ORIGINAL RESEARCH PAPER

Cardiology

COMPLETE HEART BLOCK IN AWMI: REVASCULARISATION OR PACEMAKER IMPLANTATION

KEY WORDS: complete heart block, angioplasty, left anterior descending artery

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ABSTRACT

Complete heart block can be either congenital or acquired. Among acquired causes common ones are drugs, degenerative diseases, infectious causes, rheumatic diseases, infiltrative processes, neuromuscular disorders, ischemic causes, metabolic causes, toxins and iatrogenic causes. RCA occlusion has high incidence of AV block which resolves promptly after revascularization. AV block in the setting of LAD territory occlusion has a more ominous prognosis. We revascularized LAD and prevented the implantation of Pacemaker

INTRODUCTION:

Complete heart block is a known complication of inferior wall myocardial infarction and occurs in 20% of patients with inferior wall myocardial infarction.[1] Complete heart block has also been reported following PTCA of LAD following occlusion of first septal perforator by 'snow ploughing' effect[2-5] Incidence of complete heart block in myocardial infarction has been reported to be 3-13% in pre thrombolysis and reperfusion era[6] reduced to 2.2% in a recent study[7] Mortality is also higher in patients developing CHB with MI[8]

Case:

A 56 years old male presented with recurrent episodes of syncope for 2 days and breathlessness on exertion for 1 day. His pulse rate on admission was 44/min and BP = 120/80 mmHg. On physical examination, general examination, cardiovascular system, nervous and respiratory system examination revealed no significant abnormality. ECG revealed qRBBB pattern with AV dissociation(figure 1). Echocardiography showed basal, mid and distal anterior anterolateral and anteroseptal walls were hypokinetic. In cardiac enzymes troponin I was significantly raised 21.8(0-1.0 ng/ml), TSH was raised 10.99(0.34-5.6 micro IU/ml), among electrolytes sodium was 131.66 meq/Lt, potassium was 3.39 meq/Lt, calcium was 8.8 mg%, magnesium was 2.08 mg/dl. Serum creatinine was 1.0 mg% on admission.

Temporary pacemaker was inserted and patient symptoms improved. Patient was taken for angiography which revealed LAD after D1 99% lesion (Figure 2 and 3). Patient was immediately taken for angioplasty and lesion stented with drug eluting stent 3.5 x 33 mm in size (figure 4). Check shoot suggestive of TIMI III flow with no evidence of flap/dissection (figure 5).

Patient stable post procedure shifted to ICCU. ECG showed self rhythm with left bundle branch block pattern (figure 6). TPI lead was removed after 2 days, patient symptoms improved drastically following PTCA.

DISCUSSION:

Patients with high degree AV block complicated by MI had more incidence of recurrent high degree AV block or sudden death in the first year of life[9] CHB in the setting of acute myocardial infarction had higher incidence of decreased LV function and anterior wall MI had higher 30 day mortality to the tune of 60 % as compared to inferior wall MI with 10 to 25%.[10] According to 2013 ACC AHA guidelines for management of acute myocardial infarction Temporary pacing is indicated for symptomatic bradyarrhythmias unresponsive to medical treatment. (Class 1 *Level of Evidence: C*)[11] According to 2012 ACCF/AHA/HRS update of 2008 ACCF/AHA/HRS guidelines after acute myocardial infarction transient advanced second or third degree infranodal AV block and associated bundle-branch block is an indication for permanent ventricular pacing. Resolution of complete heart block after revascularization has been reported in cases of right coronary artery occlusion[12] and anomalous dual LAD occlusion[13]

Sinus bradycardia is the most common complication of inferior wall MI occurring in upto 20% cases attributed to increase in vagal tone in the first 24 hrs also because of sinus nodal or atrial ischemia. AV block may occur secondary to increase susceptibility on AV node to acetylcholine. RCA also supplies AV node by AV nodal artery .LAD artery is known to supply below the AV node and it occlusion should be suspected when broad complexes are associated with heart block[14]

On reviewing of literature instances of CHB were found after blockage of first septal branch of LAD during angioplasty[2-5]. Our case displayed how opening blocked LAD can prevent insertion of permanent pacemaker.

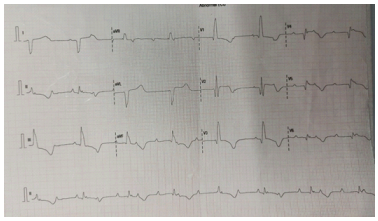

Figure 1 ECG on admission showing complete heart block

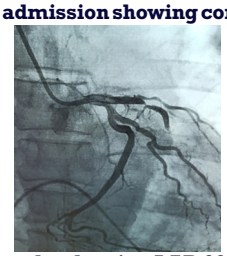

Figure 2 Angiography showing LAD 99% critical stenosis

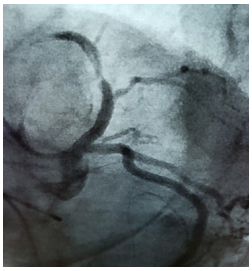

Figure 3: LAO caudal view showing 99% critical LAD lesion

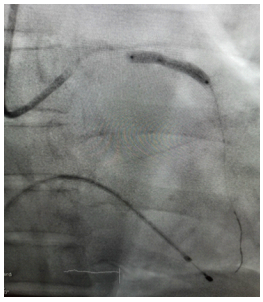

Figure 4: Stent deployment in critical LAD lesion

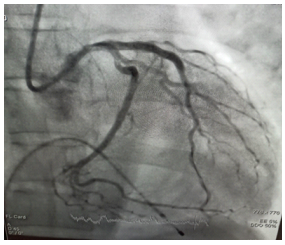

Figure 5: Post PTCA TIMI III flow in LAD

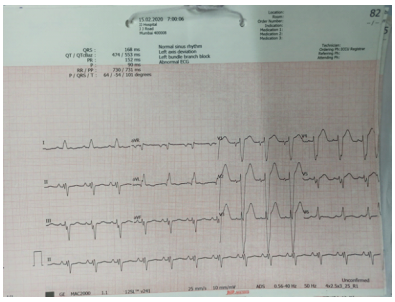

Figure 6: Post angioplasty ECG showing resolution of complete heart block

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