

## CASE REPORT

## WHO IS RESPONSIBLE FOR THE CONSEQUENCES? A CASE OF STENT THROMBOSIS SUBSEQUENT TO NONCOMPLIANCE WITH POST ANGIOPLASTY TREATMENT REGIMEN

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Coronary artery disease (CAD) is a major cause of mortality internationally and in Pakistan. Angioplasty has been proven to be an effective treatment for CAD. Stent thrombosis is a known but preventable complication of angioplasty. Several factors may lead to stent thrombosis with non-compliance with the prescribed drug regimen, being one of the most important factors. We report a case of stent thrombosis after four months of angioplasty. After exploring of patient's post angioplasty routines, it was found that the patient was non-compliant with the prescribed anti-platelets and other prescribed drugs. This time the patient presented with another acute myocardial infarction, and he went through angioplasty again.

**Keywords:** Coronary artery disease, Angioplasty, Stent thrombosis, Non-compliance with medications

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## CASE STUDY

A 62 year old male approached the emergency department of a public sector tertiary care hospital in Karachi. He presented with severe chest pain, and his ECG showed ST elevation in anterior leads; thus the patient was diagnosed with anterior wall myocardial infarction. He was a chain smoker and hypertensive; he belonged to the middle socioeconomic class; and he was educated till primary level. The patient's past medical history revealed hospitalization in the same public tertiary care hospital with anterior wall MI, four months back. Patient underwent angiography; his left anterior descending (LAD) and left circumflex (LCX) coronary arteries were found to be occluded; hence, angioplasty of LAD and LCX was performed. Patient was discharged on tablet Aspirin, tablet Clopidogrel, tablet Atorvastatin, tablet Amlodipine and tablet Metoprolol. After discharge, patient took these medications for a month and since he was symptom free, he stopped taking all of the prescribed medications. On further exploring, it was found that the patient was not informed about the importance of taking medications post angioplasty, the duration of treatment regimen, and the next follow-up appointment with the cardiologist. The patient described that he was just handed over a prescription, which he assumed to be followed for a month.

## DISCUSSION

Coronary artery disease (CAD) is the leading cause of cardiovascular mortality worldwide.<sup>1,2</sup> In Pakistan, cardiovascular mortality accounts for 12% of all deaths.<sup>3</sup> Earlier, surgical revascularization or pharmacological approaches were known options for the treatment of cardiovascular diseases<sup>1</sup>; however, over the last 25 years, with the emergence of

interventional cardiology, percutaneous transluminal coronary angioplasty (PTCA) has proven to be more efficient.<sup>1,4</sup> Nowadays, PTCA is a routine procedure which is performed for the treatment of CAD. However, in stent thrombosis is a major complication, which leads to severe consequences among post PTCA patients.<sup>1</sup>

Factors that contribute towards post PTCA stent stenosis include non-compliance with medication regimen,<sup>5–10</sup> dietary restrictions<sup>2,5–8,10</sup>, exercise plan<sup>3,5,7,8,10</sup> and smoking cessation strategies;<sup>1,5,7,8</sup> among the factors listed above, non-compliance with medication regimen is one of the major factors that contributes towards stent stenosis<sup>9</sup>. Upon discharge, post PTCA patients usually receive medications such as anti-platelets, platelet aggregation inhibitors, beta blockers, calcium channel blockers, angiotensin converting enzyme (ACE) inhibitors, HMG-CoA reductase inhibitors (statin therapy), and nitrates.<sup>4,5</sup> The anti-platelets and platelet aggregation inhibitors function to lower platelet collection and aggregation around the stent, thereby preventing stent thrombosis. The other drugs mentioned above also play their due part in stabilizing patients' cardiovascular function, by controlling their heart rate, blood pressure, and cholesterol levels. After discharge, a patient must follow the prescribed medication regimen strictly in order to keep the stent patent, so as to maintain optimum myocardial perfusion.

Several methods are applied to ensure patients' compliance with the prescribed treatment regimen. During hospital stay, patients are monitored and they are given medications timely as prescribed by the cardiologist, so that they get familiarized with the routine medications to be taken.<sup>11</sup> The case management model is another method to ensure that patients follow

the prescribed treatment regimen; this model is used after the patient gets discharged from the hospital.<sup>12</sup> A nurse case manager follows the patient after discharge through phone, and ensures that the patient is compliant with his or her medication regimen.

Discharge teaching for the patients and their care givers has an essential part in optimizing patients' knowledge, attitude and behaviour towards their disease.<sup>6,9,11</sup> The content of the discharge teaching should therefore be very carefully planned and delivered. Health care providers' communication with patients and their families also has a significant effect on patients' compliance with their prescribed drug regimen. Ineffective communication by health care providers affects patients' understanding of their disease and of the treatment regimen.<sup>9</sup>

The patient must understand what has happened to his/her heart, what is the expected level of recovery, and what measures must be followed in order to keep the heart functioning at optimal level. Patients and their family members must also understand that PTCA is not an everlasting cure and that efforts must be made to keep the stent patent.<sup>6</sup> For this, patients must not only be taught about the medications to be taken; but the discharge teaching must also emphasize on the frequency of medications, indications of each medication, and the duration for which each medication is to be taken.<sup>9</sup> According to the principles of effective communication, the patients must be taught at lay men level about medications' mechanisms of action; and this information must be linked with the indications of the medications, so that patients can understand the importance of complying with their drug regimen.<sup>11</sup> The discharge teaching must also include the expected health outcome of taking the prescribed medications.<sup>9</sup> The expected outcomes of compliance with the medication therapy include, but are not limited to, being asymptomatic; having controlled heart rate, blood pressures and blood cholesterol levels; and having maintained patency of stent. Additionally, discharge

teaching must also include the possible consequences of not complying with the post PTCA drug regimen, such as stent thrombosis, and reinfarction.<sup>10,11</sup> Such detailed explanation of the indications, mechanism of action, duration, and desired effects of the prescribed medication regimen to the patient, by physicians and nurses, will help in ensuring patients' compliance with their drug regimen, subsequently reducing the chances of stent restenosis among post PTCA patients.

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