INTRODUCTION

Primary percutaneous coronary intervention (PCI) is the preferred treatment for STEMI and is very effective in opening an infarct-related artery (IRA). However, microvascular obstruction resulting from embolization of plaque or thrombotic material results in sub-optimal myocardial reperfusion. The high frequency of sub-optimal myocardial reperfusion after primary percutaneous coronary intervention (PCI) has resulted in the development of various devices to protect the microcirculation and improve myocardial reperfusion. Aspiration of intracoronary thrombus is an attempt to reduce thrombus burden in IRA and also to reduce chances of distal embolization.

This case report describes aspiration of a thrombus from right coronary artery through percutaneous intervention without stent placement.

CASE REPORT

A 48-year-old man; hypertensive, dyslipidemic presented in the emergency department with typical anginal chest discomfort of one hour duration associated with sweating. He had had a left sided ischemic cerebrovascular accident 10 months back from which he had recovered completely.

On arrival in the emergency department, he was hemodynamically stable and his cardiovascular examination was unremarkable. Electrocardiogram (EKG) showed 0.2 mV ST segment elevation in leads II, III, aVF with R wave and 0.1mV ST depression and upright-T wave in leads V1 and V2. 0.1 mV ST segment elevation was also present in lead V4R. EKG findings were consistent with acute infero-posterior ST elevation myocardial infarction (STEMI) with right ventricular infarction.

He received standard STEMI protocol including 300 mg aspirin, 600 mg clopidogrel, 5000 IU of unfractionated heparin intravenously and was started on glycoprotein IIb IIIa inhibitor, eptifibatide infusion after receiving weight adjusted double bolus with intention of primary percutaneous coronary intervention (PCI). He underwent diagnostic angiogram which revealed total occlusion of mid right coronary artery (RCA) by thrombus. Multiple runs of aspiration were performed using Export Aspiration Catheter-6F and thrombus was aspirated from RCA. Postaspiration stenting was deferred due to absence of any significant obstructive lesion. Some thrombus had migrated to distal right posteriolateral branch (RPLB). He was started on glycoprotein (GP) IIb IIIa inhibitors which had to stopped after a few hours due to upper gastrointestinal bleed. After 48 hours a re-look angiogram demonstrated good flow in RCA with resolution of the residual thrombus.

ABSTRACT

We are reporting the case of a 48-year-old man hypertensive, and smoker presenting with acute inferoposterior ST elevation myocardial infarction (STEMI) with right ventricular infarction. He underwent diagnostic angiogram which revealed total occlusion of mid right coronary artery (RCA) by thrombus. Multiple runs of aspiration were performed using Export Aspiration Catheter-6F and thrombus was aspirated from RCA. Postaspiration stenting was deferred due to absence of any significant obstructive lesion. Some thrombus had migrated to distal right posteriolateral branch (RPLB). He was started on glycoprotein (GP) IIb IIIa inhibitors which had to stopped after a few hours due to upper gastrointestinal bleed. After 48 hours a re-look angiogram demonstrated good flow in RCA with resolution of the residual thrombus.

to upper gastrointestinal bleeding. He remained pain free and hemodynamically stable in the coronary care unit. A relook angiogram was performed 48 hours later which showed TIMI III flow in RCA with complete resolution of residual thrombus in distal RPLB (Figure 2). He remained fine thereafter and was discharged home.

**DISCUSSION**

Acute myocardial infarction (AMI) is considered to be related primarily to the rupture or erosion of a coronary atherosclerotic plaque. This initiates intraluminal thrombus formation superimposed on the ruptured plaque which leads to total or subtotal occlusion of an epicardial coronary artery.³ Reperfusion therapy has been focusing on dissolving, compressing, or surgically bypassing thrombi; aiming at normalization of flow in the epicardial infarct related artery.

Primary percutaneous coronary intervention (PCI) has emerged as the preferred treatment of acute MI if logistically feasible and has been proven to be a very effective method to obtain patency of IRA.⁴ Optimal outcome of reperfusion in recent years has been redefined to include not only sustained epicardial patency but also reperfusion of the myocardium subjacent to affected coronary artery.⁵ Two major impediments to normalization of microvascular function are considered to be reperfusion injury and microvascular obstruction. Microvascular obstruction is believed to be caused by the embolization of soft plaque gruel (atheroembolization) and/or thrombotic material (thromboembolization) in the downstream bed of the infarct-related artery.⁶ Coronary angiographic techniques for the assessment of microvascular function and myocardial tissue perfusion include the visualization of distal embolization and the evaluation of myocardial blush grade (MBG).⁷

Considering the thrombotic nature of coronary occlusion and potentials for distal embolization, multiple devices have been developed including Filter wire (Filter wire-Ex), angio jet and aspiration catheter (Medtronic Corporation). A few randomized trials have shown some advantage of these devices in acute coronary syndrome.⁸ In the REMEDIA trial, manual thrombus aspiration with the thrombus aspiration catheter (Diver CE Invatec, Brescia, Italy) in patients with acute ST elevation myocardial infarction (STEMI) undergoing primary or rescue PCI, results in better angiographic and ECG myocardial reperfusion rates compared with those achieved by standard PCI.⁹

The study by Margheri et al. demonstrated that use of the aspiration catheter (EXPORT®, Medtronic Inc) in patients with STEMI and coronary thrombosis is feasible, safe and associated with significant improvements in flow-related angiographic parameters.¹⁰

This case is unique because of the aspirated IRA. No significant residual obstruction was identified, only aspiration was performed. Stenting was deferred and on re-look angiogram 48 hours later there was no significant residual thrombus and TIMI III flow was preserved. This case highlights the effectiveness of using devices like the aspiration catheter in the setting of STEMI in restoring flow in IRA.

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**REFERENCES**


