Case Presentation

Very Very Late Stent Thrombosis in a 57 Year Old Indian Male

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Abstract

"Very" very late stent thrombosis (VVLST) could be defined as thrombosis occurring more than five years after DES implantation. Being VVLST such a rarest category; we are presenting a case where a patient presented with stent thrombosis after about 70 months of its implantation.

Keywords: VVLST; Sirolimus eluting stent; LAD; Indian

Introduction

Stent thrombosis is the rare but most catastrophic phenomenon in DES (drug eluting stent) era, emerged as counterproductive of the effort to alleviate the stent restenosis with variant of anti-mTOR (mammalian target of Rapamycin) drug eluted from the stent. Serious complication of stent thrombosis may be able to involve even fatal MI (myocardial infarction) with ST elevation. Largely classified as acute (within 24 hours), subacute (within 30 days), or as late as one year (late) or more (very late) after stent placement, "very" very late stent thrombosis (VVLST) could be defined as thrombosis occurring more than five years after DES implantation. Being VVLST such a rarest category; we are presenting a case where a patient presented with stent thrombosis after about 70 months of its implantation.

Case Presentation

A 57 year Indian old male hypertensive, non-diabetic, ex-smoker, & dyslipidemic with a history of myocardial infarction about six years back for which he underwent PTCA (percutaneous transluminal coronary angiplasty) with sirolimus eluting stent (Cypher, 3 x 24 mm). He was on regular follow-up and was doing well. He was taking aspirin 75mg/day, clopidogrel 75 mg/day, atorvastatin 20mg/day, metoprolol 25mg/day and telmisartan (40 mg) with amlodipine (5mg)/day combination. He discontinued clopidogrel three years back following his cardiologist's advice. He presented with acute onset left sided chest pain with diaphoresis of two hours duration in August 2015 at our institute. His pulse was 96/ min, BP- 100/60 mmHg, S3 gallop and basal fine crepitations. ECG (electrocardiogram) showed ST elevation in antero-lateral leads & echocardiography showed LAD (left anterior descending) territory hypokinesia with ejection fraction of 40 percent. He was diagnosed as acute ALMI (antero lateral myocardial infarction) with LVF (left ventricular failure). He was taken immediately for coronary angiography with primary percutaneous transluminal coronary angioplasty (PTCA) with a loading dose of Ticagrelor 180 mg. His coronary angiography revealed stent thrombosis with total occlusion from proximal LAD (Figure 1). After crossing the lesion with Run through Hyper coat wire, serial thrombosuctions were performed with Export catheter and followed by implantation of DES (ZES, 3.0 X 32 mm) covering the proximal lesion. After post dilatation with NC balloon (3.5 x 10 mm), TIMI-III flow was achieved in LAD (Figure 2). Patient discharged on 5th day after admission in stable condition with Aspirin 75mg/day, Ticagrelor 90 mg BD, Atorvastatin 80 mg/day, Metoprolol 25mg/day and Telmisartan (40 mg/day). On follow-up after 30 days, patient was asymptomatic & doing well. Follow-up echocardiography showed improvement in LVEF up to 50 percent.

Discussion

Though better optimization of stent apposition and dual antiplatelet therapy (DAPT) have reduced the stent thrombosis markedly [1], VVLST may be caused by impaired re-endothelialization, stent mal-apposition or fracture, a hypersensitivity reaction to the polymer used in drug-eluting stents (DES), or de novo plaque rupture [2].

The pathological studies demonstrated that the vascular healing after DES is substantially delayed when placed in the setting of acute MI compared to stable angina [3]. Variables such as long stents, multiple lesions, overlapping stents, ostial or bifurcation lesions, small vessel size, and suboptimal stent results have all been cited as factors to consider prolonging dual-antiplatelet therapy [4]. Most of the case studies of VVLST has stressed on risk of aberrant antiplatelet medication even years after stent implantation with evidence of VVLST patients were either taking no antiplatelet medication or stop it abruptly for other medical cause. This finding advocates the need for continued antiplatelet therapy in patients with prior DES implantation and identified cessation of antiplatelet therapy as a

Figure 1: Figure showing acute thrombotic occlusion of stented proximal LAD segment.
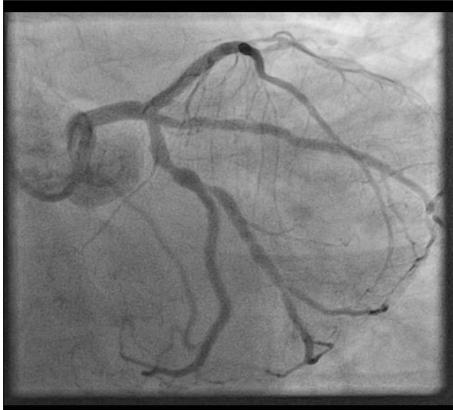
Figure 2: TIMI – III flow after primary angioplasty.

risk factor for VVLST [5]. Recent ACCF/AHA/SCAI PCI guidelines recommended the indefinite continuation of aspirin in patient with PCI and DES [6].

Recent studies indicated the more likelihood of occurrences of very late stent thrombosis in DES than BMS (1.9% vs. 0.5%) [7,8,9]. Incidents of VVLST are gradually reducing with the stent generation pathway especially with third and fourth generation stent with biodegradable polymer. Meta-analysis showed 60% reduction of VVLST in third generation biodegradable polymer containing stent than second generation of DES [10]. Recently, Gupta S also reported a case of VVLST from India which occurred 9.5 years after sirolimus eluting DES implantation [11].

Ongoing studies are assessing the role of therapies including platelet reactivity testing, genetic testing and optimum duration of therapy. In addition, newer polymer-free and bio-absorbable stents are under investigation in the quest to potentially minimize the risk of ST.

Conclusion

VVLST is a rare complication of DES implantation and can occur much later time than previously thought. Stent mal-apposition or fracture, a hypersensitivity reaction to the polymer, inadequate antiplatelet therapy and/or resistance to antiplatelet agents might be the reasons for development of VVLST, but associated risk factors are difficult to establish because of rarity of its incidence. In our case first generation DES was deployed and patient regime was in accordance to guidelines on DAPT. Probably early generation metal strut and polymer could trigger the stent thrombosis in presence of single antiplatelet therapy (aspirin only) even after 70 months of stent deployment.

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