , perimeter 73.8 mm , perimeter-derived diameter 23.5 mm , eccentricity index 0.22). The sinuses of Valsalva measured 30.3 mm (left coronary cusp), 27.7 mm (right), and 29.3 mm (non-coronary). The sinotubular junction diameter was 25.6 mm and the ascending aorta 31.4 mm . Left coronary artery height was 11.2 mm and right coronary artery height was 16.4 mm , both at favorable distance from the annular plane (Fig. 1M). Aortic valve calcification was moderate (calcium score 232 mm^3). The horizontal aorta angle was 47° . Iliofemoral access assessment confirmed adequate caliber bilaterally (right common femoral artery 7.1 mm ; left 6.9 mm). Based on these measurements, a 24.5 mm balloon-expandable valve (BEV) was selected (12% annular oversizing). TAVR was successfully performed after clinical stabilization, with preserved selective left coronary engagement confirmed on final angiography (Fig. 1N–O and Supplementary Video S3). The patient was discharged after a 54-day hospitalization, including the initial admission for NSTEMI, staged coronary intervention, and TAVR.

2.3.7. Periprocedural electrocardiographic and biomarker monitoring

Serial twelve-lead electrocardiograms and high-sensitivity troponin I measurements were obtained throughout the hospitalization (Fig. 3). The post-stentectomy electrocardiogram showed no significant changes compared with baseline (Fig. 3B). Troponin I, which had declined from 4.46 ng/mL at admission to 0.28 ng/mL before the coronary intervention, dropped further to 0.049 ng/mL on the first day after PCI and stentectomy, with only a mild periprocedural rise to 1.07 ng/mL on the second post-procedural day (Fig. 3E).

2.3.8. Second NSTEMI — hypertensive crisis and flash pulmonary edema

Six days after the stentectomy and coronary intervention, the patient developed a hypertensive crisis complicated by flash pulmonary edema, requiring readmission to the coronary care unit. Serial troponin I rose from 1.35 ng/mL to a peak of 11.90 ng/mL (Fig. 3C, E), consistent with a type 2 non-ST-elevation myocardial infarction precipitated by the acute



(caption on next page)

Fig. 1. Snare-assisted stentectomy of a protruding left main (LM) stent with drug-coated balloon strategy and TAVR.

(A) Non-selective engagement due to severe stent protrusion. (B) Left coronary angiography in right anterior oblique (RAO) caudal. (C) XB 3.0 7F guiding catheter and soft polymeric wire airtailed with J-wire tip bend. (D) IVUS showing central guidewire crossing within the protruding stent. (E) PCI with DES 3.5/24 after IVL lesion preparation. (F) “SnareZilla” configuration: tri-loop 12–20 mm snare through a 7F guide extension catheter. (G) Snaring the protruded stent (“stentectomy”). (H) Fully retrieved intact stent (Xience Sierra 3.0 × 23 mm). (I) Post-stentectomy IVUS showing LM mild dissection. (J) LM-LAD drug-coated balloon PCI. (K) Final result RAO caudal. (L) Final result RAO cranial. (M) Post-PCI CTA for TAVR planning demonstrating left coronary artery height. (N) Post balloon-expandable TAVR. (O) Selective LCA engagement post-TAVR.

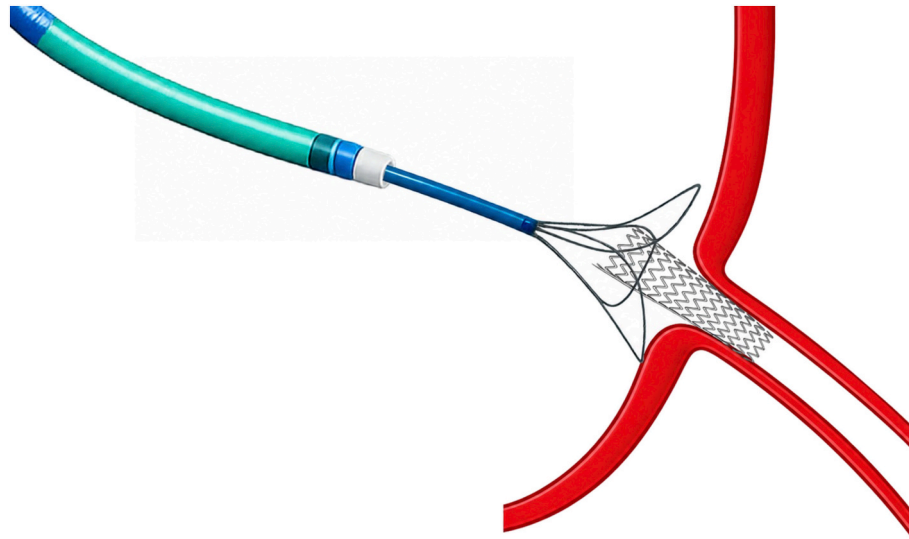


Fig. 2. “SnareZilla” configuration: guide extension catheter combined with a tri-loop snare. Illustration of the SnareZilla construct, a multi-loop (tri-loop) snare pre-loaded directly into a guide extension catheter and advanced en bloc through the guiding catheter to the target zone, dispensing with the dedicated snare delivery catheter. The three independent loops distribute grip circumferentially around the stent edge and engage struts at multiple points, while the large-lumen guide extension provides coaxial support, facilitates device manipulation, and accommodates the retrieved specimen for controlled en bloc withdrawal. This represents the most efficient configuration for percutaneous coronary stentectomy, offering the greatest coaxial traction force and minimizing snare slippage during external pull. The superiority of the tri-loop design is conferred by its three-dimensional geometry: the three nitinol loops are deployed in orthogonal planes, forming a true 360-degree capture basket that remains coaxial with the vessel lumen regardless of target orientation, a geometric advantage unavailable to planar single-loop snares.

hemodynamic decompensation. The electrocardiogram at this time showed normal sinus rhythm with nonspecific ST-T and T wave abnormalities (Fig. 3C). Troponin subsequently declined over the following two weeks (7.25, 4.59, 3.84, and 0.14 ng/mL) with conservative management. This event was attributed to demand ischemia in the setting of severe aortic stenosis, reduced left ventricular function, and the acute pressure overload, rather than to a thrombotic coronary complication of the stentectomy. After clinical stabilization, the patient proceeded to TAVR as planned.

2.4. Follow-up and outcomes

Post-discharge echocardiography at two months showed improvement in left ventricular ejection fraction from 32% to 45%, with a well-seated prosthetic aortic valve (mean gradient 8 mmHg, no paravalvular leak). The patient reported sustained symptomatic improvement, with resolution of exertional dyspnea and angina. She was enrolled in a cardiac rehabilitation program and demonstrated favorable functional recovery over the following months.

At seven months after TAVR, the patient presented with a non-ST-elevation myocardial infarction. The electrocardiogram at readmission is shown in Fig. 3D. Emergent coronary angiography revealed severe in-stent restenosis at both the ostial left circumflex artery (at the site of the previously implanted Synergy Megatron 3.5 × 24 mm drug-eluting stent) and the ostial left anterior descending artery (Supplementary Video S4). Importantly, the left main stentectomy site was widely patent, with no evidence of restenosis or adverse remodeling, confirming mid-term durability of the drug-coated balloon-only strategy at this location. Despite emergent percutaneous coronary intervention with

intra-aortic balloon pump support performed by the on-call interventional team (Supplementary Videos S5-S6), the patient developed refractory cardiogenic shock requiring vasopressor support and died two days after the procedure. The terminal event was directly attributable to ostial left circumflex and left anterior descending artery in-stent restenosis and was unrelated to the left main stentectomy or the transcatheter aortic valve.

3. Discussion

This case demonstrates the feasibility and mid-term safety of intentional left main stentectomy combined with drug-coated balloon angioplasty as a pre-TAVR strategy to preserve coronary access. The seven-month follow-up, including angiographic confirmation that the stentectomy site remained patent and free of restenosis at the time of the terminal event, adds meaningful outcome data to the limited literature on this procedure.

3.1. Percutaneous stentectomy: Evolving indications

Intentional retrieval of fully deployed coronary stents has been described in isolated case reports and small series, most commonly involving aorto-ostial stents that precluded guide catheter re-engagement [2–5,16]. Earlier reports documented percutaneous retrieval or explantation across different clinical scenarios, including stent loss, malposition, and procedural complications, using a variety of techniques and devices. Building on this experience, Ragosta et al. reported a series of four patients in whom intentional snare-assisted extraction of erroneously deployed aorto-ostial stents was performed

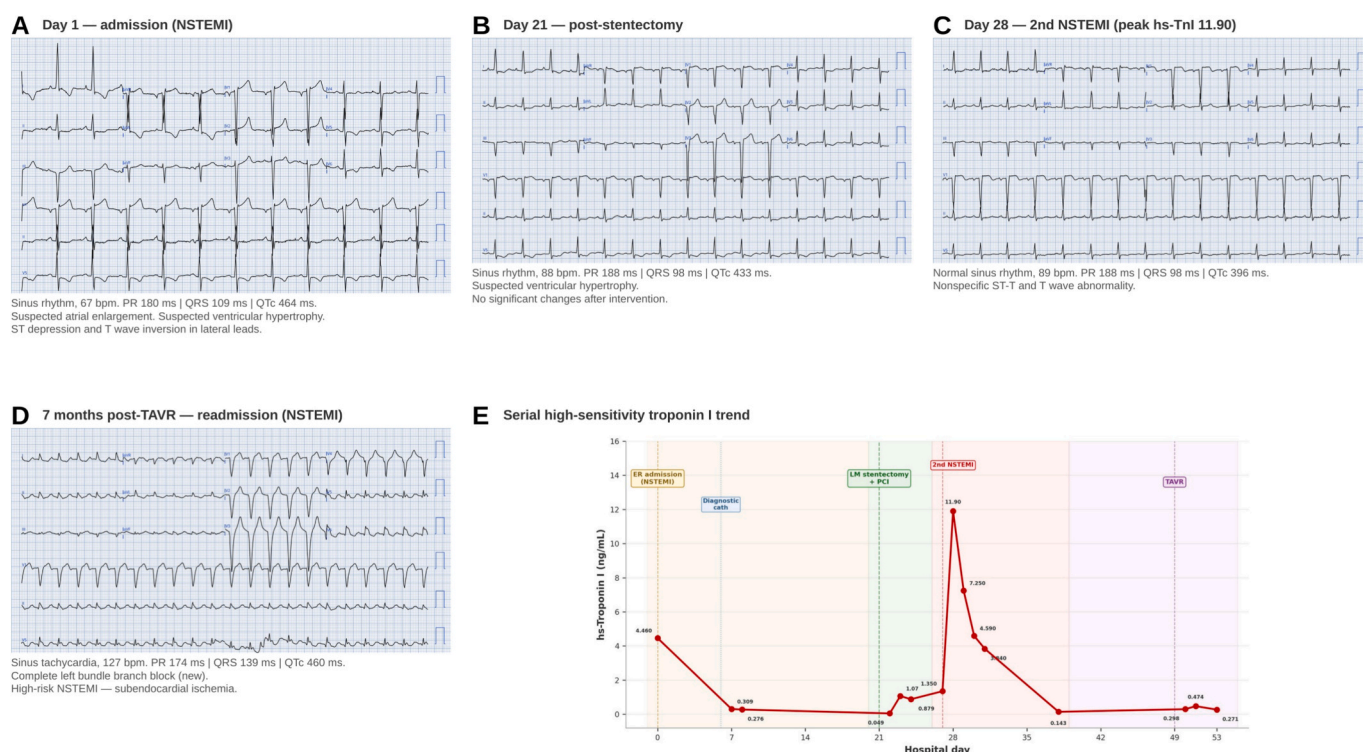


Fig. 3. Serial electrocardiographic and biomarker monitoring throughout the clinical course.

(A) Twelve-lead electrocardiogram on the day of admission (hospital day 1), showing sinus rhythm with suspected atrial enlargement and ventricular hypertrophy. (B) Twelve-lead electrocardiogram on the day of PCI and stentectomy (hospital day 21), showing no significant changes after the intervention. (C) Twelve-lead electrocardiogram during the second NSTEMI episode (hospital day 28), precipitated by hypertensive crisis and flash pulmonary edema, showing normal sinus rhythm with nonspecific ST-T and T wave abnormalities. (D) Twelve-lead electrocardiogram at seven-month readmission with non-ST-elevation myocardial infarction, showing sinus tachycardia with complete left bundle branch block (new) and subendocardial ischemia. (E) Serial high-sensitivity troponin I trend throughout the index hospitalization, demonstrating the initial decline from the admission NSTEMI, minimal periprocedural elevation after stentectomy (peak 1.07 ng/mL on post-procedural day 2), a second troponin peak (11.90 ng/mL on hospital day 28) related to the hypertensive crisis episode, and subsequent normalization before TAVR.

safely, including stents implanted up to five years earlier [1]. More recently, Grantham et al. provided a detailed, step-by-step technical description of percutaneous stentectomy performed nearly a decade after implantation to facilitate repeat coronary revascularization [6], and Singh et al. reported successful snare-assisted retrieval of an old, overhanging right coronary artery ostial stent with symptomatic in-stent restenosis [9].

In contrast to these prior reports, the present case addresses a distinct and increasingly relevant clinical scenario: intentional left main stentectomy performed primarily to preserve future coronary access in a patient requiring transcatheter aortic valve replacement. In this context, the protruding stent represented not only a barrier to coronary re-engagement but also a potential risk factor for coronary obstruction after valve implantation.

3.2. Coronary access after TAVR: Why the stent had to go

Coronary obstruction and impaired re-engagement after TAVR are well-recognized complications, particularly in patients with low coronary height, bulky transcatheter valve frames, or protruding coronary stents [10]. In a recent systematic review and meta-analysis of 30 studies including over 13,000 patients, Giacobbe et al. reported that coronary access after TAVR was feasible in approximately 90% of cases, but was significantly influenced by prosthesis type, sinus anatomy, and pre-existing coronary hardware [10]. In this setting, a protruding left main stent represents a unique and underreported challenge, transforming a previously life-saving intervention into a potential long-term liability. Mercanti et al. have described the protruding stent

configuration as a recognized complication pattern during TAVR, emphasizing its impact on procedural planning and coronary re-access [11].

3.3. The role of stent design in extraction feasibility

The protruding stent in this case was a Xience Sierra 3.0 × 23 mm (Abbott Vascular), a cobalt-chromium platform with 81 μm strut thickness and 3 inter-ring connectors, chronically implanted for approximately four years. Stent design influences extraction in ways not apparent from fluoroscopy alone: platforms with fewer connectors elongate more predictably under traction but may deform more easily, while high-connector platforms resist elongation but may fragment. The relatively thin struts and low connector count of the Xience platform likely contributed to the smooth, intact retrieval observed in this case. Understanding these design-specific biomechanics is increasingly important as operators consider stentectomy for chronically implanted devices [12,13].

Aorto-ostial stent placement remains technically challenging due to the fibrotic, calcified, and relatively rigid nature of the aorto-ostial segment, as well as the need for precise stent positioning to achieve full lesion coverage while avoiding excessive proximal extension into the aorta [7]. During the treatment of complex ostial disease or bail-out management of left main dissections, even small inaccuracies in stent positioning may result in unintended protrusion into the aortic root. High rates of geographic miss in aorto-ostial stenting have been documented, reinforcing the technical difficulty of precise ostial deployment [12,15]. The clinical consequences of excessive ostial stent protrusion,

including impaired guide catheter engagement and recurrent ischemic events, have been further highlighted by Damarkusuma et al. [14].

3.4. Side flap technique versus stentectomy: Complementary strategies

The comprehensive evaluation by Leibundgut et al. represents a major contribution to managing excessive aorto-ostial stent protrusion [13]. Their systematic bench testing demonstrated that longitudinal crushing strategies (direct guide catheter pushback, anchor-assisted push, balloon-assisted pushback, and telescoping ring-by-ring maneuvers) are mechanically unreliable and frequently produce severe stent deformation or malapposition rather than controlled foreshortening. The Side Flap technique, which rewires and dilates a side cell to laterally displace the protruding segment, achieved high procedural success without technique-related adverse events in their clinical experience [13].

Side Flap and stentectomy address different failure modes and are best viewed as complementary strategies within a unified toolkit. Given its favorable safety profile and reproducibility, the Side Flap technique may be considered an initial stent-preserving option in anatomically suitable cases. However, stentectomy is preferred in several specific scenarios: when TAVR planning requires an unobstructed ostium (since lateral metal displacement does not restore coaxial re-engagement); in multilayer in-stent restenosis substrate; with critical longitudinal deformation or delivery-system loss; when the protruding segment exceeds approximately 7 mm; when a prior Side Flap attempt has failed; or when a metal-free drug-coated balloon strategy is pursued [13].

3.5. Drug-coated balloon strategy after stent retrieval

Unlike previous reports in which repeat stent implantation was routinely performed after stent retrieval, we deliberately adopted a metal-free strategy using drug-coated balloon angioplasty. This decision was guided by IVUS findings demonstrating preserved luminal area and only mild, non-flow-limiting dissection, as well as by the need to minimize metallic burden at the left main ostium. The third report of the International Drug-Coated Balloon Consensus Group has supported the use of DCB angioplasty as a viable strategy in selected coronary lesions, including de novo disease and in-stent restenosis, with acceptable long-term outcomes [8]. Avoidance of additional metal layers may be particularly advantageous in TAVR candidates, in whom coronary access after valve implantation can be technically challenging or even impossible [10].

The seven-month angiographic follow-up in this case confirmed patency of the stentectomy site treated with DCB alone, providing preliminary evidence that a metal-free post-extraction strategy can maintain vessel integrity in the mid-term. Conversely, the terminal event (in-stent restenosis at both the ostial left circumflex and ostial left anterior descending arteries) underscores the well-recognized limitations of metallic stent implantation in this high-risk population, further supporting the rationale for minimizing metal when clinically feasible.

3.6. The central role of intravascular imaging

Consistent with prior reports, intravascular imaging played a central role in procedural safety. Ragosta et al. demonstrated that stent extraction may be associated with endothelial denudation or dissection, reinforcing the importance of IVUS to confirm vessel integrity and

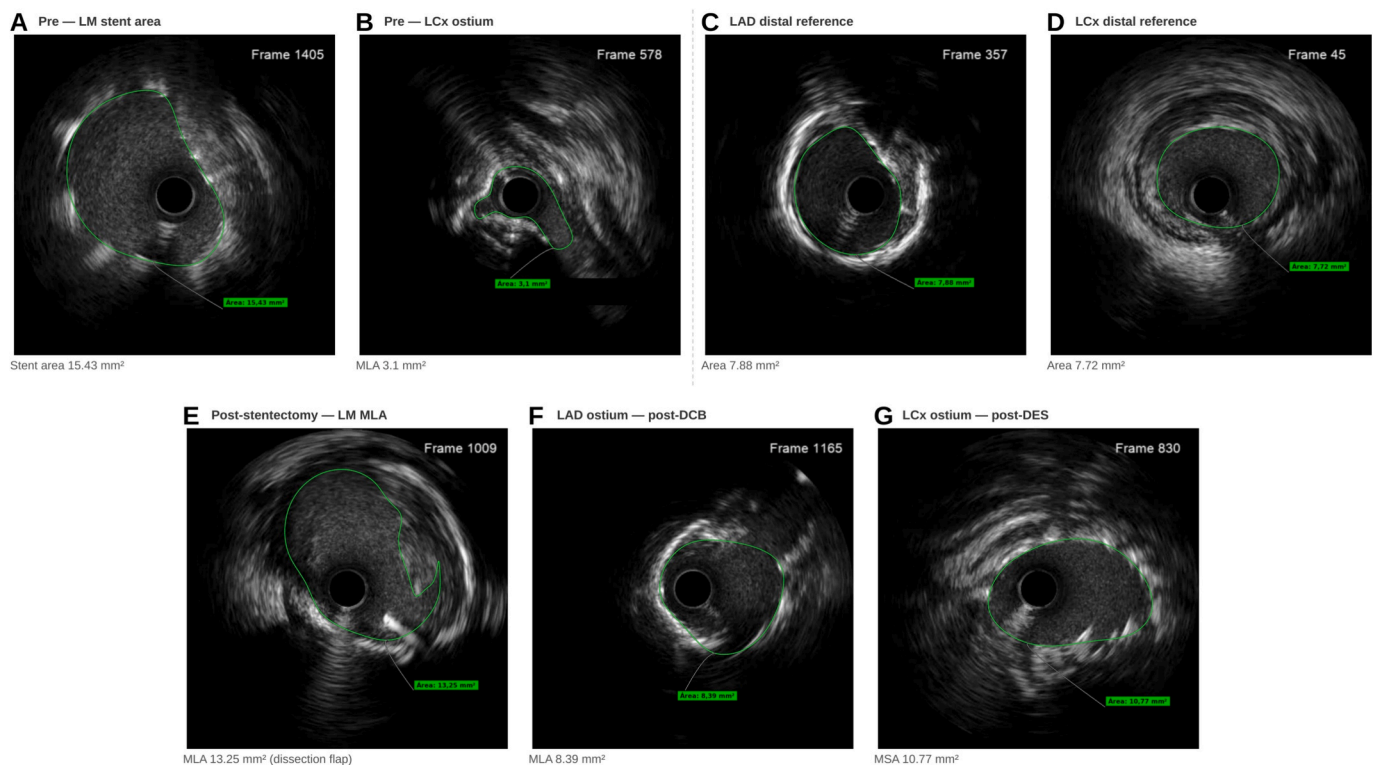


Fig. 4. Intravascular ultrasound (IVUS) assessment during left main stentectomy and coronary intervention.

(A) Pre-stentectomy IVUS at the protruding left main stent segment, demonstrating stent cross-sectional area of 15.43 mm² with protruding struts. (B) Pre-stentectomy IVUS at the left circumflex ostium, showing severe compromise with minimum lumen area of 3.1 mm² due to stent jail. (C) Left anterior descending distal reference segment (area 7.88 mm², perimeter 1.01 cm), used for drug-coated balloon sizing. (D) Left circumflex distal reference segment (area 7.72 mm², perimeter 9.9 mm), used for drug-eluting stent sizing. (E) Post-stentectomy IVUS at the left main extraction site, showing minimum lumen area of 13.25 mm² with a mild, non-flow-limiting dissection flap. (F) Left anterior descending ostium after drug-coated balloon angioplasty, with minimum lumen area of 8.39 mm². (G) Left circumflex ostium after drug-eluting stent implantation, with minimum stent area of 10.77 mm².

exclude retained metallic fragments [1]. In our case, IVUS served multiple critical functions: confirming correct intraluminal guidewire positioning before extraction; verifying complete stent removal along the entire extraction corridor; excluding residual metallic fragments; characterizing the post-extraction dissection as non-flow-limiting with a minimum lumen area of 13.25 mm² (Fig. 4E); and ultimately supporting the decision to pursue a conservative, metal-sparing strategy rather than empiric re-stenting (Fig. 4). This triple-confirmation approach (visual inspection, fluoroscopy, and IVUS) provides a comprehensive safety framework that should be considered standard practice for percutaneous stentectomy.

4. Limitations

This is a single case report, and the generalizability of our findings is inherently limited. Pre-procedural computed tomography was deferred because of advanced renal dysfunction, precluding detailed assessment of stent protrusion length, coronary height, and calcification burden before the intervention. However, CT angiography was performed after coronary intervention for TAVR planning, and the procedural approach was guided by real-time IVUS assessment. The existing literature on intentional stentectomy remains confined to case reports and small series, and the long-term outcomes of drug-coated balloon-only strategies at the left main ostium require validation in larger cohorts.

5. Conclusions

This case expands the existing literature on percutaneous stentectomy by demonstrating that intentional removal of a chronically implanted protruding left main stent can be safely performed as part of a broader strategy aimed at preserving coronary access before TAVR. When guided by intravascular imaging and combined with a metal-free drug-coated balloon-only revascularization strategy, stentectomy represents a viable option in selected patients at the intersection of complex coronary and structural heart disease. The seven-month follow-up, including angiographic confirmation that the stentectomy site remained patent at the time of an unrelated terminal event, supports the mid-term durability of this approach. The complementary roles of the Side Flap technique and stentectomy should be integrated into a unified decision framework, with procedural choice guided by clinical indication, degree of protrusion, the need for coronary access, and the feasibility of metal-free revascularization.

CRediT authorship contribution statement

Evandro Martins Filho: Conceptualization, Investigation, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing. **Ricardo Fonseca Oliveira Suruagy Motta:** Investigation, Writing – review & editing.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images and videos. Following the patient's death, consent for continued publication was confirmed with the next of kin.

Ethics statement

Ethics committee approval was not required for this case report in accordance with institutional policies.

Declaration of Generative AI and AI-assisted technologies in the writing process

Generative AI tools were used during the preparation of this

manuscript to assist with language editing, formatting, and figure preparation. The authors reviewed and edited all AI-generated content and take full responsibility for the final manuscript.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.crmic.2026.100169>.

Data availability

Data will be made available on request.

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