# Successful Primary Percutaneous Coronary Intervention in a Young Patient in Peripheral Hospital And Its Out Come

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**Abstract:**

Among all coronary artery disease (CAD) ST-T elevated MI is the most emergency condition to treat within time. but in our country all peripheral hospital has no enough scope for the recommended treatment, that is primary percutaneous coronary intervention (PCI) due to lake of infrastructure and trained cardiologist. Most of our patients does not reach to hospital within the golden time. In most of these patients are treated with pharmacological revascularization by Streptokinase or Tenecteplase. Few patients are saved who are with no other risk factors and can reach in hospital within the time frame of myocardial infarction cascade. For this consequence most of our patients suffers from the sequalae of myocardial infarction, that may be arrhythmias, cardiomyopathy to death. We performed primary PCI in peripheral hospital in a young patient successfully and the outcome is satisfactory. We want to continue this service in our hospital for preventing mortality and morbidity of our cardiac patients.

Key words: young patient with STEMI, Primary percutaneous transluminal coronary angioplasty. Peripheral hospital.

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## Introduction:

Cardiovascular diseases (CVDs) are the leading cause of death globally, taking an estimated 17.9 million lives each year. CVDs are a group of disorders of the heart and blood vessels and include coronary heart disease, cerebrovascular disease, rheumatic heart disease and other conditions. More than four out of five CVD deaths are due to heart attacks and strokes, and one third of these deaths occur prematurely in people under 70 years of age[1]. In our country most of the people are not aware about cardiac emergency and in periphery all the hospital are not designed for UpToDate treatment like percutaneous coronary intervention (PCI) not even giving pharmacological treatment. At same time specialized hospital are not with in the reaching area so that acute case of cardiac patients can reach in time. Recently we have started cardiac cathlab service in Mymensingh Medical College Hospital for the first time in Mymensingh Division. We are trying to give service for more than 2.5 core people of Mymensingh division and surrounding districts.

## Case report:

A 32 years old farmer presented to the emergency department with 4 hours duration of severe central chest pain with sweating. He was shifted to Department of Cardiology for cardiac management. After electrocardiogram it revealed ST- T elevation in chest leads V1 to V6 with RBBB, that is anteroseptal myocardial infarction (STEMI). He was in cardiogenic shock and we started Inotrope immediately. He was normotensive and moderate smoker, non-diabetic.

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After initial management we discussed with the patient party regarding different options and our limitations. Usually, we do thrombolysis in such case with Streptokinase, and also with Tenecteplase. But it (STEMI) was class I level of evidence A indication for primary PCI [2]. We explained that we can go for primary percutaneous transluminal coronary angioplasty also. Considering every expect patient party agreed for PPCI in our hospital. Loading- Aspirin- 300mg, Ticagrelor- 180mg given. We took written informed consent of patient's party. After initial triage he was taken in our cardiac cathlab for primary angioplasty. We started coronary angiogram from the right coronary system showed right dominant good-sized vessels and free from significant disease. In left coronary system, left anterior descending artery (LAD) was 100% occluded from proximal part. Left main (LM), left circumflex (LCX)artery was good sized and significant disease free. we took extra backup (EBU) 6fr PCI guide catheter and engaged in left coronary artery properly within short time. As per resent guideline recommendation we did not try to aspirate the thrombus by suction catheter [3]. Then we crossed the lesion with Run through floppy guide wire .But desired flow was not established. So, we took a compliant balloon for predilatation, size was 2.5×12. Now a DES 3/18mm (Endeavor Resolute) deployed with 16 atm in proximal LAD. Intra- coronary vasodilators was given and TMI III flow was established. As there was thrombus, we also given Eptifibatide(integril) 10mg bolus, then 6ml/ hr for next 12 hour. Patient was symptom free just within 30 minutes of procedure. Post PCI ECG shows

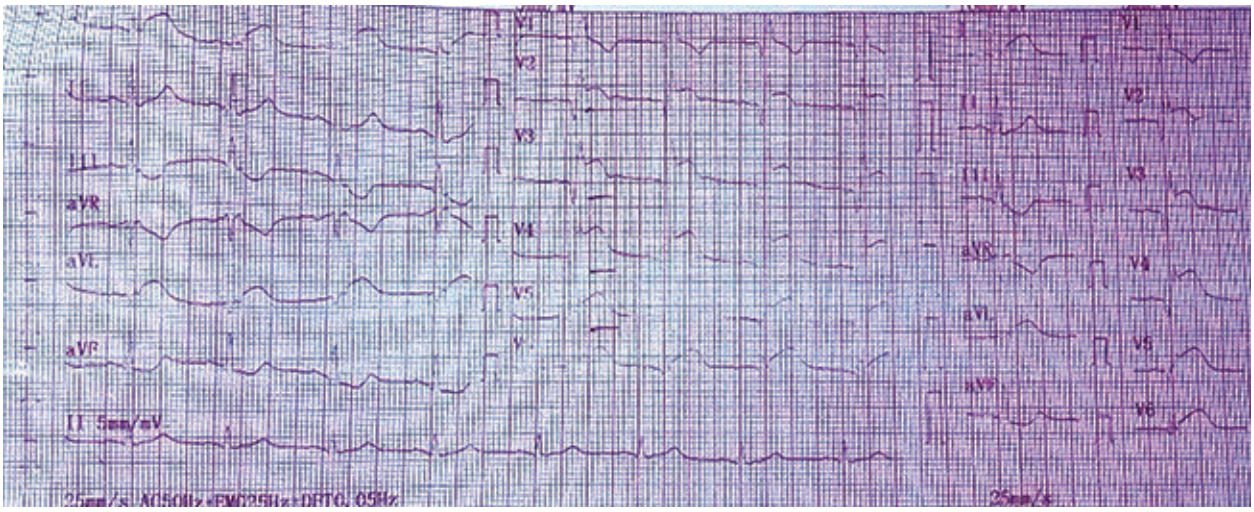



**Fig.-1:** *ECG on admission, showing ST-T elevation in V1- V6 and RBBB*

**Recommendations for Revascularization of the Infarct Artery in Patients With STEMI**
**Referenced studies that support the recommendations are summarized in Online Data Supplement 7.**

| COR | LOE | RECOMMENDATIONS |
|---|---|---|
| 1 | A | 1. In patients with STEMI and ischemic symptoms for <12 hours, PCI should be performed to improve survival (1-5). |
| 1 | B-R | 2. In patients with STEMI and cardiogenic shock or hemodynamic instability, PCI or CABG (when PCI is not feasible) is indicated to improve survival, irrespective of the time delay from MI onset (6,7). |
| 1 | B-NR | 3. In patients with STEMI who have mechanical complications (e.g., ventricular septal rupture, mitral valve insufficiency because of papillary muscle infarction or rupture, or free wall rupture), CABG is recommended at the time of surgery, with the goal of improving survival (8,9). |
| 1 | C- LD | 4. In patients with STEMI and evidence of failed reperfusion after fibrinolytic therapy, rescue PCI of the infarct artery should be performed to improve clinical outcomes (10-13). |
| 2a | B-R | 5. In patients with STEMI who are treated with fibrinolytic therapy, angiography within 3 to 24 hours with the intent to perform PCI is reasonable to improve clinical outcomes (14-20). |

**Fig.-2:** *Recommendation for Revascularization in STMEI patient 2*

the ST segment was in isoelectric line. Post PCI echocardiogram shows there are hypokinetic and dyskinetic wall motion abnormality by Global longitudinal Stain (GLS) in anterolateral area of left ventricle. Patient was discharged with duel anti platelet, statin, ACE inhibitor. After 2 months follow-up patient was quite well and echocardiogram shows less wall motion abnormality, in GLS we found most of the injured myocardium salvaged. as we are in peripheral hospital, it was a challenge for us and also for the patient. Despite all limitations we are successful as per protocol which is a great blessing for the cardiac patients of Mymensingh division.

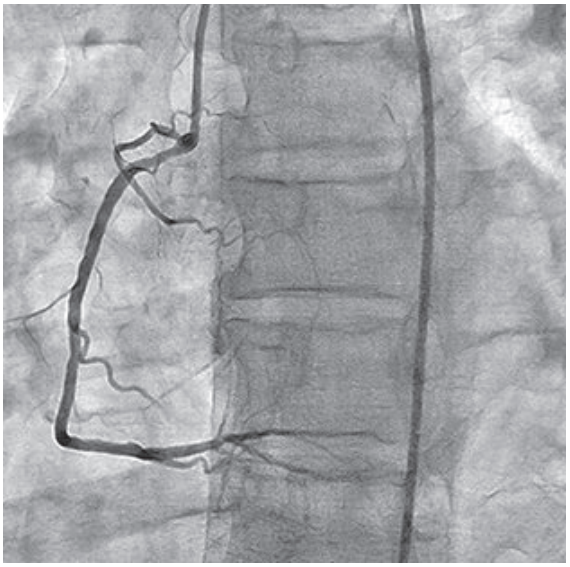


**Fig.-3:** *Normal Right coronaries*

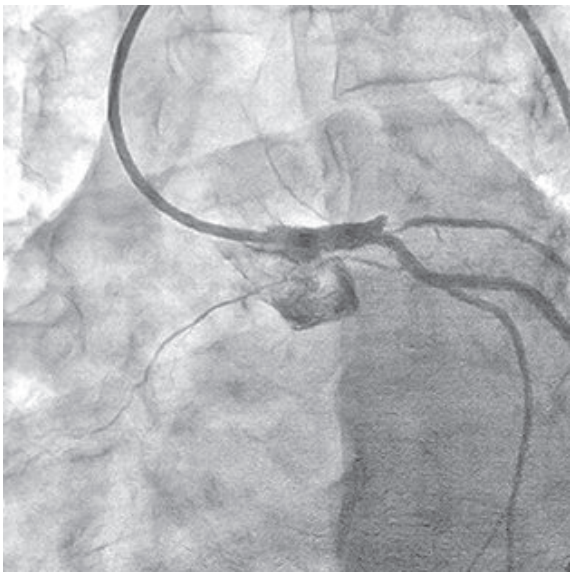


**Fig.-4:** *100% occluded LAD*

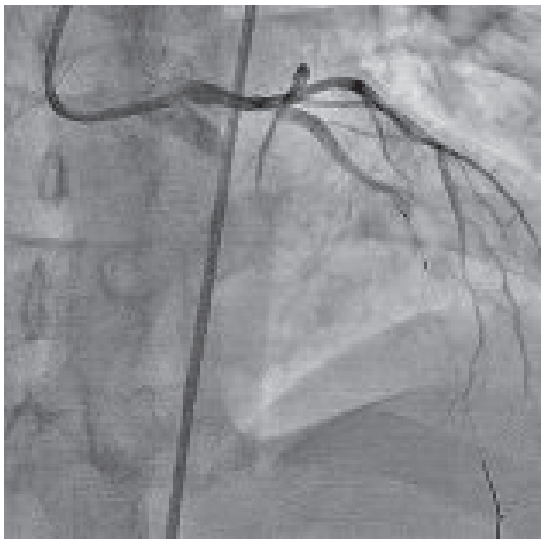


**Fig.-5:** *floppy guide wire crossing lesion*

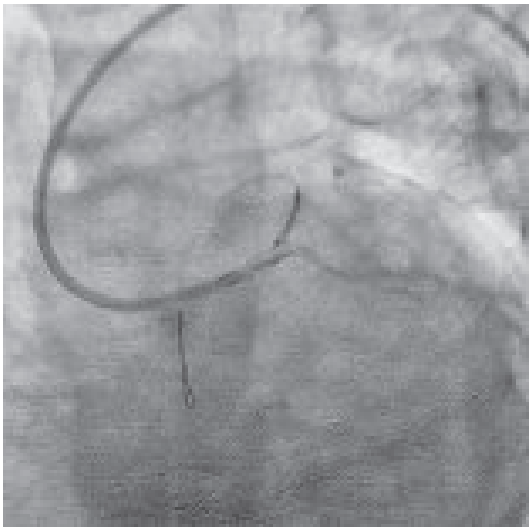


**Fig.-6:** *Predilatation with compliant balloon*

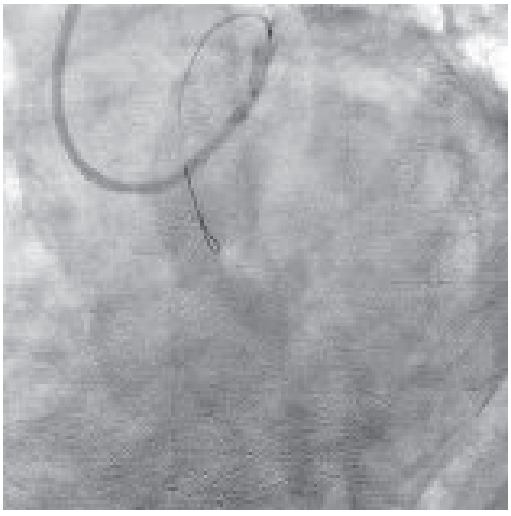


**Fig.-7:** *Deployed DES*

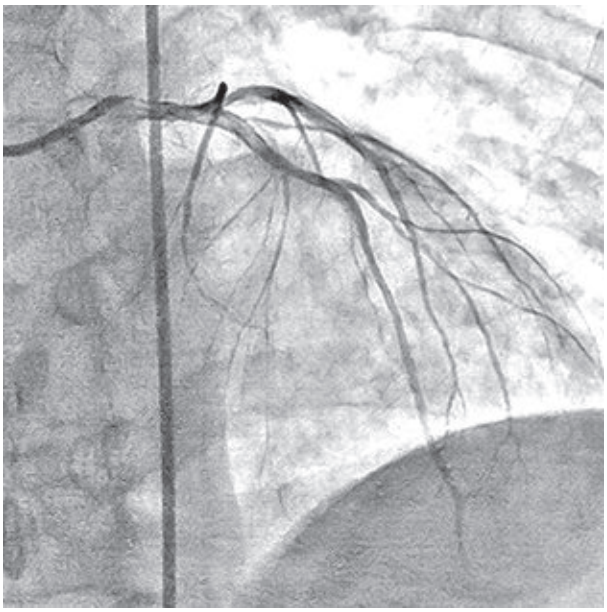
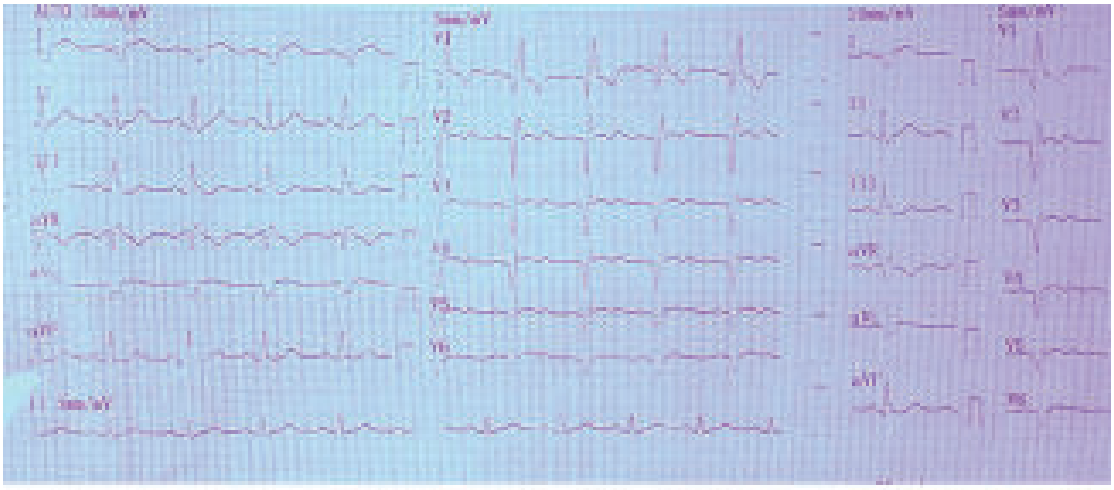
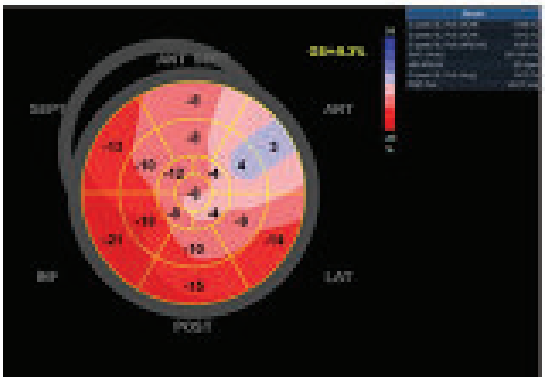


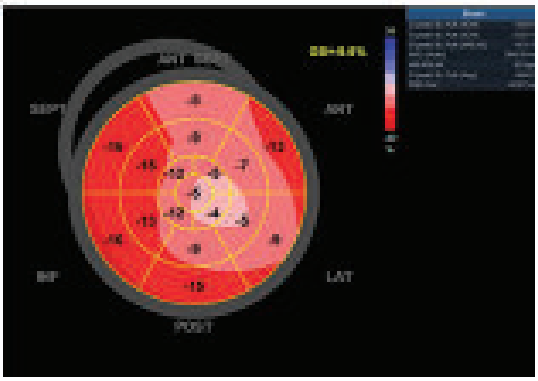
**Fig.-8:** *TIMI III flow established in LAD*



*(a)*



*(b)*



*(c)*

**Fig.-9:** *(a) Post PCI ECG , ST-T in isoelectric line, (b) Post PCI Echo, GLS showing large injured myocardium, (c) Follow-up Echo, GLS showing salvaged myocardium*

**Discussion:**

Coronary artery disease (CAD) is one of the most important causes of mortality and morbidity in worldwide population. ST-segment elevation myocardial infarction (STEMI) and patients with equivalent findings (true posterior MI, hyper-acute T-wave changes, anterior ST depression with ST elevation in lead aVR, and new left bundle branch block with Sgarbossa concordance criteria or hemodynamic instability) account for 30–50% of myocardial infarctions (MI) and are associated with substantial short- and long-term morbidity and mortality[4,5].

Gold standard treatment of STEMI patient is primary PCI according to recent guideline. But in our country it is nit possible due to many limitation like lake of awareness, distance of specialized hospital with manpower. In patients undergoing primary PCI for treatment of STEMI, complete reperfusion with development of TIMI 3 flow is achieved in over 90% of patients compared to 50–60% of patients treated with fibrinolytic therapy. Patients who achieve less than TIMI 3 flow with PCI are frequently late presenters, have large thrombus burden, and have poorer outcomes[6]. As a peripheral hospital, in Mymensingh medical college hospital we have taken al the challenge in mind and did primary PCI. Our target is to give the patients best possible treatment which is their human right. We are trying to decrease the rate of mortality and morbidity of cardiac patient of Mymensingh division.

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