pertrophy of the interatrial septum: a pathological and clinical approach. Int J Cardiol 2007; 121: 4-8.
4. Heyer CM, Kagel T, Lemburg SP, Bauer TT, Nicolas V. Lipomatous hypertrophy of the interatrial septum: a prospective study of incidence, imaging findings, and clinical symptoms. Chest 2003; 124: 2068-73.
5. Prior JT. Lipomatous hypertrophy of cardiac interatrial septum. A lesion resembling hibernoma, lipoblastomatosis and infiltrating lipoma. Arch Pathol 1964; 78: 11-5.
6. Laura DM, Donnino R, Kim EE, Benenstein R, Freedberg RS, Saric M. Lipomatous Atrial Septal Hypertrophy: A Review of Its Anatomy, Pathophysiology, Multimodality Imaging, and Relevance to Percutaneous Interventions. J Am Soc Echocardiogr 2016; 29: 717-23.

Video 1. Transoesophageal echocardiographic image of the ISLH.

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Percutaneous intervention of left main coronary artery chronic total occlusion: A case report

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Introduction

Chronic total occlusion of left main coronary artery (LMCA) is a rare finding in angiograms and is described as a total lack of antegrade blood flow to the coronary arteries with retrograde collateral circulation (1, 2). A majority of the myocardium is under ischemic load and is associated with high mortality ratio. Although CABG operation is the standard revascularization method, recent studies show that PCI can alternatively be safely performed for certain patients (3, 4).

Case Report

A 44-year-old male with complaints of dyspnea and chest pain was admitted to emergency department. No additional findings were observed in physical examination and laboratory parameters. His medical history showed that a stent was implanted in the Cx artery after he experienced myocardial infarction in 2012, and that implantable cardioverter defibrillator (ICD) was implanted in 2015 for primary prevention due to ischemic cardiomyopathy. He was receiving optimal medical treatment. Electrocardiography revealed sinus rhythm with a QS pattern in the V1-V3 leads. Echocardiography also showed dilated left ventricular diameters (end-diastolic diameter, 60 mm; end-systolic diameter, 44 mm) and ejection fraction of 38% with septum, anterior wall and apical hypokinesis. Along with the diagnosis of unstable angina pectoris, coronary angiography also revealed the CTO of LMCA with well-developed right-to-left collaterals and an absence of significant stenosis in RCA (Fig. 1a, 1b; Video 1). The SYNTAX score was calculated to be 29. Thallium SPECT and fluorodeoxyglucose PET viability scintigraphy showed viable tissue and ischemia >5% on anterior myocardial area. Therefore, the heart team decided to perform revascularization. Mortality as per the surgical risk scores was 2.9% in STS and 2.7% as per EuroSCORE-II. After the patient decided not to be treated with the surgery, the heart team selected PCI with the approval of the patient.

Coronary angiography was performed with bilateral femoral access using a 7F sheath. The retrograde and antegrade filling and CTO lesion length were determined. After premedication with ASA, ticagrelor, and unfractionated heparin, a 7F left Judkins catheter was placed in the LMCA ostium. Initially, the "Gaia second" wire successfully passed the LMCA lesion and was directed to the Cx artery with the support of a Corsair microcatheter. First, the Cx artery was predilatated with a 2.5×30-mm Sprinter Legend balloon (Medtronic Inc., Minnesota, USA). Then, the "Gaia second" wire was passed through the LAD lesion with the support of the Corsair microcatheter. However, due to the limitations of the microcatheter, the LAD lesion could only be passed using the anchoring balloon technique at the Cx artery. After passing the LAD lesion, the lesion was predilatated with a 2.5×30-mm Sprinter Legend balloon. Further, a 3.0×38-mm resolute integrity drug-eluting stent (Medtronic Inc., Minnesota, USA) was implanted in the Cx distal lesion and a 3.0×16-mm resolute integrity drug-eluting stent in the Cx proximal lesion. After the Cx proximal stent was crushed with a 2.75×15-mm balloon, a 3.0×38-mm resolute integrity stent was implanted in the LAD lesion. The LAD proximal was postdilated with a 4.0×12-mm Emerge NC balloon (Boston Scientific, USA), and the LAD-Cx final kissing balloon technique was performed. Finally, proximal optimization technique was performed with a 4.0-12 mm Emerge NC balloon in the LMCA lesion. In the final angiogram, the stents in the LMCA-LAD-Cx were visualized at the optimal

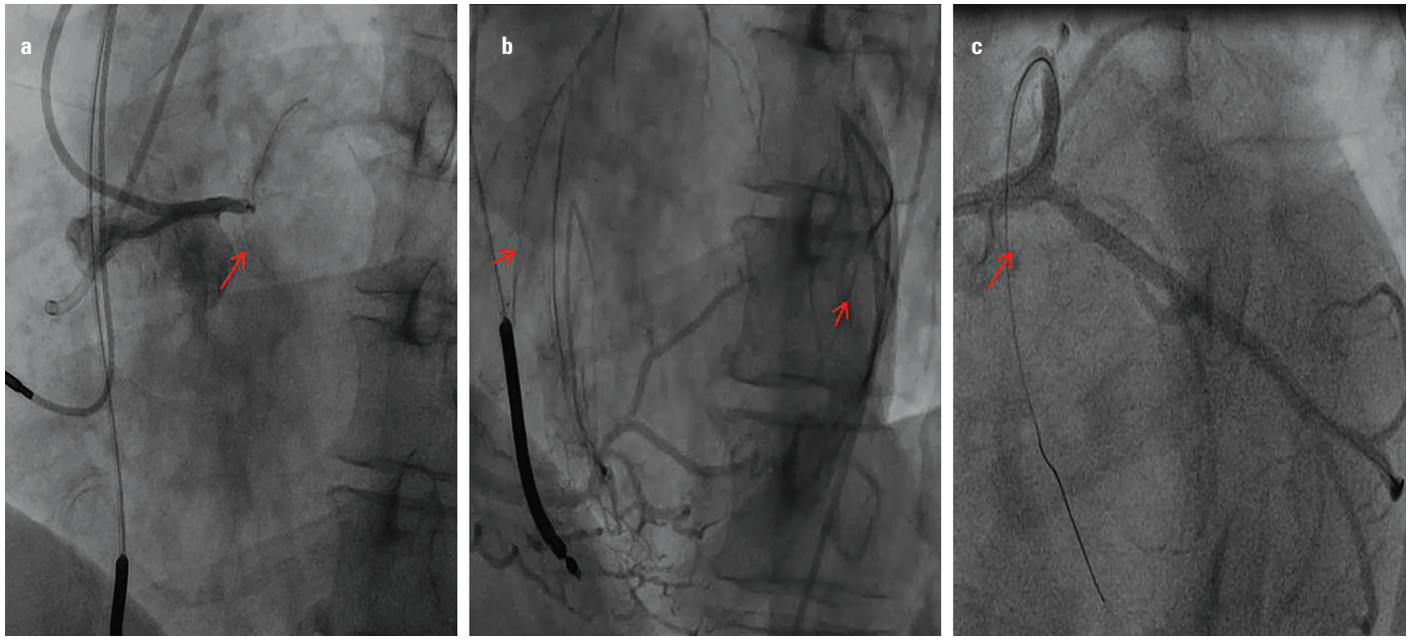

Figure 1. (a) Angiographic imaging of LMCA chronic total occlusion. (b) Angiographic imaging of LMCA CTO retrograde filling from the right coronary artery. (c) Angiographic imaging of revascularized LMCA

opening, and TIMI-3 flow was detected (Fig. 1c; Video 2). However, we could not confirm the optimal stent expansion because of the lack of an IVUS catheter. The patient's treatment was optimized, and he was discharged after three days. The patient was asymptomatically followed-up for 6 months under optimal medical treatment.

Discussion

In patients undergoing revascularization of LMCA stenosis, the PCI and CABG techniques are associated with a comparable risk. Although surgical intervention in the LMCA occlusion is an important treatment modality, it has been shown that there is no significant difference in the long-term outcomes between the two techniques provided the patient and procedure selection is appropriate (3, 4). Additionally, in the SYNTAX trial subgroup analysis for LMCA revascularization, there was no significant difference between the PCI and CABG groups for a year (5). PCI was successfully applied in our patient, due to he did not approve of the surgery, although the SYNTAX score and patient clinic status seemed appropriate for the surgical treatment. To the best of our knowledge, this is one of the few cases wherein LMCA CTO was successfully and percutaneously revascularized. De Caterina et al. (6) reported a similar case in 2013, wherein they successfully revascularized the LMCA CTO with the guidance of IVUS. Despite the fact that the final angiographic image was satisfactory, we could not confirm the optimal result with IVUS due to technical problems.

Conclusion

The long-term outcomes of CABG surgery in patients with high SYNTAX score or complex coronary anatomies were better. However, PCI or CABG surgeries have appropriate revascularization options in patients with low to intermediate SYNTAX score, as in our case. It should be considered that LMCA CTO lesions may be successfully revascularized with PCI by appropriate patient selection and under IVUS guidance.

References

1. Greenspan M, Iskandrian AS, Segal BL, Kimbiris D, Bemis CE. Complete occlusion of the left main coronary artery. Am Heart J 1979; 98: 83-6. [CrossRef]
2. Akhtar RP, Naqshband MS, Abid AR, Tufail Z, Waheed A, Khan JS. Surgery for chronic total occlusion of the left main stem: A 10-year experience. Asian Cardiovasc Thorac Ann 2009; 17: 472-6. [CrossRef]
3. De Rosa S, Polimeni A, Sabatino J, Indolfi C. Long-term outcomes of coronary artery bypass grafting versus stent-PCI for unprotected left main disease: a meta-analysis. BMC Cardiovasc Disord 2017; 17: 240. [CrossRef]
4. Giacoppo D, Colleran R, Cassese S, Frangieh AH, Wiebe J, Joner M, et al. Percutaneous Coronary Intervention vs Coronary Artery Bypass Grafting in Patients With Left Main Coronary Artery Stenosis: A Systematic Review and Meta-analysis. JAMA Cardiol 2017; 2: 1079-88. [CrossRef]
5. Morice MC, Serruys PW, Kappetein AP, Feldman TE, Ståhle E, Colombo A, et al. Outcomes in patients with de novo left main disease treated with either percutaneous coronary intervention

using paclitaxel-eluting stents or coronary artery bypass graft treatment in the Synergy between Percutaneous Coronary Intervention with TAXUS and Cardiac Surgery (SYNTAX) trial. Circulation 2010; 121: 2645-53. [CrossRef]

6. De Caterina AR, Cuculi F, Banning AP. Banning. Intravascular ultrasound-guided revascularization of a chronically occluded left main coronary artery. Indian Heart J 2013; 65: 194-7. [CrossRef]

Video 1. Imaging of the chronic totally occluded LMCA

Video 2. Imaging of percutaneous intervention of LMCA and successful revascularization

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