A typical presentation of extruded right coronary artery stent

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ABSTRACT
Percutaneous coronary intervention (PCI) is an universally accepted and standardized procedure for obstructive coronary artery diseases with minimal complication rates, including iatrogenic coronary artery perforation (CAP). Most of the coronary perforations present earlier during the time of procedure or immediately after the procedure. Delayed presentation is very rare and presents within days or weeks. The present case showed the delayed atypical presentation of stent extrusion as a swelling in the right hypochondrium three years after the procedure. This is a rare case of long standing right coronary artery stent extrusion presented atypically as a right hypochondrial swelling.

Keywords: Coronary artery perforation, extruded coronary artery stent, percutaneous coronary intervention

INTRODUCTION
Percutaneous coronary intervention (PCI) is a universally accepted and standardized procedure for obstructive coronary artery diseases with minimal complication rates, including iatrogenic coronary artery perforation (CAP). The present incidence of coronary artery perforation is 0.19–0.59%. Clinical outcome mainly depends on the severity of perforation. Myocardial infarction occurred in 16.7 to 50%, mortality in 9 to 19% and requirement for emergency surgery is around 50%. Late complications like pseudoaneurysm are more frequently associated with directional coronary atherectomy or cutting balloon usage. Most of the coronary perforations present earlier during the time of procedure or immediately after the procedure. Delayed presentation is very rare and presents within days or weeks. Stent extrusion through the perforated coronary artery to the mediastinal space is a very rare complication presenting as a life-threatening event with cardiogenic shock or tamponade.

CASE REPORT
A 67-year-old male presented to our hospital with h/o of right hypochondrial swelling for the past 3 months. Patient underwent PCI to right coronary artery with two drug eluting stents (Everolimus eluting) for inferior wall myocardial infarction in 2016. He also had a PCI to left anterior descending artery with one drug eluting stent (Everolimus eluting) [Figure 1]. During the RCA stenting perforation occurred which was managed conservatively. Three years after the intervention patient observed swelling in the right hypochondrium associated with discomfort for which he was referred to gastroenterologist. In the process of evaluation for abdominal swelling, he was diagnosed to have right coronary artery stent extrusion with fluid collection around the stent [Figure 2]. At the time of presentation to our hospital patient was hemodynamically stable and had no complaints other than abdominal swelling.

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LAD has in stent restenosis of 50-60%, which was not reported by cardiologist during angiogram. Grafting to left anterior descending artery, posterior descending artery and obtuse marginal artery was done. Patient was started on noradrenaline intraoperatively and shifted to intensive care unit after surgery. Patient was extubated after 4 hours and shifted to ward on 2nd postoperative day. Sample taken for culture intraoperatively were found to be negative. Patient was discharged on fifth postoperative day with regular medications according to institution protocols.

DISCUSSION

The present case showed delayed atypical presentation of stent extrusion as a swelling in the right hypochondrium. Early presentation of stent extrusion immediately after coronary stent deployment or traumatic extrusion of stent has been reported. As per the literature review no case report was there regarding the spontaneous extrusion of coronary stent three years after percutaneous intervention. A relook at the previous catheter angiography revealed no stent fracture but right coronary perforation which was managed conservatively. Present catheter angiography revealed proximal right coronary artery occlusion & collaterals perfusing posterior descending artery and posterolateral branch with stenosis of distal left circumflex artery. Computed tomographic imaging revealed heterogenous partially organised fluid collection (measuring 35 × 30 mm in axial plane in the AV groove) surrounding the right coronary artery with the epicardial fat. It is seen extending from the proximal right coronary artery to the right hemidiaphragm with mild thickening of the pericardium [Figure 2]. Thrombosed & occluded stent was seen in the collection. Patient was taken for coronary artery bypass grafting and retrieval of extruded stent. During surgery transoesophageal echocardiogram showed the extruded right coronary stent adjacent to right ventricle with some fluid collection around it. Intraoperative findings were severe right hemicarditis with some fibrous tissue adherent to RV extending in to the right hemidiaphragm. Right coronary stent was embedded in the fibrous tissue with some liquified fat within it [Figure 4]. Fibrous band was excised, and extruded stent was retrieved. Surgeon felt

Figure 1: Coronary angiogram images showing pre and post stenting of right coronary artery and left anterior descending artery

Figure 2: CT and MRI images showing (i) extruded right coronary artery stent with collection around it. (ii) right hypochondrial collection. (iii) fibrous tract extending from right ventricle to right hypochondrium
chronic inflammation and plaque rupture may be the cause of stent extrusion.

Patient history did not show any signs of infected stent. In our case patient was taken for CABG with removal of extruded right coronary artery stent. Intraoperatively we found that there is severe pericarditis with extruded & thrombosed right coronary artery stent surrounded by liquefied fat extending from right pericardium up to right hypochondrium with a fibrous tract and the stent was lying away from right ventricular free wall near Atrioventricular groove. Collection was sent for cultures and fibrous tract was excised and extruded stent was removed. This is a rare case of long standing right coronary artery stent extrusion with right coronary artery occlusion which presented atypically as a right hypochondrial swelling. Even though this is a dreaded complication, patient did not have any symptoms of ischemia or tamponade. This case also demonstrates the utility of computed tomographic imaging & transoesophageal imaging to diagnose & confirm the extruded coronary stent. In literature review we did not find any case of coronary stent extrusion presenting as a swelling in the hypochondrium after 3 years following intervention.

**CONCLUSION**

Complex extruded right coronary stent may present as right hypochondrial swelling without the signs of cardiogenic shock or any signs of infection.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initial(s) will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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