

**GISE**

Società Italiana di Cardiologia Interventistica

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**2024**  
JOINT INTERVENTIONAL MEETING



**ABSTRACT BOOK**

**21/23 ROME**  
**MARCH 2024**

FELLOWS COURSE **20** MARCH

# CLINICAL SCENARIO COMPETITION

## A CASE OF OCT GUIDED PCI FROM ASPIRIN-FREE PRASUGREL MONOTHERAPY (ASET) STRATEGY IN PATIENTS WITH CCS AND NSTEMI-ACS

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**Case:** While A 60 years old gentle man suffered from recent onset of chest pain at rest, he was urgently transferred to our hospital and underwent coronary angiography and subsequent successful OCT guided stenting. While he met the inclusion criteria of Aspirin-Free Prasugrel Monotherapy (ASET) Strategy, he agreed with this study. Backgrounds: recent randomized studies have indicated that short-term dual-antiplatelet therapy (DAPT) after PCI could provide more favorable clinical outcome as compared to long-term DAPT (DAPT). However, P2Y12 inhibitor monotherapy without aspirin immediately after PCI has not been investigated.

**Methods:** Acetyl-Salicylic Elimination Trial (ASET) pilot studies was conducted in Brazil and Japan. These trials are multicenter, single-arm, open-label trials. In Brazil, only stable CCS patients were enrolled. In Japan, stable CCS patients were enrolled in Phase 1, and NSTEMI-ACS patients were enrolled in Phase 2. Patients with anatomical SYNTAX scores < 23 were included. All the target lesions were treated with platinum-chromium everolimus-eluting (SYNERGY™) stent. Prasugrel monotherapy with a maintenance dose of 10 mg/day in Brazil and 3.75 mg/day in Japan was given to all the patients after PCI. The primary ischemic endpoint was the composite of cardiac death, spontaneous target vessel myocardial infarction, or definite stent thrombosis, and the primary bleeding endpoint was Bleeding Academic Research Consortium types 3 and 5 bleeding up to 30 days.

**Results:** At the end of September 2023, 3-month follow-up was completed in 508 patients (201 patients in Brazil and 307 patients in Japan). The mean Age was 65.3±10.7 with 73.6% of males. The mean anatomical SYNTAX score was 7.7±4.6. The primary ischemic and bleeding endpoints occurred in 3 patients (0.6%). No stent thrombosis event occurred.

**Conclusion:** Prasugrel monotherapy immediately after SYNERGY stent deployment was a feasible and safe strategy in patients with stable CCS as well as NSTEMI-ACS regardless of the geographic difference. We will show a typical case of OCT-guided stenting from the ASET study.

## WHEN THE GOING GETS TOUGH: BAIL-OUT PERCUTANEOUS SEPTAL ALCHOLIZATION AFTER TAVR IN HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY

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**Razionale:** Aortic stenosis (AS) is a progressive disease in which left ventricle had to adapt to chronic pressure overload, resulting in hypertrophy and abnormal diastolic relaxation. In most cases, the hypertrophy is concentric, although some patients present with an asymmetric upper septal hypertrophy with or without dynamic LVOT obstruction. Despite it remains unclear what factors may induce this type of remodeling, it is evident in the literature that the presence of asymmetrical septal hypertrophy correlates with an increased risk of mortality in patients undergoing transcatheter aortic valve replacement (TAVR), which can result in suboptimal valve placement or migration or worsening of LVOT obstruction. In fact, a sudden reduction in afterload after TAVR may exacerbate subvalvular obstruction (the so called “suicide left ventricle”) leading to systolic anterior motion (SAM) of the anterior mitral leaflet and worsening of severe mitral regurgitation with final hemodynamic collapse. We present a case of an 86 years old woman with hypertrophic obstructive cardiomyopathy (HOCM) in regular follow-up. Her past medical history was remarkable for diabetes, hypertension, asthma and hypotiroidism. She suffered for worsening dyspnea (NYHA III) for which she repeated a transthoracic echocardiography that showed a severe calcific AS (Max velocity 5.8 m/s, mean gradient 78 mmHg) associated with a basal interventricular septum hypertrophy (26 mm) and additional severe intraventricular gradient at rest (65 mmHg); left ventricle had a normal ejection fraction (56%). A mild mitral regurgitation was also noted, without evidence of systolic anterior movement (SAM). Cardiac catheterization showed no obstructive coronary artery disease. Hemodynamic pull back evaluation showed the presence of significant valvular gradient (Peak-to-peak gradient 45 mmHg) and additional severe LVOT gradient (55 mmHg) with only mild to moderate MR at baseline. Cardiac CMR was also performed to rule out cardiac amyloidosis. Aorta angioCT was also done to study the aortic anulus anatomy as well as peripheral vasculature and confirm, once again, the severity of AS (Calcium score 3806 AU). The case was then discussed in Heart Team where the surgical valve replacement procedure was ruled out taking in account the high surgical risk and patient’s age; hence the decision was made to perform high-risk TAVR procedure.

**Technical resolution:** Patient underwent TAVR during esmolol and fluid iv infusion trying to improve hemodynamics condition maintaining adequate preload and increasing the time of diastolic filling. After balloon pre-dilatation, a self-expanding valve (SEV, Navitor 25 mm, Abbott) was implanted by transfemoral approach without any residual perivalvular leakage. However, at the end of the procedure, despite the absence of any residual intravalvular gradient, the intraventricular gradient worsened to 80 mmHg and MR became severe due to SAM of AML as assessed by LV angiogram. Transferred in CCU under continuous fluid resuscitation and esmolol infusion, patient developed progressive hypotension, lung congestion, oliguria, lactate rise and signs of heart failure that were treated with loop diuretics, and cycles of NIV. A transesophageal echocardiography (TEE) was performed confirming a severe MR due to SAM of AML and a severe and worsening LVOT obstruction (65 mmHg). At this point, to correct mitral regurgitation and at least reduce the presence of SAM, we evaluated the possibility of performing a transcatheter edge-to-edge repair of mitral valve (M-TEER) but, echocardiographic examination showed an insufficient length of the posterior leaflet, a significative anterograde mitral gradient (> 5 mmHg) and diffuse calcifications of the leaflets that made the valve anatomy not amenable to percutaneous correction. As bail-out strategy, we therefore decided to perform a percutaneous alcoholization of interventricular septum: the procedure was planned under general anesthesia and oro-tracheal intubation with preliminary selective assessment of anatomy and perfusion of each septal branches using TEE and selective SonoVue injection. A temporary pacemaker was placed into right ventricle, and continuous subvalvular gradient was monitored by placing a pigtail into LV throughout a secondary contralateral access. First step was to advance a workhorse wire in the second septal branch and positioning an over-the-wire (OTW) low profile balloon (1.5 mm) to obtain a stop flow. Then we injected distally Boston Contour polyvinyl-alcohol particles in the septal branch obtaining a complete closure of the vessel S2. Same procedure was also performed on third septal S3. Differently, the larger first septal S1 was embolized successfully with 5 Helix Concerto coils (3x4 mm + 3x4 mm + 4x8 mm + 6x20 mm + 4x8 mm.). At the end of the procedure, a complete occlusion of all septal branches S1, S2 and S3, was obtained, with significant reduction of the LVOT gradient from 80 mmHg at the beginning to 15 mmHg and a reduction of MR from severe to mild. A new echocardiography was performed the day after confirming a substantial reduction of intraventricular gradient and mitral regurgitation. Troponin I peak was 140000 ng/L. Despite the clear benefit of the procedure, during the hospitalization in CCU, patient suffered for a pulmonary sepsis which is still ongoing, and prolonged the hospitalization.

**Clinical implications:** The widespread adoption of TAVR as the standard of care for the treatment of AS has brought numerous challenging scenarios. Asymmetrical hypertrophy represents one of these, in which THV implantation may led to an abrupt reduction in afterload resulting in an increased LVOT flow velocity that may produce a Venturi effect creating or worsening LVOT obstruction. It’s noteworthy that in these cases, the LVOT gradient is often present before procedure and medical therapy was insufficient alone to optimize hemodynamic condition to avoid possible complications after the THV implantation (suicide ventricle). TEER, when technically feasible, has been described as a bailout procedure in these cases. Alcohol septal ablation represents another potential therapeutic option in such a challenging case, in particular if TEER is not feasible.

**Perspectives:** In conclusion, interventricular septal embolization emerges as a promising and safe bailout strategy for patients with marked septal hypertrophy leading to LVOT obstruction and haemodynamic collapse after TAVR. The infusion of particles or coils results in an immediate reduction of myocardial contractility, eliciting instantaneous hemodynamic improvements as well as subsequent reduction in myocardial mass. Despite these encouraging outcomes, a critical challenge remains unresolved: the optimal timing for this procedure in relation to TAVR. Whether to undertake embolization before TAVR, concurrently during the TAVR procedure (as observed in combined surgical approaches like SAVR with myectomy), or as an emergent bailout measure afterward, remains a subject of ongoing debate. Further studies are needed, focusing not only on determining the ideal timing for interventricular septal embolization but also on elucidating its true impact on prognosis and mortality.

## VALVE-IN-VALVE TRANSCATHETER AORTIC VALVE IMPLANTATION FOR A DEGENERATED STENTLESS BIOPROSTHESIS IN A VERY YOUNG PATIENT: IS IT TIME FOR A TREATMENT PARADIGM SHIFT?

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**Rational:** Young and middle-aged patients with aortic valve disease represent a challenging population given their long life expectancy. A concern with the increasingly implanted bioprosthetic valves is the potential for an upcoming pandemic of prosthesis failure, particularly as younger patients are more frequently treated with bioprosthetic valves. Valve-in-valve (ViV) transcatheter aortic valve implantation (TAVI) has emerged as a less-invasive alternative to conventional redo surgery for bioprosthetic valve dysfunction, but it is mostly recommended for elderly patients with high operative risk. Furthermore, ViV-TAVI is a safe and reliable treatment option, but its use in the setting of stentless bioprosthesis degeneration is more demanding as it is associated with technical challenges and potential procedural complications such as malposition and coronary obstruction. Here, we present case of a 45-year-old man with a history of major surgical aortic coarctation repair (1983) admitted to our emergency department for dyspnea, NYHA II-III. Twenty years ago, he underwent an aortic valve and root replacement with a stentless Freestyle n.27 heterograft for annulo-aortic dilatation and severe aortic regurgitation (AR) in a bicuspid valve.

**Technical resolution:** Transthoracic echocardiogram showed structural bioprosthetic degeneration with mean gradient values of 63 mmHg, acceleration time >100 msec, Doppler velocity index of 0.24, and predominant severe aortic regurgitation. According to VARC-3 criteria, severe hemodynamic valve deterioration was diagnosed. Coronary angiogram did not reveal any significant coronary stenosis. Despite the low-intermediate risk, given the high complexity, morbidity, and mortality associated with redo root replacement and the patient's preferences, a ViV-TAVI was chosen during heart team discussion. The pre-operative computed tomography (CT) showed slight aortic isthmus narrowing, aortic calcification, appropriate coronary height, and a perimeter-derived diameter of 21 mm. Considering the stentless type of prosthesis, the valve's morphology, and the young age, a self-expandable supra-annular open-frame valve (ACURATE Neo2 L) was chosen. As there is a lack of radiographic and anatomic landmarks in stentless valves, transesophageal echocardiography was used to guide the transfemoral biological valve implantation.

**Clinical Implications:** The valve was successfully released, with minimal AR and no evidence of paravalvular leaks during aortography. The post-procedural trans-thoracic echocardiography showed normal trans-prosthetic gradients (mean gradient 19 mmHg), minimal AR, and no pericardial effusion. No patient-prosthesis mismatch was revealed. After a year since discharge, the patient had a better quality of life, no significant symptoms, and no major adverse cardiovascular or cerebrovascular events.

**Perspectives:** In patients with previous aortic root replacement and a degenerated stentless bioprosthetic valve, ViV-TAVI can be performed with a low risk of complications despite the presence of unique technical challenges. However, detailed pre-procedural planning is essential, along with multislice CT scanning and operative knowledge of the previous stentless aortic root operation, to facilitate valve selection and deployment accuracy and minimize coronary obstruction. In addition, age and surgical risk should not be the only parameters, but a multitude of clinical, anatomical factors and patients' preferences need to be meticulously evaluated to determine candidacy and the feasibility of ViV-TAVI. However, unanswered questions of durability, coronary access, and risk of redo TAVI still remain in young patients, but priority should be given to the lifetime management of patients with aortic stenosis.

## DRUG COATED BALLOON ANGIOPLASTY IN THREE VESSEL DISEASE AND LEFT ANTERIOR DESCENDING CHRONIC TOTAL OCCLUSION

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**Rationale:** Drug-coated balloons (DCBs) are emerging as an alternative approach to fulfill the “leaving nothing behind” principle and to avoid long-term complications associated with drug-eluting stents (DES) implantation. While DCBs have been investigated for small vessels and in-stent restenosis, long-term data about large vessels and chronic total occlusions (CTO) treatment are lacking. However, available data about DCB only treatment outcomes of de novo CTO lesions are encouraging, especially when the revascularization result of the balloon angioplasty is satisfactory.

**Technical resolution:** Left anterior descending (LAD) coronary artery, obtuse marginal branch and right coronary artery PTCA with DCB has been performed in a young patient affected by three vessel coronary artery disease and LAD CTO. Procedural optimization is guided by intravascular ultrasound (IVUS), focusing solely on the LAD with the implantation of a short drug-eluting stent

**Clinical implications:** Treating a three-vessel disease patient reducing the use of drug-eluting stents (DES) in order to improve clinical outcomes without compromising future therapeutic options.

**Perspectives:** Expanding the use of DCBs to a broader patient population and exploring new complex coronary scenarios in order to reduce the use of permanent scaffolds.

## “UNITY IS STRENGTH”, A CASE OF TRICUSPID EDGE TO EDGE REPAIR

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**Rationale:** Tricuspid regurgitation (TR) is a complex and heterogenous entity that independently and negatively affects patients prognosis. Between many TR etiology, lead-related tricuspid regurgitation (LTR) is novel entity. An 80 year old man was admitted to our ward due to progressive congestive heart failure refractory to optimal medical therapy. He had several cardiovascular risk factors and atrial fibrillation. He was affected by ischemic and valvular cardiomyopathy treated with mitral valve annuloplasty and triple coronary artery bypass graft in 2016. Moreover, he underwent a ICD implantation in 2019 for secondary prevention, with a preexisting significant TR.

**Technical resolution:** Following admission, intravenous diuretic therapy was started with improvement of the congestive status. Both transthoracic (TTE) and transesophageal (TOE) echocardiogram were performed. Left ventricular (LV) function was mildly impaired (45%) with mild LV dilation (EDVi 78 ml/mq). Right ventricle (RV) was dilated (end diastolic area 45 cmq) and dysfunctional (fractional area change - FAC 31%) with severe TR due to atrial functional regurgitation with annular dilation (50mm) and lead-interference with septal leaflet impingement (LTR type A). Moreover, the transgastric view was suboptimal due to lead related shadowing. A complete hearth catheterization revealed patency of graft without severe irreversible hypertension (meanPAP 30 mmHg, PCWP 20 mmHg, PVR 1.6 WU). Given the high surgical risk (TRISCORE and EUROSCORE around 14% of intrahospital mortality) the Heart Team evaluation stated for transcatheter TR repair. Considering the several mechanism of TR, the PM dependency and previous tachyarrhythmias, a multistep but single stage procedure was planned with a multidisciplinary approach involving lead removal and reimplantation as well as edge to edge repair. Under general anesthesia, with surgical back up, TOE guidance and LV pacing through guide wire, a lead extraction was performed to free septal leaflet and remove shadowing in transgastric view. Therefore, a transcatheter edge to edge repair (TEER) was performed implanting 2 XTW clips to target the large jet between anterior and septal leaflets. Finally, a new ICD lead with active fixation was implanted through the postero-septal commissure. At the end of the procedure, an effective reduction of TR was achieved with negligible anterograde gradient (3 mmHg). At 8 months follow up, the patient showed functional improvement with sustained TR reduction and decreased dosage of diuretics.

**Clinical Implications:** TR often underlies different etiologies that call for an integrated approach. In this case, in the absence of lead removal, edge-to-edge repair would not have been possible due to lead interference with the septal leaflet and acoustic shadowing. However, the significant annular dilatation made an effective TR reduction unlikely with just lead removal. Given the history of malignant ventricular arrhythmias and PM dependency, a new transvenous ICD lead implant was judged necessary. For these anticipated reasons, a single stage multistep approach was chosen.

**Perspectives:** Managing TR requires meticulous planning and an integrated, step-by-step approach to offer patients comprehensive treatment. However, due to the potential complications associated both with transvenous lead extraction and structural heart interventions, this approach should be conducted in heart valves centers in a fully supportive environment.



## REDO TAVR FOR SEVERE PVL AFTER TAVR IN TYPE I BAV

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**Rationale:** Paravalvular leak (PVL) is a frequent complication after transcatheter valve implantation (TAVI). Its occurrence is declining, but it remains a significant factor in determining long-term prognosis. An 81 y.o. female was admitted to our ward due to progressive heart failure. A year before she underwent TAVI with a 25 mm transcatheter heart valve (THV – Navitor) for symptomatic severe stenosis in bicuspid aortic valve (BAV - Type I L-R fibrous raphe) .

**Technical resolution:** After TAVI, despite progressive post-dilatation, a mild-moderate PVL was noted. At the discharge left ventricle (LV) function and dimension were within the limits. During this admission, at the transthoracic echocardiogram, LV function was normal (EF 55%) and LV dilated (LVEDVi 116 ml/mq). At transoesophageal echocardiogram, severe aortic regurgitation (AR) mainly due to PVL was found (PHT 211 ms, regurgitant volume 61 ml, holodiastolic flow reversal in descending aorta, circumferential extent of PVL 25%). To better evaluate relationships between THV and aortic root anatomy, a CT scan was performed. At the MPR the index THV appeared well expanded. However, the dept of implant was lower than expected with virtual basal ring above predicted THV skirt. At the same time, undersized THV was discovered upon additional examination of the index procedure's CT image (Area 422 mmq Perimeter 73.8 mm Area derived perimeter 23,2 mm). During first THV implantation, a little undersizing was preferred considering the type I co-dominant BAV with a raphe length of 7.3 mm, anterafe distance of 23.8 mm and an intercommisural distance of 27 mm with a virtual rafe ring diameter of 72.8 mm (Perimeter derived diameter of 23.18mm). These measurement were borderline between 25 mm and 27 mm Navitor. Due to the nature of PVL, closure by valve in valve (ViV) rather than vascular plug was the preferred technique, as both undersizing and implant depth were thought to be contributing issues. Femoral access was feasible for transfemoral ViV. Coronary ostia above risk plane did not mandate any coronary protection. For these reasons the heart team evaluation stated for percutaneous sealing of PVL. Considering original anulus, a balloon expandable valve (BEV- Sapien 3) 23 mm +3cc was the valve of choice. The patient underwent ViV with no procedural complication and good hemodynamic result (Mean gradient 10 mm, AR index 0.35). Post procedural echo showed mildly dilated LV (EDVI 73 ml/mq) with normal function (EF 54%), no sign of AR and transvalvular gradient consistent for a 23 mm BEV (Gmax/med 28/17 mmHg, Vmax 2.7 m/s). The patient was safely discharged 3 days later.

**Clinical Implications:** The prevalence of PVL following TAVI has been reported to range from 7% to 40%, making it one of the most prevalent complications. PVL greater than moderate is one of the major determinants of prognosis after TAVI, even though recent observational studies showed that any grade of PVL has a relevant prognostic implication. BAV is significantly linked to the development of PVL mainly due to anulus ellipticity, asymmetrical calcification and perceived fear of anulus rupture which result in a higher frequency of underexpanded and malposed THV. Given the growing frequency of TAVI among BAV patients and their comparatively young ages, it is critical to implement all available preventative and/or therapeutic measures for PVL.

**Perspectives:** Newer devices have been shown to reduce the incidence of PVL, as has a deeper examination of the anatomy of the aortic root using CT-scan. As a result, thorough pre-procedural assessment is essential to matching the appropriate patient with the appropriate prosthesis. However, despite best efforts, PVL can still occur. Different transcatheter options are available from ballooning post dilatation, to vascular plug to ViV procedure. In this scenario ViV, whenever feasible, is an effective procedure in closing wide leak especially when they are due to great THV malapposition.



## ONE OF THE WORST NIGHTMARE WE'VE HAD

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**Rationale:** While being a relatively rare condition, Spontaneous coronary artery dissection (SCAD) is an eventuality that must always be considered when evaluating clinical presentations, since the implications are potentially catastrophic. We recently encountered a case involving a 62-year-old woman with clinical presentation suggestive of SCAD: given the importance of understanding coronary anatomy in the diagnostic and therapeutic algorithm in such cases, we performed coronarography.

**Technical resolution:** Upon the first injection of contrast into the Left Main (LM), an extensive dissection involving both Left Anterior Descending (LAD) and Circumflex (Cx) occurred, leading to hemodynamic instability: to address this situation, we employed various techniques to gain the true lumen of both vessels and took advantage of the use of hemodynamic support with Intra-aortic Balloon Pump (IABP). Once hemodynamic stability was achieved, we proceeded with an extensive Intravascular Ultrasound (IVUS) - guided stenting, ultimately achieving an excellent final angiographic result.

**Clinical implications:** The patient was discharged in excellent condition and with preserved left ventricular function.

**Perspectives:** Managing iatrogenic complications in patients with SCAD is a very sensitive topic, particularly for less experienced operators. The review of cases such as this one can contribute to the prevention of certain scenarios and guide the right course of action when they cannot be avoided.



## ACUTE MYOCARDIAL INFARCTION DUE TO CORONARY PSEUDOANEURYSM ASSOCIATED WITH STENT THROMBOSIS: CASE REPORT OF A COMPLEX PATIENT

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**Rationale:** We report the case of a patient accessing to our E.R. for chest pain and presenting a new-onset left bundle branch block. In his past cardiovascular history unstable angina (treated with Percutaneous Coronary Intervention on Left Anterior Descending artery in 2007), followed in the next years by worsening angina and multiple angioplasties (PCI on Circumflex artery in 2021). In 2022 the revascularization of a chronic total occlusion of the Right Coronary Artery (RCA) was performed. At the angiography, we appreciated a pseudoaneurysm of the RCA associated with intrastent thrombosis, treated with the placement of several covered stents and drug eluting stents. Due to the presence of critical disease of Left Anterior Descending artery and Circumflex artery and severe mitral regurgitation, a Coronary artery bypass-graft (CABG) and mitral annuloplasty was afterwards performed.

**Technical resolution:** We placed three covered stents to the point of the pseudoaneurysm; we treated the acute subocclusion with balloon-catheters and the placement of two drug eluting stents. We appreciated the final absence of pseudoaneurysm haziness and the resolution of the distal subocclusion. We performed IntraVascular UltraSound (IVUS) to confirm the result.

**Clinical implications:** Pseudoaneurysm is a rare complication of stent fracture; in our case, it was associated with stent thrombosis determining subocclusion of the distal edge. In the acute setting it's mandatory to exclude a coronary perforation to perform the best therapeutic strategy; because of the necessity of mitral valve repair, the revascularization was completed by a CABG. Due to the new onset of after surgery persistent atrial fibrillation and the patient high-ischemic risk, an anti thrombotic tailored therapy was planned.

**Perspectives:** In the presence of contrast spread, the use of intravascular imaging is essential for differential diagnosis. The possibility of using an anti thrombotic tailored therapy may balance bleeding and ischemic risks.

## A SCARY TAVR COMPLICATION: BALLOON ENTRAPMENT IN A SELF-EXPANDING AORTIC VALVE STENT FRAME

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**Rationale:** We present a case of a 73 years old patient who underwent a valve-in-valve TAVR procedure due to stenosis of aortic biological prosthesis. A scary complication occurred during procedure: balloon entrapment in a valve stent frame, solved after high traction removal and placement of a second balloon in annular position.

**Technical resolution:** Another balloon was placed in annular position to prevent valve pop-out. Then the stucked balloon was removed with high traction force under rapid pacing.

**Clinical implications:** We showed a less invasive possible solution to prevent this complication and to prevent surgical urgent removal.

**Perspectives:** This case want to warn TAVR operators of this scary complication and suggest possible solutions to prevent and solve the problem.

# POSTERS

**P01****IMPELLA-PROTECTED PCI IN A 53-YEAR-OLD PATIENT WITH END-STAGE REFRACTORY ANGINA****Filippo Pensotti<sup>1,2</sup>, Antonella Potenza<sup>1</sup>, Giovanni Panzacchi<sup>1</sup>, Diego Salerno Uriarte<sup>1</sup>, marco guazzi<sup>1,2</sup>**<sup>1</sup>Ospedale San Paolo, Milan, Italy, <sup>2</sup>University of Milan, Milan, Italy

With the advent of Impella protected high-risk PCI, patients with formerly refractory angina pectoris in end-stage coronary artery disease are often judged not end-stage anymore [1,2]. The benefit on angina relief has not yet been investigated after these extremely complex procedures.

**Rationale:** Here, we report a case of extremely complex coronary artery disease in a patient with end-stage refractory angina presenting with recurrent NSTEMI and CHF. Male, 53 years old with post-ischemic DCM and end-stage refractory angina. CV risk factors: hypertension, type 2 DM, former smoker, obesity, Comorbidities: AF con DOAC, CKD with baseline creatinine 2,1 mg/dl, NASH, chronic thrombocytopenia due to bone marrow hypoplasia. Transthoracic echocardiography: diffuse hypokinesia with akinesia of the posterior IVS, inferior and inferolateral walls resulting in a moderately depressed EF (33%). Previous PCI on Cfx, RCA and DA and previous CABG with LIMA-DA and Y-graft with RA on RI and OM. Last angiogram performed during a previous NSTEMI : severe three vessel disease with subocclusion of the DA, RI and Cfx, hypoplastic RCA and acceptable patency of LIMA-DA and RA-RI-OM grafts. Presented to our hospital with recurrent NSTEMI ( 6 hospitalizations during the last year) and CHF. He is currently on FU at Hub Tertiary Center for end-stage angina where he was judged not amenable to cardiac transplantation or any MCS. After an inter-hospital Heart Team Discussion, we decided to perform an Impella-protected high-risk PCI on the native coronary arteries.

**Technical resolution:** CT scan of the abdomen and of the lower limbs revealed a > 50% stenosis on the origin of the external right iliac artery and a lesser degree atherosclerotic disease on the left-axis. Impella SmartAssist CP was therefore placed in a standard fashion through a left femoral access and a right femoral access was used for the XB 3,5 PCI catheter. After several attempts to deliver Shockwave balloon ( buddy wire, child-in-mother) we pretreated the calcific ISR on CX with crescent diameter NC balloons. Subsequently we were able to deliver crescent diameter Shockwave balloons ( 2,5 and 3 x 12) ( 8 x 10"). As a completion, we positioned proximally to the ISR 1 DES Cr8 Evo 3,5 x 20 mm. Afterwards we treated the DA/D1 bifurcation lesion. D1 was pre-dilatated and then, we positioned a 2,5 x 26 mm Cr8 Evo distally and proximally on the LM/DA axis a 3,5 x 13 mm Cr8 Evo DES. On RI we firstly debulked the calcific lesion with Shockwave 2,5 x 20 mm ( 8 x 10") and then placed two DES Cr8 Evo 3 x 26 mm and 2,5 x 20 mm. At the end of the procedure we safely obtained hemostasis with two Proglide on the 14 F Impella access and with AngioSeal on the 7 F right femoral access. Post-procedure creatinine was 2,2 mg/dl; the overall burden of contrast medium was diminished by maintaining central perfusion with Impella SmartAssist CP. Patient was discharged free of angina after 1 week of hospitalization. He is still on FU at Hub Tertiary Center and no further hospitalizations occurred in the last 4 months. Currently he has CCS grading of angina Level 1 with improved quality of life according to KCCQ questionnaire.

**Clinical Implications:** A thorough clinical Heart Team discussion is essential to provide some therapeutic options even among end-stage patients. Hemodynamic support with Impella CP is essential to perform multi-hours complex procedures in order to achieve angina relief and satisfactory angiographic result. The overall burden of contrast medium can be diminished among fragile patients (Es. CKD patients) by maintaining central perfusion

**Perspectives:** In the last few years, the spectrum of patients amenable to percutaneous revascularization has broadened with the use of Impella and extremely complex procedure can be safely performed even among fragile end-stage patients  
The know-how of these procedures is elaborate and the operator learning curve can be extremely challenging but the benefits for the patients could be tangibles and life-changing

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**P02**  
**PERCUTANEOUS LEFT ATRIAL APPENDAGE CLOSURE USING ICE (INTRACARDIAC ECHOCARDIOGRAPHY) MONITORING VIA TRANSORAL INSERTION: INITIAL EXPERIENCE AND FUTURE PERSPECTIVES**

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**Rationale:** Left Atrial Appendage Closure (LAAC) procedure requires adequate planning and visualization via perioperative echocardiographic monitoring with trans oral echocardiography (TOE), in order to achieve the best result with the minimum rate of complications. In some patients with contraindications to orotracheal intubation or TOE, the possible solutions are intracardiac echocardiography (ICE), which requires highly trained personnel with a good expertise, or Micro TOE, not easily available in most centers. We report a clinical case where adequate IAA occlusion was achieved via sedation and transoral utilization of ICE probe.

**Technical resolution:** A 77 year old male with a clinical history of permanent AF and frequent episodes of transfusion requiring anemization due to a duodenal angiodysplasia with a HASBLED of 4 points and CHADSVASC of 4 points required LAAC procedure. Due to the presence of esophageal varices, bronchiectasis and a Mallampati IV class, the patient had both contraindications to general anesthesia with oral intubation and to TOE. We then decided to perform LAAC with echocardiographic monitoring via utilization of trans oral ICE probe (8 Fr, 2.6 mm) and sedation.

In the OR the patient was first evaluated for the presence of thrombus formation in LAA; then we proceeded to gain echo-guided femoral vein access and performed trans septal puncture with the usual bicaval and short axis echo section. Once in the LA, visualization and adequate measurement of LAA were achieved via a combined imaging (echographic + angiographic), implanting a 27 mm Watchman FLX, released after ascertaining of adequate PASS criteria (Position, Anchoring, Sizing, Sealing). Total procedure time was 42 minutes.

**Clinical implications:** Echo monitoring via trans oral ICE could represent a valid alternative in patients with contraindications to general anesthesia or TOE. This approach could also simplify the procedure, by reducing its invasiveness and bettering patient's comfort. Comparing Micro TOE and ICE probes costs and availability, the latter could represent a viable option being already used in most electrophysiology centers.

**Perspectives:** Despite it being off-label at this time, sharing experiences and data could contribute to the further studies and the future feasibility. RCTs and cost-effectiveness studies are required to validate said technique.

**P03**  
**EXCIMER LASER CORONARY ATHERECTOMY IN SEVERE CALCIFIC MID LEFT ANTERIOR DESCENDING ARTERY IN-STENT RESTENOSIS**

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**Rationale:** Complex procedures are becoming increasingly common, given the widespread occurrence of atherosclerotic disease with a calcific component and the diffusion of interventional treatments. A 68-year-old woman with chronic coronary syndrome (prior angioplasties on the left anterior descending artery in 2003, right coronary artery and posterior descending artery in 2011), homozygous familial hypercholesterolemia, arterial hypertension and chronic kidney disease is electively admitted to our department due to the onset of typical angina on moderate exertion (CCS 2) over the past few months, with echocardiographic evidence of preserved systolic function of the left ventricle at rest. The initial procedure reveals multiple critical stenoses in tandem in the proximal and mid segments of the left anterior descending artery (LAD), and critical in-stent restenosis in the mid-distal segment, as well as a critical stenosis in a large caliber diagonal branch (D1). During the first session, despite the high calcific burden, lesions in D1 and the proximal LAD are effectively treated, while the in-stent restenosis proves undilatable with non-compliant balloons up to 2.75 mm and uncrossable with cutting balloon and IVUS.

**Technical resolution:** Therefore, a second procedure is planned to resolve the in-stent restenosis with debulking using excimer laser (ELCA). After numerous runs at high energy with contrast medium injection, adequate debulking is achieved with optimal dilation of non-compliant balloons up to a caliber of 3, resulting in better apposition of the previously implanted stent without distal edge dissections.

**Clinical implications:** Considering the clinical stability and the patient's desire, who was involved in the decision-making process and expressed opposition to surgical intervention in the presence of an alternative method, a distal left internal mammary artery graft was a plausible alternative, albeit not without potential complications. In this case, the possible failure of debulking using ELCA would not preclude the possibility of surgical myocardial revascularization. Last but not least, the use of excimer laser is indicated for calcified and uncrossable in-stent restenosis.

**Perspectives:** The availability of dedicated devices for the treatment of calcified lesions is essential to address the increasingly complex procedures that we face in cath labs. Procedural success is closely tied to choosing the right device for each patient. In our clinical case, the preexistence of the stent and the uncrossability of the lesion directed us towards the use of intracoronary laser, which proved safe and allowed us to achieve an excellent angiographic result, compared to the certainly more burdensome surgical alternative for the patient.



**P04**  
**PROTEMBO C-TRIAL: A PROSPECTIVE EVALUATION OF A NOVEL CEREBRAL PROTECTION DEVICE DURING TAVI**

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**Rationale:** Foundation cerebral embolic protection (CEP) devices have not proven effective in reducing stroke during TAVR. Novel CEP devices offering complete cerebral protection have the potential to address this deficiency. The PROTEMBO C Trial (NCT04618718) sought to evaluate the safety and performance of the ProtEmbo CEP system during TAVR. This novel deflection filter covers all aortic cerebral branches, consists of a self-expanding nitinol frame and heparin-coated mesh, and is delivered via the left radial artery (6Fr).

**Technical resolution:** PROTEMBO C is a prospective multinational single-arm non-inferiority study. VARC 2-major adverse cardiac and cerebrovascular events (MACCE) at 30-days represented the primary safety endpoint in the intention-to-treat (ITT) population. This endpoint was compared to a performance goal (PG) of 25% derived from historic data. A sample size of 60 provided 85% power to reject the null hypothesis if 30-day MACCE with ProtEmbo was  $\leq 10\%$  (upper limit of 95%CI of 30-day MACCE & 1-sided  $\alpha=0.02529$ ). Device technical success was the primary performance endpoint, and this was compared to a historic performance goal of 75%. A key secondary endpoint included new lesion volume on brain diffusion-weighted magnetic resonance imaging (DW-MRI).

**Clinical implications:** The ITT population consisted of 60 patients: mean age  $79\pm 5.1$  yrs and STS  $2.8\pm 1.3\%$ . MACCE at 30-days was 4.7%, meeting the predefined PG for safety (upper limit 95%CI: 12.9% vs. PG 25%;  $p=0.0001$ ). A single stroke was reported, 12 hours after TAVR. No device-related adverse events occurred. Successful placement of ProtEmbo was achieved in 57 cases (95%), meeting the pre-specified PG for performance (lower 95%CI: 86.3% vs PG 75%,  $p=0.0002$ ). Complete cerebral coverage was observed in 98.2%. The average time for device deployment was  $4.7\pm 4.4$  min and mean additional contrast use was  $4.3\pm 13.7$  ml. A total of 51 patients had ProtEmbo placement and underwent baseline and 30-day DW-MRI (per protocol population). The median total new lesion volume was  $210\text{mm}^3$  [108, 566]. Notably, 76.5% of patients were free of single lesions  $>150\text{mm}^3$ , and 94.1% were free of single lesions  $>350\text{mm}^3$ .

**Perspectives:** Primary safety and performance endpoints of the PROTEMBO C Trial were met with statistical significance. Secondary efficacy analysis reveals minimal new lesions, no large single lesions, and low stroke rate compared to historical data. A median volume comparison between Sentinel (all territories) and ProtEmbo has revealed a notable numerical decrease in the overall volume of new lesions. Utilizing this data, a pivotal IDE trial has been approved by the FDA with a primary endpoint focused on DW-MRI assessment at  $24\pm 12$  hours to further evaluate safety and efficacy with next version of the ProtEmbo® System (V3.0)



**P05**  
**BIG GIRLS ARE BEST**

**Pierangelo Basso<sup>1</sup>, David Rutigliano<sup>1</sup>, Vincenzo Palumbo<sup>1</sup>, Paolo Desario<sup>1</sup>, Pierluigi Demola<sup>2</sup>, Justyna Paulina Jablonska<sup>1</sup>**

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**Rationale:** To date, there are no standardized international recommendations for the management of coronary artery aneurism (CAA) due to the lack of randomized clinical trials.

**Technical resolution:** We adopted a combined imaging strategy. Angiography showed no flow limitation, and aroused the suspicion of thrombotic occlusion of a right marginal branch emerging from CAA. Intravascular ultrasound revealed a parietal thrombotic stratification with wide minimal lumen area. Coronary computed tomography angiography (CCTA) provided accurate information concerning the coronary anatomy, calcification and CAA structural features.

**Clinical implications:** Taking into account clinical situation (hemodynamically stable and asymptomatic patient), the anatomical features of CAA (above all, length >25 mm) and the risk of marginal branch exclusion with eventual covered stent, we decided to follow a conservative approach with dual-antiplatelet therapy, intense control of cardiovascular risk factors and close monitoring with angiography and CCTA.

**Perspectives:** Despite the known increased risk of thrombus formation and subsequent distal embolization, there is lack of randomized studies showing a benefit of anticoagulant therapy. Similarly, previous studies investigating the outcomes of PCI in CAA patients in the setting of acute coronary syndrome found a worst prognosis. In this regard, "The Italian Coronary Artery Aneurysm and Ectasia Observational Study In Patients With Acute Coronary Syndrome" could shed light on these two pivotal aspects.



**P06**  
**ROTATIONAL ATHERECTOMY FOR SEVERELY CALCIFIC LEFT MAIN AND LEFT ANTERIOR DESCENDING ARTERY WITH IN STENT RESTENOSIS: A STEPWISE APPROACH**

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**Rationale:** In stent restenosis (ISR) is becoming an increasingly frequent issue to deal with, due to diffusion of PCI in younger patients and the increase in life expectancy; also, in most settings, the ISR is not the only coronary lesion. An 81 year old male, with a history of chronic coronary syndrome with prior angioplasties with bare metal stents (BMS) on left anterior descending (LAD) artery and circumflex artery (Cx), during the preoperative work up for an abdominal aorta aneurysm, underwent a positive pharmacological echostress with stress akinesia on the apex and anterior wall. He was then referred to our cardiology department for invasive coronary angiography. The first procedure, completed with an IVUS investigation of left main (LM) and LAD, documented a severe calcific lesion of LM-LAD, a moderate calcific ISR of mid LAD and a severe calcific lesion in mid-distal LAD, uncrossable to IVUS probe. The procedure was then rescheduled for possible rotational atherectomy (RA) or excimer laser debulking.

**Technical resolution:** Given the amount of calcium and new plaque apposition inside the BMS, we went for a debulking strategy with rotational atherectomy. Via a right radial access with a 7 Fr slender introducer, we used a 1.25 burr in 2 runs in LM-LAD and in mid-distal LAD, achieving a good debulking result. We then proceeded to stent positioning from distal LAD to LM, with 3 DES in partial overlap, using sepal wire technique to release the DES in the ostial LM.

**Clinical implications:** The debulking method of choice has been rotational atherectomy due to the presence of diffuse disease in LM-LAD and mid-distal LAD, with a high calcific burden (calcific arc > 270°) and uncrossable to IVUS probe. In order to avoid burr entrapment, a 1.25 burr was preferred, after IVUS visualization of minimal lumen area (MLA) of the stented segment, which gave us the possibility to advance the burr through the moderate ISR without using dynaglide.

**Perspectives:** Even though the presence of ISR is a contraindication to the use of RA, in selected settings, after intracoronary imaging and evaluation of plaque morphology and MLA, this methodic is to be considered feasible and safe with some precautions (utilization of largest possible burr referring to MLA, pecking motion, crossing of ISR with manual advancement).

P07

## CALCIFIED CORONARY STENOSIS IN PATIENT WITH SUPRA-ANNULAR TRANSCATHETER HEART VALVE

**Giuseppe Verolino<sup>1</sup>, Dario Calderone<sup>1</sup>, Paolo Ghiso Basile<sup>1</sup>, Roberto Latini<sup>1</sup>, Davide Sala<sup>1</sup>, Paolo Sganzerla<sup>1</sup>**

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**Rationale:** A 93-years old male was admitted in ED for acute pulmonary edema. The admission EKG has showed a ST anomaly in V2-V5 leads with a significant increase of the myocardial damage markers (Tnl and CK-MB). The patient's medical history reports a transcatheter aortic valve implantation (TAVR) with a self-expanding valve for severe aortic stenosis and a percutaneous intervention for left main (LM)-proximal left anterior descending (LAD) stenosis (treated by 3 DES). During the last procedure, a severe stenosis of the proximal right coronary artery (RCA) was found but left untreated due to acute clinical setting (cardiogenic shock) and in consideration of patient's age and frailty.

**Technical resolution:** The coronary angiography, performed through femoral route, confirms a good result of recent PCI and a 99% calcific stenosis of the right coronary artery (RCA). The aortic prosthesis was well positioned with no gradient or paravalvular leak. The first coronary cannulation attempts with JR4 guiding catheter (GC) supported by 45-cm femoral sheath was ineffective. An ARI GC was effective, but the non-compliant (NC) balloon cannot cross the lesion. A 6F Guide extension was advanced, and a NC balloon inflated, without satisfactory result. A cutting balloon contributed to plaque debulking, but the new NC balloon couldn't reach the right expansion (dog-bone image). After a lithotripsy therapy, a proper plaque modification was obtained, and a DES was implanted and optimized with a good angiographic result.

**Clinical implications:** In patients with severe aortic stenosis and coronary artery disease the choice between stent-first strategy or valve-first treatment is a matter of debate yet. The coronary-first strategy allows to avoid technical issues due to prosthetic valve presence in terms of coronary cannulation; nevertheless, also when the choice is for coronary treatment, due to advanced age of TAVR population, only LM and proximal LAD stenosis are usually treated before valve implantation. Although this approach is reasonable for prognosis and the risk-benefit balance, sometimes could impacts on the patients' symptoms.

**Perspectives:** A careful consideration about the completeness of myocardial revascularization should be done in patients with aortic valve stenosis and coronary artery disease, particularly in elderly population with a high risk of bleeding in case of urgent revascularization for acute coronary syndrome. Furthermore, a prosthetic aortic valve with supra-annular design has a potential challenging coronary re-access issue that carries longer procedural time and higher contrast administration.

**P08**  
**ROTABLATION AND DRUG COATED BALLOON FOR CALCIFIC LAD LESION: A CASE REPORT WITH ANGIOGRAPHIC FOLLOW-UP**

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**Rationale:** Use of DCB in de novo lesions is gaining more evidence in recent years; however calcific lesions still represent a setting not widely explored. We herein describe a case of DCB PCI for highly calcific LAD lesion with 6 months angiographic follow-up.

**Technical resolution:** After proper debulking with Rotablation 1.25 mm blurr the lesion was prepared with semi-compliant and non compliant balloons. Finally, three DCB were dilated across the vessel: prevail 2x30 mm (distal), 2.5/30 mm (medium tract), 3/30 (proximal). Final result was good as well as the angiographic control at 6 months.

**Clinical implications:** When after proper debulking coronary vessels do not present flow limiting dissection DCB could represent an alternative to classic stenting even in calcific setting. Also, when in the index procedure the vessel do not appear proper target for stenting, DCB could represent a bridge therapy to stenting at an angiographic re-evaluation.

**Perspectives:** Further study are needed for validation of DCB use in calcific setting.

**P09**  
**COVID-19 VACCINATION & MYOCARDIAL INFARCTION CASUAL OR COINCIDENTAL?**

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**Rationale:** This case presentation aims to explore the potential relationship between COVID-19 vaccination and myocardial infarction (MI) in a 25-year-old male patient with no known chronic medical illnesses. The patient presented with severe chest pain, which was indicative of MI. The case raises questions about whether the MI was a casual or coincidental event following COVID-19 vaccination.

**Technical resolution:** Upon arrival at the emergency department, the patient was immediately transferred to the cath lab for primary percutaneous coronary intervention (PCI). A fresh thrombus was identified distally at the left circumflex artery (LCX), which was determined to be the culprit for the MI. Thrombectomy, dual antiplatelet therapy (DAPT), low molecular weight heparin (LMWH), and glycoprotein IIb/IIIa inhibitors were administered. Intravascular ultrasound (IVUS) imaging confirmed the absence of underlying atherosclerosis or plaque rupture in the culprit area, indicating that a stent was not required.

**Clinical implications:** This case highlights the challenges in managing issues of MI following COVID-19 vaccination. It raises crucial questions about the potential causal relationship between COVID-19 vaccination and MI in young individuals with no known risk factors for cardiovascular disease. Understanding the possible mechanisms and risk factors associated with such cases is crucial for appropriately managing and counselling patients.

**Perspectives:** 1. Exploring the role of long-term anticoagulant therapy in patients with MI following COVID-19 vaccination: This case prompts further investigation into the potential benefits and risks of long-term anticoagulant therapy in preventing recurrent thrombotic events in similar patients. 2. Evaluating the incidence of MI following COVID-19 vaccination: This case highlights the need for larger-scale studies to determine the true incidence of MI following COVID-19 vaccination and to assess any potential causal relationship. 3. Enhancing surveillance and reporting systems: It is essential to establish robust surveillance and reporting systems to monitor and investigate potential adverse events following COVID-19 vaccination, including MI, to ensure patient safety and optimise vaccination strategies.

**P10**  
**FRESH MIGRATORY INTRACORONARY CLOT AS THE INITIAL MANIFESTATION OF PRIMARY ANTIPHOSPHOLIPID SYNDROME**

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**Rationale:** Antiphospholipid syndrome can be presented initially as thrombotic acute Myocardial infarction which is difficult to manage if thrombosis involves ostioproximal part of coronary arteries.

**Technical resolution:** When the lesion is thrombotic and involves the coronary artery ostioproximally it is important to be careful about the dislodgment of thrombosis to the adjacent coronary bed.

**Clinical implications:** When there is a thrombotic or atherosclerotic coronary lesion, it is crucial to be aware of the probability of plaque or clot migration especially when the lesion involves ostioproximal or bifurcation of coronary beds, and technically we have to wire the adjacent coronary artery just in case plaque migrate and impede it.

**Perspectives:** Investigating thrombophilia including antiphospholipid syndrome is important in patients presenting with acute thrombotic myocardial infarction, especially in young women, and treatment options have to be chosen based on patient clinical history and further laboratory data.

**P11**  
**INTRAVASCULAR LITHOTRIPSY LEADING ON PERIVASCULAR HEMATOMA AFTER PCI ON PROXIMAL LEFT ANTERIOR DESCENDING ARTERY**

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**Rationale:** Drug-coated balloons (DCB) treatment approach for de novo stenosis of left anterior descending (LAD) is emerging as a new revascularization method. Optimal lesion preparation is a key to achieve final optimal results and include the use of shockwave intravascular lithotripsy (S-IVL)

**Technical resolution:** A 73 years old man presented with effort angina. His proximal LAD revealed severe calcified stenosis on angiogram (70%) and on intracoronary imaging (IVUS). The lesion was treated with 20 pulses of S-IVL to create discontinuity and a sirolimus eluting DCB (3.5x20 mm). A final IVUS was performed to exclude the presence of dissection and residual critical stenosis in order to avoid stenting.

**Clinical implications:** The patient remained asymptomatic. A coronary CT scan performed at 1 year from the procedure showed the patency of LAD but revealed also the presence of perivascular hypodense image compatible with organized hematoma corresponding with the coronary segment treated with S-IVL and DCB. A second CT scan after 6 months confirmed the same image.

**Perspectives:** S-IVL is an emerging and efficient tool for managing intracoronary calcium and can be particularly useful in lesion preparation during percutaneous coronary intervention. The evidence of perivascular hematoma after S-IVL can be observed. In our report this event did not lead to adverse events.

**P12**  
**THERE'S NO SHORTCUT TO SUCCESS**

**Waleed Etman**

*Medical Research Institute, Alexandria University, Alexandria, Egypt*

**Rationale:** Coronary bifurcation stenting is still considered a complex procedure and associated with a high risk of stent thrombosis and re-stenosis even in the era of drug-eluting stent (DES).

**Technical resolution:** Various techniques can be implemented to troubleshoot bifurcation stenting procedure. In this case, we demonstrate one way of troubleshooting T and small protrusion (TAP) procedure which was not properly done in the first place leading to in-stent thrombosis.

**Clinical implications:** TAP technique is a valuable technique for both “bail-out” side-branch stenting during the provisional approach and for percutaneous coronary intervention (PCI) in bifurcating lesions with an initial double stenting plan, however, it should not be implemented in every coronary bifurcating lesions.

**Perspectives:** In stent thrombosis is one of the fatal complications of PCI. Various factors have been incriminated in the etiology of in-stent thrombosis.



**P13**  
**TAILORED ANTITHROMBOTIC THERAPY: A CASE OF NON-ST-ELEVATION MYOCARDIAL INFARCTION (NSTEMI)**

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**Rationale:** The early identification of patients with a history of an acute coronary event, characterized by an elevated risk of new ischemic events, is a fundamental step to identify appropriate measures for antithrombotic treatment and secondary prevention reducing residual risk. Dual antiplatelet therapy (DAPT) has proven to be highly effective in reducing atherothrombotic complications in patients with a history of coronary events. ESC guidelines recommend DAPT treatment for 12 months post-acute event. In recent years, the optimal duration and combination of DAPT has been a matter of debate. However, several studies have demonstrated that in patients with a high baseline risk profile, a more aggressive therapeutic approach is associated with a better long-term outcome in terms of mortality and cardiovascular morbidity.

**Technical resolution:** We present a case of a 67-year-old patient with hypertension, dyslipidemia, a history of smoking, and no prior major cardiovascular events, who presented to the Emergency Department (ED) with epigastric pain and diaphoresis. The electrocardiogram (ECG) revealed ST-segment elevation in the inferior leads. A diagnosis of ST-elevation myocardial infarction (STEMI) was made, and the cath lab was urgently activated, revealing thrombotic occlusion of the right coronary artery, treated with coronary angioplasty. The patient was transferred to the Cardiac Intensive Care Unit on dual antiplatelet therapy (DAPT) with aspirin and ticagrelor. The following day, the patient experienced a new episode of oppressive chest pain and ST-segment elevation on the ECG. Urgent coronary angiography showed thrombotic intrastent occlusion of the right coronary artery, treated with angioplasty. At the end of the procedure, intravenous eptifibatid infusion was administered, and the patient was switched to DAPT with aspirin and prasugrel. In the subsequent days, the patient was discharged without mechanical or arrhythmic complications. One month later, the patient presented again to the ED with retrosternal chest pain, nonspecific electrocardiographic changes, and elevation of myocardial necrosis markers. Atrial fibrillation was detected on monitoring. A diagnosis of non-ST-elevation myocardial infarction (NSTEMI) was made, and coronary angiography revealed subocclusion of the posterolateral branch, treated with angioplasty.

**Clinical implications:** The patient remained under clinical observation for several days, and in consideration of his high thrombotic risk, was discharged with triple antithrombotic therapy for one month, dual therapy with clopidogrel and non-vitamin K antagonist oral anticoagulants (NOACs) for at least 12 months, and a recommendation for reevaluation to determine the best long-term therapeutic option.

**Perspectives:** The antithrombotic therapy represents a dynamic treatment that must be tailored to the patient's characteristics and the assessment of their ischemic/bleeding risk, which changes over the course of events. In patients with acute coronary syndrome (ACS) requiring anticoagulant therapy, guidelines suggest discontinuing dual antithrombotic therapy after 12 months in favor of single therapy with non-vitamin K antagonist oral anticoagulants (NOACs). In complex patients with a high thrombotic burden and a history of recurrent acute events, a targeted evaluation may be necessary for a more effective antithrombotic therapy to be used after the initial 12 months of treatment. Further studies are needed to identify the optimal treatment strategy to reduce long-term ischemic events.



**P14**  
**OFF THE BEATEN TRACK: A CLINICAL CASE OF PERCUTANEOUS CORONARY INTERVENTION OF GASTROEPIPLOIC ARTERY GRAFT**

**Paolo Desario<sup>1</sup>, Pierangelo Basso<sup>1</sup>, David Rutigliano<sup>1</sup>, Vincenzo Palumbo<sup>1</sup>, Pierluigi Demola<sup>2</sup>**

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**Rationale:** The history of coronary artery bypass grafting (CABG) has always been marked by the research of conduits that would guarantee a good surgical outcome. To date, it is known that arterial grafts are superior to the saphenous veins in terms of patency rate and patients' long-term outcomes. Consequently, the gastroepiploic artery (GEA) has emerged as an alternative arterial conduit for right coronary artery (RCA) CABG, especially in specific conditions such as poor vein conduits, ascending aortic severe calcifications or mammary arteries inadequate length. However, despite the proven superiority against saphenous vein grafts, GEA grafts are rarely observed in contemporary practice, mainly due to surgical technical challenges and decreased patency rates when compared to radial grafts. In addition, there is limited experience about the technical challenges related to GEA cannulation and navigation, as well as about long-term percutaneous coronary intervention (PCI) success rates. Here we present a case of PCI of GEA supplying RCA and provide practical recommendations to guide interventions using this rare route.

**Technical resolution:** Abdominal aorta access was obtained through a 6-Fr sheath from the right femoral artery. First, a 6-Fr 4.0/90 cm Judkins right guide-catheter (Medtronic) was used to sub-selectively engage the celiac trunk and angiography was obtained. This confirmed an in-situ graft of the right GEA to the posterior descending artery (PDA), although only partial engagement of the celiac trunk precluded good opacification of the whole graft. We then performed a buddy-wiring technique with a Runthrough NS floppy guidewire (Terumo) and a Sion guidewire (Asahi) distally placed in the graft. Then, a 6-Fr Guidezilla (long) guide extension catheter (Boston Scientific) was advanced over the wires until the middle portion of graft. Guide extension catheter has allowed selective angiography of the graft and the reduction of the multiple friction points (due to severely tortuous graft course) that limited wires torqueability and material deliverability. With this starting setting we performed dilatation of the graft with 1.5 and 2.0 semi-compliant balloons, followed by implant of two overlapping drug eluting stents (Synergy 2.25/20 mm and Synergy 2.5/08 mm) and adequate post-dilatations with non-compliant balloons.

**Clinical implications:** Our case highlights several challenges specific to this rare route: i) celiac trunk engagement, GEA wiring and cannulation; ii) obtaining a good opacification of the whole graft and the native coronary with selective angiography; iii) advance stents and balloons on the extremely tortuous graft. Nevertheless, understanding how to overcome these challenges has allowed us to reach the complete revascularization of the patient and to improve his quality of life.

**Perspectives:** Further experience is required to uncover possible complications and points of weakness related to using this conduit and to establish a standardised technical approach.

**P15**  
**TAP STENTING IN LM DISEASE**

**Silvia Leone**

*MESVA, San Salvatore, L'Aquila, Italy*

Mrs. S.M., 87 years old, history of ischemic heart disease in previous anterior STEMI treated with stenting on proximal LAD, type 2 diabetes mellitus and arterial hypertension, came to our observation for the presentation of oppressive chest pain radiating to the jugule, icy sweating and lipothymia. At ER entry, she had hypotension, tachycardia, hypoxigenation, and diffuse ST depression at EKG with ST elevation in aVR. Grace score 170.

Severe calcific disease of the SCI and the ostial portions of left descending artery and circumflex is found on urgent angiographic check-up.

After orotracheal intubation, angioplasty with the TAP technique was initiated.

The severity of the clinical picture did not allow the unconditional use of endovascular imaging, so we preferred to clinically stabilize the patient by promptly starting the revascularization procedure

We used a 7.5 F sheathless catheter, performed wiring of distal LAD and distal Cx. Sequential dilation of LM-LAD and LM-Cx, then kissing balloon and stenting of LM-LAD. POT, Cx rewiring and TAP stenting. Final kissing balloon

An excellent angiographic result was obtained with weaning of the patient from invasive ventilation and inotropes.

Despite the impossibility to use IVUS or OCT, which is not available in our cath lab, we did achieve complete revascularization.

**P16**  
**WHY IS FULL PHYSIOLOGY CRITICAL FOR PROPER TREATMENT**

**Mohamed Abdirashid, Chiara Cavallino, Fabrizio Ugo, Ludovica Maltese**

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**Rationale:**

- 46 YO woman
- Overweight, family history of CAD, former smoker
- 2018 NSTEMI -> coronary angiography negative for CAD
- Empiric diagnosis of vasospastic angina -> low dose diltiazem
- Through the years frequent episodes of angina with many accesses in hospital with optimization of the medications.
- For persistence of symptoms and non response to the treatments, new coronary angiography

**Technical resolution:** A Full Physiology approach was used and an initial microvascular dysfunction was diagnosed. Moreover an Ach provocative test was performed with diagnosis of lateral ST elevation and a critical spasm of ostial Cx.

**Clinical implications:** A physiology guided treatment was initiated and the patient improved significantly.

**Perspectives:** In most cases an empiric treatment is used in INOCA patients without having a proper invasive diagnosis of the cause. This often results in low dose treatments that dose not prove to be effective in most patients. In this case the conclusive diagnosis allowed the clinician to up titrate the medications and to achieve a significative improvement of the symptoms

**P17**  
**CTOS IN CHIP PATIENTS SHOULD BE MECHANICALLY SUPPORTED**

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**Rationale:**

- 69 YO man
- Hypertension, smoker, overweight
- Chest pain and heart failure. EF 35%.
- After stabilization of the heart failure -> coronary angiography
- CTO of LAD in a diffusely critical disease. Critical stenosis of CX.
- Amultiple attempts to cross LAD was performed with BMW, Sion, Sion blue, Sion Black, Fielder XT-A, Gaia 1 with Finecross Microcatheter with no success
- For instabilization of the patient, a second procedure with Impella was programmed.

**Technical resolution:** An Impella CP was positioned through left femoral artery. The LAD CTO was crossed after multiple attempt with Gaia second and teleport and a Cre8 evo 3 x 26 mm was implanted. Postdilatation was performed with NC balloon 3,5 mm. After multiple attempts MO was crossed Gladius EX and Teleport. After that a DCB angioplasty was performed on MO. The Impella was removed after the procedure and a Manta was implante.

**Clinical implications:** CTOs should be approached in stable conditions. If the patient is a CHIP patient with severely reduced EF, the CTO should be performed with mechanical support. The mechanical support is critical even in keeping stable the patient in case of complications. If the patient is stable after the procedure, the mechanical support can be removed.



**P18**  
**ACCURATE NEO 2 FOR VALVE-IN-VALVE TREATMENT OF DEGENERATED 3F ENABLE SUTURELESS BIOPROSTHETIC VALVE**

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**Rationale:** Valve in valve (ViV) transcatheter aortic valve replacement (TAVR) is an established yet evolving technique for managing bioprosthetic valve failure with favorable outcomes reported in large ViV registries. Most ViV procedures have been performed in degenerated stented or stentless bioprosthetic valves with only a few cases reported in sutureless bioprosthetic valve (SBV) failure. Moreover, among the few data available, there have been no reports available to date that demonstrate the feasibility of ViV procedures for the treatment of degenerated 3F-Enable (Medtronic) SBV. We report a case of successful ViV procedure with the self-expanding valve (SEV) Accurate Neo2 (Boston Scientific) in a 3 F-Enable degenerated sutureless valve.

**Technical resolution:** A frail 91-year-old man with previous episodes of acute heart failure (NYHA III/IV) was recently admitted to our hospital. The patient's medical history revealed aortic valve replacement for severe aortic regurgitation with a 3F Enable 25 mm sutureless valve using a minimally invasive approach (anterior right thoracotomy) complicated by advanced atrioventricular block treated with pacemaker implantation eight years before. Echocardiogram showed structural valve deterioration causing severe intravalvular aortic regurgitation (PHT 220 msec with holodiastolic reverse flow in descending aorta), mildly reduced ejection fraction (FE 40%) and moderate primary mitral regurgitation. The case was discussed by our heart team and after a careful evaluation a ViV TAVR was decided. The procedure's potential challenges included elevated post-procedural gradients, coronary obstruction and surgical valve instability or dislocation due to the absence of sutures. The patient was deemed to be at low risk of coronary obstruction. We opted for a supranular SEV over a balloon-expandable valve (BEV) in order to achieve lower post-procedural gradients and selected Accurate Neo2 (Boston Scientific) transcatheter aortic valve for better achieving commissural alignment. Sizing was based on the mean internal diameter of the degenerated SBV with the aid of the ViV digital app. Thus, under mild sedation, via transfemoral approach, an accurate Neo 2 size M (Boston Scientific) was successfully deployed 4 mm under the lower edge of the sutureless valve with excellent angiographic result and absence of paravalvular leak. At one-month-follow up the patient was asymptomatic with excellent functional capacity and no evident leak or significant gradient across the newly implanted valve (Vmax 1.65m/s, PG max 10 mmHg, PG med 6 mmHg).

**Clinical implications:** Within the next few years, we are going to face up an upcoming number of bioprosthetic valve failure cases and among these a special population will be represented by sutureless valves. The 3F Enable (Medtronic) was the first sutureless valve to obtain CE Mark approval and although it was withdrawn from the market in 2015 an important number have been implanted creating a potential patient population that may benefit from therapeutic alternatives in the future. This is the second case of ViV TAVR using Accurate Neo 2 in Enable 3F performed in our center with excellent hemodynamic and clinical results even after one year follow up and proves the feasibility of the Accurate Neo2 in this specific type of sutureless valve degeneration.

**Perspectives:** SBV have been designed to simplify surgical implants, reduce cross-clamp time and obtain better hemodynamics. As any bioprosthesis they are not immune to degeneration creating a challenging problem given the unknown behavior of these valves during TAVR. Although more evidence is needed to establish procedural safety and efficacy, in this case we achieved good valve performance even at one year follow-up and predictable SEV in SBV deployment. Our report demonstrates the feasibility of ViV TAVR using Accurate Neo2 in a degenerated 3f Enable SBV.

**P19**  
**CRUMPLED STENT DURING THE REMOVAL OF AN ENTRAPPED JAILED WIRE, WITH ITS SUBSEQUENT RUPTURE: HOW SHOULD WE MANAGE?**

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**Rationale:** A 79-year-old man was submitted to angioplasty of left anterior descending (LAD) and first diagonal branch. Two guidewire were put in both LAD (runthrough hypercoat) and diagonal branch (BMW Universal II). LAD lesion was pre-dilated with a 2.75 x 15 mm semi-compliant balloon and a stent Xience Skypoint 3.0 x 28 mm was implanted in the mid LAD. While removing the jailed guidewire it resulted entrapped and multiple attempt to remove it were performed also with the use of a microcatheter that resulted ineffective. In the last energetic attempt of removing the wire the stent crumpled in the mid LAD.

**Technical resolution:** We tried to cross the crumpled stent with semi-compliant balloon of increased size (from 1.0 x 8 mm to 2.5 x 15 mm) and finally a longer stent 3 x 38 mm was implanted across the previous stent with a stent-in-stent technique. The entrapped jailed wire finally was fractured at the level of right subclavian artery and multiple attempt of capturing it were performed with the use of Goose-Neck that resulted ineffective, so we decided to abandon the guidewire. Finally, the diagonal branch was crossed and dilated with a 2 x 15 mm semi-compliant balloon.

**Clinical implications:** Treatment of coronary bifurcation can complicate with stent crushing and compression that can lead to an increased risk of stent thrombosis. Here we report a case in which stent crumpling was resolved by dilation and stent-in-stent implantation. Unfortunately, the guidewire was fractured at right subclavian artery level and was not removed. Retained guidewire fragments can be highly thrombogenic leading to coronary occlusion or systemic embolization. Retrieval of the retained guidewire fragment(s) is recommended in most cases and should ideally be achieved using percutaneous techniques, although in some cases surgical removal may be required.

**Perspectives:** Given the high risk of cardiac surgery and of other percutaneous techniques to remove a retained fracture guidewire, a device capable of capturing the wire with a retrievable cutter could be useful, but to date this is not available. When we decide to abandon the wire in the ascending aorta, an optimal antithrombotic therapy strategy should be adopted in order to reduce the risk of intracoronary thrombosis or systemic embolization.



P20

## DCB AND COMPLEX PCI: FUNCTIONAL ASSESSMENT MAKES IT EASIER

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**Rationale:** Reducing percutaneous coronary intervention (PCI) procedure complexity and improving outcomes in a young male patient (48 y.o.) with effort angina and significant stenoses of left anterior descending (LAD) located at bifurcation site with first diagonal (D1) (Medina 0.1.1, dual LAD anatomy) at coronary angiogram. The located stenoses showed anatomical characteristics (large and comparable size of LAD and D1, severity of disease, bifurcation angle <70°) susceptible of two stents implantation. Considering the younger age of the patients, the elevated complexity of the procedure (new metallic carena definition, the presence of two stent layers on vessel wall in case of DK-crush technique) and the evidence of poor prognosis associated with the number of implanted stents, particularly at bifurcation site, we were in doubt about the best PCI-technique to adopt in this specific clinical setting.

**Technical resolution:** We decided to perform a physio-guided PCI in order to confirm the presence of flow-limiting stenoses on both vessel and to test the effectiveness of our maneuvers at the end of the procedure. Physiological evaluation was performed by pressure catheter mounted on a workhorse guidewire; contrast fractional flow reserve (cFFR) was the adopted physiological index. Physiological assessment confirmed the presence of physiologically significant stenoses on D1 (cFFR 0.82) while the LAD stenoses appeared to be no-flow limiting (cFFR 0.92). As a consequence, we decided to adopt a more conservative PCI-strategy implanting a drug-eluting stent (DES) exclusively on D1 and addressing the LAD lesion with a drug-coated balloon (DCB). Lesion preparation of main vessel (MV) and side branch (SB) was obtained by non-compliant balloon showing a good result on both vessel (no dissection, TIMI flow grade 3). A paclitaxel DCB was used to stabilize LAD stenoses and subsequently a crossover DES was implanted on D1. A step-by step approach consisting in proximal-optimization technique (POT) by compliant balloon- distal rewiring of LAD- Kissing-balloon inflation with non-compliant balloon on D1 and compliant balloon on LAD and re-POT by non-compliant balloon was applied. Final angiographic evaluation showed an optimal PCI result with a good stent expansion on D1 and flow TIMI grade 3 on both vessels. This was confirmed by physiological assessment with a post-PCI cFFR value of 0.94 on both LAD and D1.

**Clinical implications:** Use of physiological assessment for PCI guidance and planning has enabled us to streamline procedure, resulting in a reduced complexity and a decreased number of implanted stents, favoring the utilization of DCB. Considering that poor PCI outcomes are strongly correlated to the number and length of implanted stent, particularly at bifurcation sites, our strategy could improve clinical prognosis in this particular setting. Of note, post-PCI physiological assessment became of relevance in case of DCB-PCI. Demonstrating favorable physiological results becomes crucial in justifying the use of DCB over DES.

**Perspectives:** Physiological assessment of epicardial stenoses should be considered as mandatory in presence of intermediate and/or complex lesions as it significantly contributes to the procedural planning process. The use of DCB may be contemplated for complex PCI, with the aim of simplifying the procedure and enhancing clinical outcomes through a reduction in the number of implanted stents. In case of DCB-PCI, a physiological assessment is useful for detecting the presence flow limiting residual stenosis/ dissection and verify the effectiveness of the procedure. Pressure catheter could be considered safer than pressure wire reducing the risk of sub-intimal rewiring during the post-PCI assessment.



P21

## DREAM TO NIGHTMARE: A STENTLESS LEFT ANTERIOR DESCENDING - DIAGONAL BIFURCATION PROCEDURE TURNED BAILOUT T AND MINIMAL PROTRUSION (TAP)

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**Rationale:** Left anterior descending artery (LAD) lesions are a common scenario for interventional cardiologist to deal with, and can sometime be challenging, mostly in case of diffuse disease and involvement of bifurcation. Recently an alternative to provisional stenting or double stent strategy is emerging in the scientific community. The utilization of drug coated balloons (DCB) for long and diffuse disease is a possible alternative to extensive stenting of LAD artery. A 77 years old woman came to our department due to new-onset angina on moderate exertion (CCS 2). She had a history of arterial hypertension, type II diabetes, obesity and autoimmune hemolytic anemia with a baseline hemoglobin level of 9 g/dl (fluctuating between 8 and 10 in the last ten years) while on steroid medication therapy. Resting echocardiography showed no wall motion abnormalities; coronary angiography revealed a severe mid LAD atheromatic lesion, involving the ostium and proximal segment of diagonal branch (Medina 1,1,1).

**Technical resolution:** Given the severe chronic anemia, we decided to implement a stentless strategy, with use of DCBs in the intent of shortening DAPT regimen. We used a EBU 3.5, 6 Fr catheter via right radial access and wired LAD and diagonal branch. After cautious predilation with semicompliant balloon (2 x 12 mm – 10 atm) in main branch (MB) and side branch (SB), subsequent angiography revealed non flow-limiting dissection in both LAD and diagonal branch (Type B in NHLBI classification, Type III in Saw Classification). After some discussion, given the ease of artery dissection after predilation with such small caliber balloons, we decided to secure the LAD with stent implantation (2.5 x 33 mm DES). After stent implantation and adequate true lumen rewiring of side branch, patient started referring chest pain and ST elevation was evident in DI and aVL on EKG; Diagonal dissection had evolved to a flow limiting kind (Type F in NHLBI classification).

**Clinical implications:** Proximal stent optimization (POT) with a 3.25 15 mm non compliant balloon was achieved, being paramount to better cross the ostial diagonal segment with small caliber balloons to restore blood flow. After ostial dilation of a 1.25 mm balloon, intramural hematoma rupture was evident with periarterial staining. We then proceeded with 1.5 mm and 2 mm balloons to restore normal coronary flow, and implanted a 2.5 x 18 mm DES in the ostial-proximal segment of diagonal branch, with minimal stent protrusion in LAD. We then performed kissing balloon with a 2.5 mm (MB) and a 2 mm (SB) non compliant balloons and last a POT with a 3.5 x 8 mm, achieving a beautiful final result with normal coronary flow in both MB and SB, ST up resolution and no chest pain.

**Perspectives:** While a stentless strategy can be an appealing idea in some or most cases, criteria for eligibility and technical lesion preparation, based on clinical trials, are paramount for minimizing complication and extend the application of such method. Moreover, being skilled in the main double-stent and bailout techniques is essential to approach stentless procedures.

**P22**  
**MULTIPLE DIAGNOSTIC APPROACH OF CORONARY ARTERY DISEASE: A CLINICAL CASE OF MINOCA**

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**Rationale:** 61-year-old male patient. Obesity. No additional cardiovascular risk factors. No family history of CAD, cardiomyopathy, or sudden cardiac death. Epigastric discomfort associated with cold sweating after lifting a weight. Transport to the emergency room (air ambulance) for episodes of sustained ventricular tachycardia interrupted by DC Shock. On blood tests, blood count and hepatorenal function were normal, electrolytes were within range, TSH was normal. Troponin (t0) 100 ng/L. The echocardiogram documented left ventricular hypertrophy with good biventricular systolic function.

**Technical resolution:** Related to the suspicion of hypertrophic cardiomyopathy, the patient underwent cardiac magnetic resonance imaging which documented a recent myocardial infarction in the circumflex artery area, showing edema and subendocardial late enhancement of the left ventricle basal lateral wall. Coronary angiography documented an angiographically intermediate stenosis of the left anterior descending artery, functionally non-ischemic (RFR 0.92, FFR 0.85). An OCT (Optical Coherence Tomography) study was performed on the circumflex artery, with evidence of organized thrombotic stratification in the middle segment and a small intimal flap upstream of the thrombus.

**Clinical implications:** The myocardial infarction was probably secondary to plaque ulceration and thrombosis in the circumflex branch. The patient was managed with conservative treatment and lifelong antiplatelet aggregation. He also underwent single-chamber ICD (Implantable cardioverter-defibrillator) implantation for secondary prevention of ventricular tachyarrhythmias.

**Perspectives:** In patients with Minoca, coronary intravascular imaging may allow the detection of coronary lesions otherwise not visible on coronary angiography.

**P23**  
**VENTRICULAR SEPTAL DEFECT AS A COMPLICATION OF TAVI**

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**Rationale:** Ventricular septal defects (VSD) are rarely reported as a complication following transcatheter aortic valve replacement (TAVR).

**Technical resolution:** We describe the case of an 82 years-old male admitted to our cardiology department to undergo TAVR. After TAVR with a SEV (Evolut R 34), at the time of echocardiographic predimission check, we found the presence of a post-TAVR VSD so we proceeded to close it via an 18 mm VSD occluder in the absence of intraprocedural complications. Unfortunately, few minutes after arrival in the CCU, the patient developed cardiovascular arrest with pulseless electrical activity, and at the echocardiographic control we found embolization of the device so we retrieved the same and closed the DIV via another larger device, post-dilated to reduce the interaction with our TAVR.

**Clinical implications:** In many cases, this is an asymptomatic phenomenon. Most iatrogenic post-TAVI VSDs are small and restrictive, with no clinical importance, but should be considered in the differential diagnosis of patients with dyspnea after TAVR. Awareness of iatrogenic post-TAVR VSD and especially the suggested mechanisms of formation could help in avoiding its occurrence. However, the size could theoretically increase with time (due to continuous local trauma by struts).

**Perspectives:** It is important that proper imaging techniques be carried out after the procedure. Additionally, accurate evaluation of the aortic valve annulus and the calcifications should be considered necessary before TAVI, in order to minimize the risk for this complication.

**P24**  
**BALLOON-ASSISTED RETRIEVAL OF ACURATE NEO 2 VALVE PROTRUSION INTO THE LEFT VENTRICLE**

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**Rationale:** Acurate Neo 2 is a self-expanding supranular valve with a unique “top-down” deployment, a process which allows for a very precise positioning of the device. However, in case of device protrusion in the left ventricle, the retrieval can be really challenging.

**Technical resolution:** An 81-year-old female with history of severe aortic valve disease (both stenosis and regurgitation) was admitted to the cardiology department to undergo TAVR procedure. The pre-procedural CT-scan showed mild calcifications involving the aortic valve leaflets and the sinotubular junction. Annular dimension including perimeter, minimum/maximum diameters and area were 75.6 mm, 22/26 mm and 443,9 mm<sup>2</sup> respectively. The height of left coronary artery ostium from the annular plan was 8.0 mm. According to the valve anatomy and the low coronary height, an Acurate Neo 2 (medium size) was chosen. After predilatation with a VACS III 20/40 mm balloon, the Acurate Neo 2 M was advanced at the target level. This was followed by the first step of implantation: the release of the upper crown and stabilization arches. However, despite a complete unlocking of knob n. 1, the stabilization arches did not fully open. This was solved by pigtail manipulation thus resulting in the opening of the arches and in the partial protrusion of the Acurate Neo 2 valve into the left ventricle. Bio-prosthesis retraction was not possible because of the upper crown trapping by the right coronary cusp.

A second stiff 0.035” wire was then advanced beside the Acurate Neo 2 into the left ventricle. A 14 mm balloon was inflated in order to centralize and retrieve the Acurate Neo 2. This resulted in the embolization of the valve in the ascending aorta. A partially opened Acurate Neo 2 was then advance across the native aortic valve and a successful implantation was finally performed. Neither paravalvular leak nor significant transvalvular gradient were detected.

**Clinical implications:** Although Acurate Neo 2 features allows a precise and stable positioning, valve dislocation can occur.

**Perspectives:** A balloon-assisted valve retrieval can be a feasible non-surgical option in case of left ventricle dislocation.

P25  
A LUCKY COINCIDENCE

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**Rationale:** We present the case of a man who came to ER complaining multiple episodes of typical angina even at rest, with normal HS Troponin, baseline ECG and echocardiography. Subsequently, he underwent coronary CT, negative for epicardial stenosis, and stress myocardial scintigraphy, positive for inducible moderate ischemia in the inferior wall. He kept having symptoms, so he was finally referred to our cath lab to perform a coronary angiography.

**Technical resolution:** Coronary angiography showed only intermediate tubular stenosis at the level of mid-distal right coronary artery. We assessed the stenosis with epicardial intracoronary physiology demonstrating no ischemic relevance (Resting Full cycle Ratio of 0.99 and Fractional Flow Reserve of 0.9). After the procedure, moving to cardiology ward, patient complained new onset of angina and the ECG showed ST segment elevation in inferior leads with specular depression from V1 to V3. Urgent coronary angiography showed acute occlusive vasospasm at the level of intermediate right coronary stenosis, promptly regressing with intracoronary nitroglycerin administration. Operator decided to perform percutaneous coronary intervention (PCI) to fix the stenosis.

**Clinical implications:** This represent a curious case in which all the examination (non-invasive anatomical and functional test and invasive epicardial physiological assessment) resulted negative to explain patient's symptoms, and we have been lucky enough to catch the right moment in which vasospastic angina presented, therefore making possible to reach a diagnosis.

**Perspectives:** It is not always easy to reach a final diagnosis in patient complaining angina, even after performing multiple different examination: in this scenario acetylcholine test and coronary full physiology assessment may be helpful, even being aware of current limitation such as the risk of transient bradyarrhythmias.

**P26**  
**MICROVASCULAR ANGINA WITH ATYPICAL ECG FINDINGS**

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**Rationale:** Evaluation of the origin of chest pain in non-coronary artery disease patients through a haemodynamic assessment of the coronary microcirculation.

**Technical resolution:** Baseline coronary angiography in order to assess the absence of significant coronary stenosis. Provocative test by intracoronary acetylcholine infusion at increasing doses was then performed following our institutional protocol: 1) dilute 1 fl of acetylcholine chloride 20 mg/2ml in 100 ml of sodium chloride 0.9%, reaching out a solution composed by 200 mcg/ml; 2) dilute 1 ml of the obtained solution in 19 ml of sodium chloride 0.9% (total volume 20 ml), reaching out a solution composed by 10 mcg/ml of acetylcholine; 3) dilute 2, 5 and 10 ml of the 10 mcg/ml solution in 18, 15 and 10 ml of sodium chloride 0.9% (total volume of 20 ml each) to obtain three solutions containing increasing doses of acetylcholine (20, 50 and 100 micrograms respectively); 4) infuse sequential boluses of the obtained three doses of acetylcholine (time of infusion: 2 minutes each). 5) Twelve leads resting ECG, blood pressure and symptoms were assessed during the sequential infusions and a coronary angiography was repeated after each dose injection.

**Clinical implications:** To choose the most appropriate medical therapy targeted on the basis of the pathophysiology of chest pain.

**Perspectives:** Emphasise microcirculatory impairment not only for the potential improvement of patient medical treatment, but also for its prognostic value: transient or permanent reduction of coronary blood flow and microvascular impaired response to acetylcholine may lead to an alteration of shear stress and worsening of endothelial function, that could ultimately predispose to epicardial atherosclerosis, determining the impairment of prognosis.

**P27**  
**EDWARDS SAPIEN 3 IMPLANTATION AFTER TRANS-AXILLARY EVOLUT PRO+ POP-OUT**

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**Rationale:** The availability of various types of devices for each patient in the CathLab, coupled with proper pre-procedural planning, enables the safe execution of complex procedures, and ensures readiness to address the majority of potential associated complications. In this specific patient, all of this allowed, once the pop out of the first bio-prosthesis was documented and after the failure of the implantation of a second Evolut Pro+, to implant an Edwards Sapien 3 Ultra bioprosthesis.

**Technical resolution:** An 85-years-old woman, with severe aortic stenosis symptomatic for dyspnea on light exertion, had been referred for Transcatheter Aortic Valve Implantation (TAVI). Pre-procedural planning revealed an aortic annulus suitable for a self-expanding 26 mm bioprosthesis and a balloon-expandable 23 mm prosthesis. The procedure was scheduled during a Medtronic session, and the deployment of a Medtronic Evolut Pro+ bioprosthesis occurred without any issue. However, a post-implantation angiographic assessment revealed a valve pop-out. Subsequently, the bioprosthesis was snared and repositioned in the ascending aorta without any embolic complication. An attempt to implant a second Evolut PRO+ bioprosthesis was unsuccessful due to an unfavorable angulation of the aortic arch. Therefore, an Edwards Sapien 3 Ultra bioprosthesis was implanted, with an optimal final result. This could happen because the Edwards Sapien delivery system has a distal cone tip which helps in advancing the THV across tortuous vessels, reducing also frictions at the level of the aortic arch; the handle of the delivery system includes a rotating wheel for articulation of the flex catheter.

**Clinical implications:** Treating severe symptomatic aortic stenosis with TAVI allows physicians to improve the patient's prognosis and quality of life.

At the clinical follow-up upon discharge and then at 6 months, the patient remains completely asymptomatic for angina and dyspnea. There have been no documented recurrences of syncope. The echocardiographic parameters have remained within normal limits, with a mean aortic gradient below twenty millimeters of mercury.

**Perspectives:** Always carrying out adequate and accurate pre-procedural planning is essential for the success of TAVI procedures. Currently the most accurate method for planning is CT angiography, but other planning methods will certainly be developed in the future.



P28

## USE OF ENHANCED STENT VISUALIZATION SYSTEMS IN A LEFT MAIN TWO-STENT TECHNIQUE

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**Rationale:** bifurcation stenting in complex percutaneous coronary interventions (PCI) in bailout after provisional stenting is mandatory in suboptimal angiographic results. Enhanced stent visualization (ESV) systems have good accuracy in identifying suboptimal stent features such as under-expansion, stent gap and stent fracture. It is not clear whether these techniques can be of additional value in identifying suboptimal stenting results in this setting.

**Technical resolution:** We present the case of a hypertensive, diabetic, dyslipidemic 79 years old lady presenting to the emergency department of our hospital complaining of intermittent chest pain during the last two weeks. At home the patient was on atenolol, acetylsalicylic acid, enalapril and lercanidipine. She had no previous heart pathologies and she suffered from chronic obstructive pulmonary disease. The ECG in the emergency department was in sinus rhythm and showed diffuse ST segment depression with aVR ST-elevation. At the time of cardiologic evaluation the patient was asymptomatic for chest pain and dyspnoea, normotensive and with a good peripheral oxygen saturation, but soon after she experienced chest pain relapses with dynamic consensual ST modification similar to those aforementioned. The transthoracic echocardiography was normal except for concentric left ventricular hypertrophy and moderate aortic valve stenosis. Blood tests showed elevation of high sensitive troponin (1497 ng/L). The coronary angiography showed complex and moderately calcified distal left main coronary (LM) sub-occlusion with sub-occlusive ostial involvement of left anterior descending artery (LAD) and left circumflex artery (LCx), along with critical stenosis of LAD in the proximal and middle segment involving the ostium of the first diagonal branch. No critical stenosis was found in the right coronary artery. We decided to proceed with a PCI of the LM-LAD axis. After placing a supportive guidewire in the LAD and a guidewire in the LCx, we performed a kissing balloon (KD) predilation of the LM bifurcation with semi-compliant balloons (Ryurei 3.0 x 15 mm, Terumo), followed by predilation of the LM-LAD axis with a non-compliant balloon (Pantera 3.5 x 15 mm, LeoBiotronik), showing good lumen patency at the angiogram. Then we implanted a drug eluting stent (DES) (Onyx Frontier 4.0 x 15 mm) in the LM-LAD axis. After rewiring of the LCx and removal of the jailed guidewire we performed KD of the LM bifurcation with a non-compliant balloon in the LAD (Pantera 3.5 x 15 mm, LeoBiotronik) and a semi-compliant balloon in the LCx (Ryurei 3.5 x 15 mm, Terumo). Then we did proximal optimization technique (POT) in the LM with a non-compliant balloon (Pantera 4.0 x 8 mm, LeoBiotronik). The angiogram showed ostial occlusion of the LCx, so we decided to conduct bifurcation stenting. A dilation of the LCx ostium with a semi-compliant balloon (Ryurei 3.0 x 15 mm, Terumo) was performed, followed by implantation of DES (Onyx Frontier 2.5 x 12 mm) with minimal protrusion of the proximal edge within the LM, assessed by ClearStent ESV system. After removal of the LCx guidewire we performed a crush of the protruding struts. The stent was then optimized with a non-compliant balloon (Emerge 3.0 x 12 mm, Boston Scientific) after rewiring of the LCx. A KD with non-compliant balloons on LAD (Pantera 3.5 x 15 mm, LeoBiotronik) and LCx (Emerge 3.0 x 12 mm, Boston Scientific) was performed, followed by re-POT on LM with non-compliant balloon (Pantera 4.0 x 8 mm, LeoBiotronik). ClearStent ESV system showed good and homogeneous stent expansion, ostium coverage, and struts overlap with a minimal stent protrusion of LCx DES trough LM-LAD stent struts. We reached optimal angiographic results with TIMI 3 flow. During the same hospitalization the patient underwent staged PCI with DES implantation in the proximal LAD in overlap with the previous stent by direct stenting followed by post-dilation with non-compliant balloon (Accuforce 3.0 x 20 mm, Terumo). Optimal stent configurations and overlapping were confirmed by ClearStent imaging. Good angiographic result was achieved.

**Clinical implications:** Our case shows how ESV systems can provide accurate assessment of stent suboptimal configurations, guiding appropriate bifurcation stenting approach, particularly in 2-stent techniques bifurcation treatment. The algorithm is valuable also to assess optimal stenting deployment and final stent configuration. The ESV compared to intra-coronary imaging, which represents the standard of care in the LM lesions treatment, is cost-effective, it does not require contrast medium injection, it is free from risk of coronary or stent damage and mostly, it can accurately evaluate strut protrusion and strut overlap.

**Perspectives:** Routine implementation of ESV systems after provisional stenting to guide bifurcation stenting strategy is affordable and advisable along with final assessment of the bifurcation stent configuration.



**P29**  
**STENT ABLATION OF FRESH DAMAGED STENT**

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**Rationale:** Inadequate expansion of a stent, due to damage when deployed on a calcified lesion, may lead to stent thrombosis. However, the available options for addressing this issue are limited

**Technical resolution:** Under the guidance of intravascular ultrasound (IVUS), rotational atherectomy (RA) was successfully employed to ablate the proximal layers of the stent and the protruding calcified plaque. Subsequently, under IVUS monitoring, the ablated segment was scaffolded with an additional stent, ensuring a larger overlap to encompass the previously damaged, freshly implanted drug-eluting stent (DES).

**Clinical implications:** This case demonstrates that rotational atherectomy (RA) as a bailout strategy can be an effective solution in situations involving under-expansion or damage of implanted stents. It is recommended that the debulking process be performed under intravascular ultrasound (IVUS) guidance to accurately select the appropriate burr size and identify the specific segment for ablation

**Perspectives:** Although the risk of entrapment and slow-flow are major concerns during rotational atherectomy (RA) performed to ablate a stent, our case demonstrates its efficacy as a bailout strategy for ablating an underdeployed stent or a calcified coronary segment prior to stent deployment. Utilizing intravascular ultrasound (IVUS) guidance can help mitigate the risk of complications when selecting RA as a treatment approach for emergent, uncrossable lesions



**P30**  
**IVUS GUIDED, ORBITAL ATHERECTOMY ASSISTED PCI OF LEFT ANTERIOR DESCENDING ARTERY**

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**Rational:** The presence of coronary calcifications represents a major challenge for the interventional cardiologist in achieving a satisfactory outcome during procedures of coronary revascularization. The presence of severe calcification can affect the proper release and expansion of the stent; moreover, its extent correlates with an increased risk of short- and long-term complications. To ensure adequate expansion, a morphologic modification of the plaque prior to device implantation (e.g., rotational or orbital atherectomy and intracoronary lithotripsy), ideally guided by imaging intracoronary imaging. The case we present involves a 74-year-old with systemic arterial hypertension, dyslipidemia, type II diabetes mellitus, smoking habit, obesity. He came to our attention for exertional angina (CCS 2). Coronarography documented calcific lesion at proximal LAD in bifurcation with D1; moderate-severe calcification at angiography evaluation.

**Technical resolution:** Given the unsatisfactory dilatation of NC balloon and the concomitance of high calcium content, documented by IVUS, it was decided to proceed with plaque debulking by orbital atherectomy. This allowed for proper preparation of the lesion and thus to effectively implant of a medicated stent.

**Clinical Implications:** The orbital atherotome possesses some peculiar features that enable it to perform debulking in both anterograde and retrograde modes, to simultaneously approach both segments of both small and large caliber and to perform discrete remodeling of the deep as well as superficial calcium.

**Perspectives:** Although there are encouraging data on the use of orbital atherectomy, evidence for such a strategy is emerging recently in the literature. In particularly complex anatomic settings, it becomes critical to combine multiple plaque modification techniques to exploit and optimize the actions of the single device as effectively and safely as possible and achieve procedural success.

**P31**  
**TRANSCATHETER AORTIC VALVE REPLACEMENT WITH BALLOON-EXPANDABLE VALVE IN A PATIENT WITH SINUS OF VALSALVA ANEURYSM**

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**Rationale:** This clinical case aims to demonstrate the potential safety of percutaneous aortic valve replacement even in the presence of sinus of Valsalva aneurysm. The patient is an 85-year-old man who, in the past year, underwent multiple interventional procedures, including aortic valvuloplasty, percutaneous angioplasty of the ostial left main coronary artery and proximal circumflex artery and as the last procedure, the transcatheter aortic valve replacement (TAVR).

**Technical resolution:** The patient underwent cardiac CT angiography for procedural planning before the TAVR procedure, following the established protocol. The CT scan revealed the presence of a likely aneurysm situated between the right coronary sinus and the non-coronary sinus. Subsequent planning led to the decision to employ a balloon-expandable valve.

**Clinical implications:** Prior to the TAVR procedure, angioplasty was additionally carried out on the circumflex branch. Following the successful TAVR via the right femoral artery, exclusion of the aneurysm was confirmed. In addition, a post-procedure echocardiogram was performed, revealing the aortic bioprosthesis in place, functioning normally with a mild to moderate leak at 2 o' clock.

**Perspectives:** This clinical case represents one of the few instances documented in the literature related to TAVR in patients with a sinus of Valsalva aneurysm. Furthermore, within the limited cases reported, the majority have employed a self-expandable valve. Consequently, aside from confirming the viability of excluding the sinus of Valsalva aneurysm through TAVR and affirming the safety of the procedure, this clinical case illustrated the procedural feasibility even when utilizing a balloon-expandable valve.



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## CRACK IT UP: CURRENT MANAGEMENT OF COMPLEX CALCIFIC CORONARY DISEASE

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**Rationale:** The need to deal with calcific coronary artery disease increase with the treatment of elderly patients and has been known to be linked to worse percutaneous coronary angioplasty (PCI) short and long-term outcomes. Coronary angiography (ICA) alone is not sufficient to face complex calcific disease, but intracoronary imaging-guidance, especially Optical Coherence Tomography (OCT) is associated with a lower rate of target lesion failure compared with angiography-guided PCI [1]. An intracoronary imaging approach provides information on location, distribution, extent and thickness of calcium; as a result, it also guide the choice of treatment and stent optimization. Moreover, a more aggressive debulking (cutting balloon, scoring ballon, high and super-high pressure balloon, atherectomy techniques and intravascular lithotripsy) and increasing support techniques are mandatory to achieve good results [2].

**Clinical case:** Male, 78 years old, with a lot of comorbidities (bilateral carotid atheromasia, chronic obstructive pulmonary disease, previous colon adenocarcinoma), has an history of myocardial infarction and PCI with drug-eluting stent (DES) implantation of the right coronary artery (RCA) and the left anterior descending artery (LAD). In June 2022, due to the onset of progressively worsening dyspnea and positive treadmill test was admitted to our hospital for coronary angiography. ICA had shown severely calcified stenosis of the proximal LAD and in-stent restenosis at the mid tract; severe calcific stenosis of descending posterior branch of RCA and chronic total occlusion of first obtuse marginal branch. The case was therefore discussed and, in view of the prohibitive surgical risk, percutaneous revascularization was indicated.

**Technical resolution:** An OCT-guided PCI of LAD was performed. Due to the deep, circumferential and extensive calcification predilation with NC Balloon and subsequent intravascular lithotripsy (IVL) debulking was done. The in-stent restenosis was characterized by neoatherosclerosis and calcification so a mixed cutting balloon and IVL approach was adopted. Finally, after OCT-evidence of good calcium cracks, two drug-eluting stent were implanted, followed by NC ballon DES post-dilation. The final angio and OCT result was good. The RCA stenosis was revealed as difficult to cross with standard workhorse, it was done with Fielder XT-A wire. Normal small profile balloons can't cross the stenosis so mother-in-child guide extension (Guideliner 6 Fr) was used and 1.0 mm balloon granadoplasty followed by 1.5 mm balloon PCI were performed. The same balloon supported a distal anchoring to let the guide extension catheter reach the mid RCA. At this point 2.0 mm semicompliant balloon was inflated and, two DES were deployed from the distal RCA to DP branch.

**Clinical implications:** The post-operative course took place in the absence of clinical complications with progressive recovery of the patient's global cenesthesia. One-year ICA follow-up confirm the good results of PCI.

**Perspectives:** Our report fits appropriately into general practice, for which a calcific lesion should be evaluated by intracoronary imaging to guide the lesion debulking, guide stent deployment and verify stent correct apposition and expansion. Subsequently, balloon-based techniques are used and re-evaluation with IVU/OCT for the presence of calcium fracture and acceptable lumen gain, if this is not demonstrated, IVL or atherectomy techniques are used.

### References

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## STEMI RELAPSE IN A PATIENT WITH FACTOR V LEIDEN MUTATION... TIME TO HANDLE THIS!

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**Rationale:** Discuss the pearl and pitfalls in the management of acute coronary syndrome (ACS) in heterozygous factor V Leiden (FVL) individuals.

**Technical Resolution:** We describe the case of a 51-year-old man presented at our Institution with anterior STEMI. His past medical history was consistent with FVL in oral anticoagulation therapy (OAC) and with previous anterior STEMI which was treated with balloon angioplasty without stenting. Emergency coronary angiography was performed showing an intermediate stenosis of the left anterior descending (LAD) artery without flow limitation. Due to concomitant symptom regression and ECG improvement, revascularization was thus deferred. Dual antiplatelet therapy (DAPT) based on ASA plus Ticagrelor in association with OAC was shortly given. Once the acute phase was over, LAD stenosis was assessed with intracoronary fractional flow reserve (FFR) study that showed reduced coronary reserve [FFR 0.73]; a second-generation drug-eluting stent was then implanted. After revascularization, antiplatelet therapy was optimized switching Ticagrelor to Clopidogrel and a triple antithrombotic regimen based on ASA, Clopidogrel and OAC was suggested for at least 6 months.

**Clinical implications:** In patients with FVL who undergo percutaneous coronary intervention, indication for stent insertion must be justified not only angiographically but confirmed with coronary imaging or invasive physiological test. Furthermore, an extensive antithrombotic regimen must be considered to ensure stent patency over time.

**Perspectives:** Recognize that patients with established cardiovascular disease and concomitant FVL warrant a tailored revascularization approach and aggressive anti-aggregation therapy due to their hypercoagulative state.

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## TALES FROM THE CRYPT: WHEN THE BALLOON RUPTURES AND COULD NOT BE PULLED OUT

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**Rationale:** Seventy-four years old man with symptomatic severe aortic stenosis was admitted to our department to undergo transcatheter aortic valve replacement with Sapien-3 valve 29 mm (Edwards Lifescience). Fourteen Fr eSheath placement was utilized for the right femoral access. During valve inflation, the pressure gauge indicated a sudden drop in pressure with evidence of balloon rupture in two pieces. At the angiographic and echocardiographic control the valve was well expanded with no sign of aortic insufficiency and aortic gradient indicating residual stenosis. We then tried to pull out the balloon from the main access but the distal part was stuck at the edge of the eSheath and impossible to pull it in.

**Technical resolution:** Several attempts to retrieve the balloon by pushing and pulling on the Commander were unsuccessful due to 14 Fr esheath kinking when applying the pulling force on the pusher. After moving the esheath and the two pieces of the balloon into the descending aorta, we placed a 18 Fr DrySeal in the contralateral left common femoral artery. From this root, a snare was introduced into the descending aorta to catch the valve nosecom. The system was then externalized into the left sheath, creating a right-to-left conjunction. By disassembling the Commander shaft by transversally cutting the external catheter of the pusher, the system with the proximal ruptured balloon was externalized from the right access while the noscom and the ruptured balloon part from the left side.

**Clinical implications:** By the means of this retrieval technique, it was possible to avoid major surgery to the patient and allow discharge the day after.

**Perspectives:** Balloon rupture is an extremely rare complication during balloon expandable valve implantation. Knowledge of materials and retrieval techniques are fundamental to solve the case in the cath lab and allow fast patient recover.

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## A CASE OF INFERIOR STEMI ASSOCIATED WITH A PDA CTO BOTH TREATED WITH RETROGRADE APPROACH DURING PRIMARY PCI

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**Rationale:** A 77-year-old lady with multiple cardiovascular risk factors, presented at the emergency department (ED) with signs and symptoms of acute heart failure, the electrocardiogram showed lateral T wave inversion and Doppler echocardiography detected a moderately reduced ejection fraction (EF) at 42% with inferior and infero-septal wall motion abnormalities, severe mitral regurgitation and severe pulmonary hypertension. After initial stabilization with diuretics and continuous positive airway pressure (C-PAP) ventilation, a transient ST elevation in inferior lead associated with chest pain occurs. Coronary angiography was performed and a critical stenosis of distal right coronary artery (RCA) with ulcerated atherosclerotic plaque associated with a significant thrombotic burden associated with a total chronic occlusion (CTO) of the posterior descending coronary artery (PDA) were detected.

**Technical resolution:** A 7 F right femoral artery was provided. Finecross 150 microcatheter was advanced over a Suoh 03 guidewire used to navigate the epicardial collateral. Gaia II guidewire was used to pass the distal cap. Subsequently the Suoh 03 successfully allowed the microcatheter to reach the RCA guiding catheter. A RG3 guidewire was used to provide adequate support for antegrade stenting. Three Supraflex Cruz drug-eluting stents 3.5 x 40 mm + 3.5 x 40 mm + 2.5 x 32 mm were successfully implanted from mid RCA to the PDA. At the final angiographic control a small peri-adventitial hematoma was detected around the epicardial collateral. No pericardial effusion was documented both angiographically and using echocardiography, however, 50 mg of protamine sulfate was administered. Right radial access was closed with a TR-Band placement whereas a 7 F AngioSeal was used to successfully close the right femoral access.

**Clinical implications:** To the best of our knowledge we presented the first case of acute inferior myocardial infarction associated with inferior CTO (chronic total occlusion) treated with retrograde approach in an acute setting.

**Perspectives:** 1) Treating the culprit lesion using an antegrade approach would compromise further CTO revascularization attempt (blunt stump of the PDA) that was probably required due to the detection of severe functional mitral regurgitation in a patient admitted for acute heart failure; 2) IVUS guided antegrade approach was judged at risk to provide no-reflow related to the probe advancement in thrombotic material and it could compromise blood flow in the presence of ulcerated plaque and thrombotic burden; 3) The epicardial collateral had a large diameter (> 1 mm), therefore wiring and surfing it was judged easy and safe.

**P36**  
**NEVER UNDERESTIMATE THE OBVIOUS**

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**Rationale:** The initial concern arose due to apparent coronary obstruction during the TAVI Valve-in-Valve procedure, linked to the improper direction of the guiding catheter during coronary cannulation. This prompted a need for clarification regarding the actual obstruction status and its impact on the procedure's safety.

**Technical resolution:** To address this issue, Intravascular Ultrasound (IVUS) was utilized. IVUS enabled detailed imaging of the coronary vessels, confirming the absence of significant obstruction. Recognizing the misdirection, the medical team adjusted the catheter's positioning, allowing successful cannulation from an alternative, appropriate direction.

**Clinical implications:** The IVUS findings and the patient's stable hemodynamics and ECG readings revealed that the initial visualization of obstruction was a procedural artifact rather than an actual obstruction. This emphasizes the criticality of using advanced imaging techniques and assessing patient stability to make accurate clinical decisions during complex interventions, preventing unnecessary interventions or complications.

**Perspectives:** This incident underscores the evolving role of advanced imaging technologies, such as IVUS, in enhancing procedural precision and patient safety in interventional cardiology. It emphasizes the need for adaptability during procedures, utilizing technology to rectify procedural challenges promptly, and highlights the pivotal role of real-time imaging in ensuring successful outcomes and minimizing risks.



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## EFFECTIVE MECHANICAL ASPIRATION THROMBECTOMY USING THE PENUMBRA NEUROVASCULAR CATHETER FROM RADIAL ARTERY DURING INFERIOR ACUTE MYOCARDIAL INFARCTION

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**Rationale:** A 40-years old man was admitted to Emergency Department for inferior acute myocardial infarction. From right radial artery, coronary angiography revealed a thrombotic occlusion of dominant, ectatic right coronary artery. Despite several attempts with semi/non-compliant balloon (up to 4 mm) and manual aspiration, TIMI 0 flow was observed.

**Technical resolution:** Mechanical thrombectomy (MT) from radial artery was executed. After leaving a Sion Blue guidewire in right coronary artery, guiding catheter was removed and radial 6Fr sheath exchanged with a Slender 7 in 6 Fr sheath. Then, the Penumbra Neurovascular catheter was advanced and MT performed. Thereafter, the catheter was withdrawn on suction. Angiography showed TIMI II flow with minimal distal thrombosis. Finally, drug-coated balloon (DCB) angioplasty with Magic Touch 4.0 x 30 mm was made achieving a good result and intra-aortic balloon pump was positioned. 72-hours control angiography showed TIMI III flow with negligible distal dissection.

**Clinical implications:** We describe a challenging case of MT from radial artery. The benefit of this device is to generate a constant suction minimizing both distal embolization and a decrease in aspiration force observed manually. Main limit was the use of a not dedicated coronary device with high-risk of embolization. The selection of Neurovascular instead of the appropriate CatRx catheter exclusively depended on the unavailability of the product in our laboratory and its use is not to be understood as routine.

**Perspectives:** The choice to perform a DCB only angioplasty is debatable. In our opinion, the goal was to deliver the antiproliferative drug with the suppression of acute endothelial inflammation avoiding permanent stent implantation.

