CASE PRESENTATION

A 75 year-old male patient with chest pain for four hours presented to the emergency department. ECG revealed ST elevations in V1 to V4 derivations with no conduction abnormalities with a diagnosis of acute anterior MI (Figure 1a). Acetylsalicylic acid 300 mg, 600 mg clopidogrel was given. Coronary angiography (CAG) revealed 90% stenosis in the left anterior descending artery (LAD) at the level of the S1 (Figure 2a) and noncritical plaque burden in the other coronary arteries. 100 units/kg of unfractioned heparin were given intravenously and tirofiban infusion was started with an intravenous bolus dose. After a drug-eluting stent was implanted from before to beyond S1 in LAD with achievement of TIMI 3 flow, it was seen that S1 was still occluded. During the follow-up, CPR was performed successfully and temporary pacemaker was implanted. Repeated CAG revealed that the stent was open in LAD and S1 was still occluded. In an acute cardiac event, because of the concern of the no-reflow phenomenon, these side branches, even they are small, should be opened. In this case report, a patient with AnMI who had a worsening clinical course because of the development of CAVB with a larger infarct area is presented.

DISCUSSION

The blood supply of the atrioventricular (AV) conduction system is shown in Figure (3). RCA gives AV nodal branch (90% of population) which perfuses the AV node and proximal part of the bundle of His [2]. The distal part of the bundle of His, right bundle branch and the left anterior fascicle are perfused by the septal arteries (especially the large first septals) of LAD. Finally, the proximal part of the left posterior fascicle (LPFB) (Figure 1c), sometimes alternating left and right bundle branch blocks, an interesting beat to beat alternation of left anterior fascicular block (LAFB) and left bundle branch block (LBBB) (Figure 1c), sometimes alternating LAFB and left posterior fascicular block (LPFB) (Figure 1d), and later only LPFB were detected in ECG (Figure 1e). All rhythm problems cleared up 5 days later (Figure 1f). Temporary pacing was taken out 2 days later and the patient was discharged home on the eleventh day. Echocardiography revealed a large anteroapical akinesis of the left ventricle (LVEF of 30%). In the follow-up of the patient, the patient had been asymptomatic for 2 months; however, LVEF was 32% at which time an ICD implantation was carried out for primary prevention.
large, aren’t taken into account many times. One of the side branches is the first large septal branch (S1) as in this case. As shown in the Figure (3) and described above, S1 supplies blood to RBB, left anterior fascicle. In this case, because S1 was not cared before and after stenting, bifascicular block and later, CAVB and asystole occurred.

According to the “Open perforators hypothesis” proposed by Voci et al. [5], not only the recanalization of the LAD artery, but also the patency of septal perforators could have a positive prognostic impact after anterior myocardial infarctions, because septal perforators bridge the LAD and the microcirculation. In light of these data, I believe that if a guidewire had been placed in S1 before LAD stenting for prevention and balloon angioplasty.
No conduction abnormality was seen after five days of asystole.

At admission a 90% stenosis at the level of the first large septal (S1) artery was seen.

After stenting the LAD, it was seen that the first large septal (S1) artery was occluded.

Schematic picture of the blood supply of the AV-conduction system. Note the important role of the septal arteries, especially the large first septal arteries (S1, S2) of the LAD. S1 and/or S2 supplies blood to RBB, LAF, some to LPF and distal part of the bundle of His [2,3]. LAF: Left anterior fascicule. LPF: Left posterior fascicule. *: Proximal part of the bundle of His, +: Distal part of the bundle of His. See text for details.

had been performed to S1 in case of occlusion after stenting, not only complete AV block might haven't occurred, but also the infarct area might have been smaller in this patient.

Perhaps, another important debatable issue is to intervene or not the already occluded S1 seen in the repeated CAG after CAVB development which was in the third day of the acute infarction. I believe that intervention in S1 at this stage might have been perhaps better for early resolution of CAVB in the patient.

In conclusion, in the primary PCI of LAD in acute anterior myocardial infarctions, at any intervention at the vicinity of the first septal large branches, maximum care should be taken to preserve and intervene in these branches if occlusion occurs. Otherwise, not only CAVB might occur but also infarct area might get larger, which has a worse prognosis with a long hospital stay as in this case.

REFERENCES


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