

Irreversible Delayed Complete Heart Block Secondary to Jailed First Septal Perforator Following PCI of the Left Anterior Descending Coronary Artery

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ABSTRACT: Permanent complete heart block (CHB) secondary to the loss of first septal perforator after percutaneous coronary intervention (PCI) of the left descending artery (LAD) is an extremely rare complication. We describe a case report where a patient underwent PCI of proximal LAD, complicated by loss of first septal perforator, septal infarction, and bifascicular block, which progressed to symptomatic delayed CHB. One week later, the patient required implantation of a permanent pacemaker following failure to wean off the transvenous temporary pacing maker.

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Complete heart block (CHB) after jailing of first septal perforator following percutaneous coronary intervention (PCI) of the left anterior descending artery (LAD), although uncommon, is usually transient, occurring during the procedure and resolving within 72 hours. ECG changes of ischemia, conduction disturbance, ventricular arrhythmias, and acute myocardial infarction had been described following occlusion of septal perforators. Our review of English literature revealed only 3 published cases of delayed CHB secondary to jailing of the first septal perforator with only one case requiring implantation of a permanent pacemaker (PPM).¹⁻³ To our knowledge, this is the second case report of delayed CHB that required permanent pacemaker implantation secondary to loss of first septal perforator following PCI to proximal LAD.

Our case highlights the importance of longer than usual post-procedural patient observation and ECG monitoring after jailing of first septal perforator and considering necessary steps if required.

Case Report. A 75-year-old female patient with hypertension and previous history of a transient ischemic attack presented to our emergency department with 3 days history of epigastric and

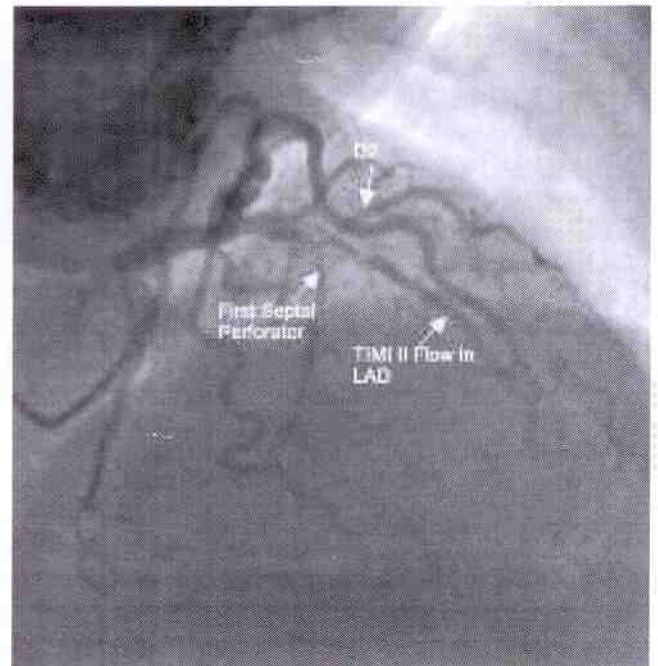


Figure 1. Diagnostic angiogram demonstrating diffuse LAD lesion immediately after D1 with TIMI II flow and ostial involvement of ESP and D2.

D1 = first diagonal; D2 = second diagonal; ESP = first septal perforator; LAD = left anterior descending artery

retrosternal chest pain, and recent onset of shortness of breath on exertion. Pain was not radiating and was not associated with any sweating or palpitation. On examination, patient was hemodynamically stable with no signs of heart failure and her systemic examination was unremarkable. ECG showed heart rate of 77 BPM and biphasic T waves from V1-V6. Her Troponin T was elevated (0.59 ng/mL). She was admitted with the diagnosis of non ST elevation myocardial infarction (NSTEMI) and went for coronary angiogram within 24 H based on decision for an early invasive therapy.

The patient's angiogram revealed a diffuse LAD lesion immediately after the first diagonal (D1) with subtotal occlusion and TIMI II flow distal to lesion. The lesion also involved the ostium of the second diagonal (D2) and first septal perforator (Figure 1). Distal left circumflex coronary had a borderline lesion (60%-70%) and right coronary artery was non-dominant and small caliber.

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