

## 9 mm Protruding Left Main Coronary Artery Stent

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### ABSTRACT

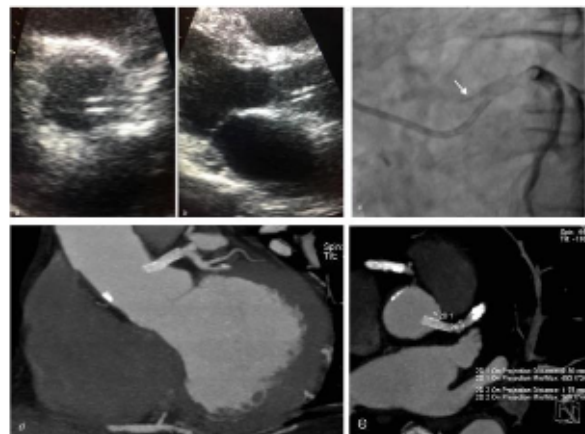
Primary percutaneous coronary intervention and stenting may be life saving in emergency situations. However every stenting procedure does not result as expected. Here we present a case with 9 mm protruding Left Main Coronary Artery (LMCA) stent to aorta which was implanted 7 years ago in emergent situation.

**Keywords:** Coronary; Aorta; Dyspnea; Stent

### INTRODUCTION

61 years old male patient has admitted to hospital with a complaint of exertional dyspnea. He had a previous coronary stent intervention 7 years ago. Seven coronary stents were implanted at that procedure which was done in cardiopulmonary resuscitation condition with concomitant intraaortic balloon counterpulsation usage. As the procedure was done in another hospital we do not have the knowledge about the company and brand of the stents. At that time the patients' ejection fraction was calculated as 20%. Later on ejection fraction was noted to be calculated 48% by time on regular physical examinations in following years. The first year he was on acetylsalicylic acid (ASA) 100 mg and clopidogrel 75 mg daily therapy and clopidogrel was discontinued after one year. He had no another catheterization procedure and he was asymptomatic until last 4 months. His physical examination was normal and surface ECG was also in normal ranges. Because of developing non-sustained ventricular tachycardia on exercise stress testing a coronary angiography testing was suggested. As existence of a LMCA stent protruding excessively to aorta it was impossible to selectively cannulate the LMCA (Figure 1). Contrast dye was given through the struts of the entire stent by the ostium of LMCA with a JL 3.5 catheter. The stent was seen clear and no stenosis was detected in the left coronary system. 80% narrowing of the proximal right coronary artery was detected and treated with a new generation drug eluting stent in the same procedure. A coronary computerized tomography was performed two days after the catheterization which revealed the 9 mm protrusion of the LMCA stent. Also transthoracic echocardiographic view of the protruding stent was remarkable (Figure 1). As the patient was asymptomatic for several years we

decided to go on with medical therapy including ASA and clopidogrel at least 1 year because of new drug eluting stent implantation.



### DISCUSSION

As there are few cases about protruding stents from coronaries to aorta in the literature, the exact timing of stent protrusion seems unclear. Protrusion may happen as a result immediately in the index procedure [2] or by migration in time [1-6]. Kaneko et al. published a patient with Kawasaki disease whose stent in Left Anterior Descending artery has migrated into the coronary aneurysm after 4 years of implantation because of the progressive aneurysm enlargement [1]. Also Adigopula and Nsair have reported a patient with primary pulmonary hypertension with LMCA stents which migrated into the aorta by time [6].

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Although the implantation procedure was in emergent conditions in our patient, the stent in the LMCA may be partially migrated in time because 9 mm protrusion of a 18 mm stent (which was measured with coronary computerized tomography) could be easily realized when positioning of the stent under fluoroscopy before the inflation of stent balloon. Possibly present spasm of the LMCA might be resolved after index procedure and partially stent migration might be happened by dilatation of LMCA by time. However, this is a theoretical explanation but we fully agree with the advise of using the Intravascular Ultrasonography of the LMCA stent procedures in order to deal with full expansion of the stents [7].

Stent thrombosis is one of the most feared complication of percutaneous coronary interventions which has a 11-42% mortality and one of the most contributing factors is exposure of blood to subendothelial tissue stent struts, and/or polymer material leading to activation of the extrinsic pathway of the coagulation cascade before endothelization [8]. Theoretically, a stent with a meaningful body in the aorta without endothelization may be expected to be prone to be thrombosis irrespective of implantation time. However, there is only one published case report in the literature of stent with protrusion with recurrent thrombosis [9]. Lack of the other contributing factors for stent thrombosis such as slow flow, early cessation of dual antiplatelet therapy or patients' own systemic prothrombotic states (e.g., malignancy) can explain the rarity of stent thrombosis in such cases. With high jet flow in the aorta stent thrombosis is unlikely. To our knowledge, our case is the protruded stent with longest duration (7 years) with an uncomplicated course with only one antiplatelet drug after first year of implantation.

The selective cannulation of the catheters to the coronary ostia seems to be the main problem with a protruded stent. Du et al has reported stenting procedure for aorto-ostial in-stent restenosis *via* side strut of excessively protruding stent from LMCA guided by intracoronary imaging [3]. He used intravascular ultrasound and optical coherence tomography for best side strut for guide wire positioning in order to avoiding stent deformation in the procedure. The stenting procedure was succesfull, however, side strut stenting technique should be done cautiously and safety of long term follow up is not known and surgery must be always kept in mind in such restenosis in selected patients [10].

The diagnosis of protruding coronary stents to aorta can be easily made by fluoroscopy or coronary computerized tomography. In some cases echocardiography and especially three dimensional trans esophageal echocardiography may be valuable for detecting the protrusion and possible complications

[2]. Perforation of non coronary aortic cusp by protruded right coronary artery stent causing severe aortic regurgitation and heart failure was published; so early echocardiographic examination should be done in all detected patients [4].

## CONCLUSION

Intravascular imaging is important in left main coronary stent procedures in order to full expansion and optimal deployment of the stent. The protrusion of LMCA stent can be safely followed by years after proper following the guidelines for dual antiplatelet therapy.

## INFORMED CONSENT

The informed consent was obtained from the patient.

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