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Successful management of dislodged stent in distal left main: A case report

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Introduction: Stent dislodgement in the coronary arteries during percutaneous coronary intervention is a rare but potentially fatal complication. The incidence of SD is reported 0.9 to 8.3%. Factors that increases chance of stent entrapment during PCI is tortuosity of coronary arteries, calcified lesions, passage through a previous deployed stents, and other common causes include poor support of the guiding catheter, sharp angle proximal to the lesion, as well as use of longer stents

Many different retrieval techniques of dislodged stents have previously been reported which include the use of balloon catheters, basket devices, loop snares, twisted wires, etc., with a high success rate in emergency cases when time is crucial and because percutaneous retrieval is a time-consuming procedure, the crushing of an entrapped and dislodged stent against the wall has been proposed as alternative option. And lastly the stent-crush exclusion technique, whereby a second stent is used to crush the detached stent along the wall of the vessel. We report a case of stent dislodgment during PCI to ostial circumflex coronary artery with more sharp angle and a previously deployed stent in left main coronary artery.

Case report: A 69-year-old male patient was admitted to our hospital with the symptoms of effort angina for last 3 months. He was ex-smoker and non diabetic, and reported previous treatment for high blood pressure and dyslipidaemia, he had underwent coronary angioplasty and stenting to left main to LAD and to RCA in another center abroad 11 months back. An electrocardiogram at admittance showed the sinus rhythm with no specific ST segment and T-wave changes. Physical examination showed arterial blood pressure 124/65 mmHg and a pulse rate of 63bpm. Transthoracic echocardiography revealed no regional wall motion abnormality with left ventricular ejection fraction 60% and grade I LV diastolic dysfunction. In view of his exertional anginal symptoms despite optimal medical anti-anginal treatment, he was planned for check coronary angiogram. His coronary angiogram revealed patent stent (left main to left anterior descending coronary artery, patent RCA stent), whereas a severely ostial disease of non dominant but large size circumflex coronary artery (CX), and the right coronary artery (RCA) were without significant disease. Left coronary system was engaged with JL 4–7 Fr guiding catheter and coronary wire Fielder FC was advanced through the ostial LCX lesion to distal segment. Several sequential balloon predilatations (low profile balloon 1.1 x 10mm at 18atmosphere and Sprinter Legend 2.0 x 10 mm at 14 atmosphere) in the Left main to ostial LCX done with TIMI-III flow, while trying to cross the stent 2.5 x 12mm DES through the previously deployed left main to LAD stent with a sharp angle between left main and LCX and tortuous proximal segment of LCX, stent dislodged in the bifurcation of LM to LCX. The patient compained on intense chest pain and suddenly developed severe bradycardia (30 beats per minute) with a drop in blood pressure to 60/40 mmHg. The flow in LCX was disturbed but there was TIMI-III flow in LAD, As we could not pull back the stent which was stucked with the previously left main stent and in sharp angle of ostial LCX, and on the other hand we lose the guide wire in the target vessel, we re-wired the lesion and decided to crush

the unexpanded dislodged stent against the wall in the distal left main and ostio-proximal LCX with 2 x 10mm balloon inflating it up to 16atm, This resulted in a rapid blood flow restoration in LCX (TIMI-III), thought there was some plaque shifting in the ostial LAD then crushed with a stent 2.5 x 12mm (DES) at 14atm, with a good TIMI-III flow, another coronary wire BMW was advanced in left main to LAD and final kissing balloon done with 3.5 x 13mm non complaint balloon in left main to LAD and 2x 10mm balloon in LCX at 12atm. Meanwhile application of atropine and normal saline infusion resulted in hemodynamic stabilization of the patient. The final angiographic result was optimal with uneventful later in hospital course. The patient was discharged on day 3rd. A follow-up during the next three months showed good patient health with the absence of ischemic symptoms. Coronary angiography was performed after three months which showed patent all stents.

Discussion: Stent entrapment and dislodgement in the left main coronary artery is an extremely rare but a serious and life threatening complication which may cause hemodynamic instability, intracoronary thrombosis, stent embolization, myocardial infarction and eventually death. The incidence of SD during PCI has been decreased, from 8.3% twenty years ago to currently 0.02%. According to the previous published literature data, the most common cause of stent dislodgement during PCI is attempt to deliver a stent though a previously deployed stent and pull-back. In our case, Probably, the most important causes of stent loss were the previously deployed stent in left main and sharp angle between the left main and LCX as well as tortuosity of LCX. Hemodynamic state of the patient after stent dislodgement is important factor for its management technique as well as the coronary flow in the vessel with entrapped and unexpanded stent. In case of hemodynamically unstable with compromisation of the coronary flow after SD during PCI, as in this reported case, it is crucial to promptly reestablish the coronary flow and stabilize the hemodynamics first. Furthermore, in such a case of hemodynamically unstable patient sometimes trying to retrieve the dislodged stent specially when the stent is entrapped in the angle of left main with a previously deployed stent and left circumflex, as in our case, can be more problematic and life – threatening. So, in this particular situation the only way to go further with the procedure was to crush the dislodged stent with the balloon and then with a stent against the wall of coronary artery. However, this technique has not been widely accepted for the left main and proximal LCX because it may pose later an increased risk for both stent thrombosis and restenosis due to excess metal layer. In our case, none of the mentioned techniques for retrieving a dislodged stent were possible, due to presence of previously deployed left main stent and the very sharp angle of ostial LCX, other than this, there was possible risk of embolization of the unexpanded stent in LAD and losing its flow which further could deteriorate patients hemodynamics. So, it was safer approach to crush the dislodged stent with balloon and then with a stent.

Conclusion: Stent dislodgment during percutaneous coronary intervention can be successfully managed with different methods. Our case demonstrated that one of the safe and effective option for management of hemodynamically unstable patient is balloon crushing of entrapped and dislodged stent in the distal left main and ostial left circumflex coronary artery. In compare with the other recommended stent retrieval techniques which is time consuming in such emergency situation where establishing coronary blood flow and stabilizing patient's hemodynamic is crucial. It should always be kept in mind that the presence of previously deployed stent and an angulated and tortuous segments of

the coronary arteries may reduce the possibility and success of stenting with a higher rate of stent dislodgement despite adequate lesion preparation before stent delivery.

Speaker Biography

Mirwais Amiri had completed 6 months Residence in Orthopedics at LRH Peshawar, Pakistan and then 1 year in Cardiology at PGMI HMC, Peshawar, Pakistan. He has later joined Afghan National Army Hospital (Late Sardar Mohammad Dawood Khan Hospital) in Medicine Department and then got opportunity to go to Escorts Heart Institute & Research Centre, New Delhi, India where he successfully completed three years tenure and did Fellowship in Noninvasive Cardiology and then rejoined Cardiology Department of Late Sardar Mohammad Dawood Khan Hospital (Afghan National Army Hospital).

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