A Case of Urgent PCI after Diagnosis of Acute Coronary Syndrome in a Japanese Man with Unobstructed Coronary Arteries during Posted Overseas in Southeast Asia

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A 61-year-old Japanese man during posted overseas in Southeast Asia complained chest oppression with cold sweating for >30 minutes during the disaster of great flood in Thailand because of hard work, mental stress, and short sleep time (2–3 hours). He admitted to the cardiology clinic urgently. He was diagnosed as acute coronary syndrome without elevation of cardiac enzyme or abnormal findings on ECG. Emergency coronary angiography was performed but no flow limiting vessel was found. Percutaneous coronary intervention (PCI) was performed on moderate stenotic lesion (50%) at diagonal branch. Dual anti-platelet agents, strong statin, and β-blocker was administered after the PCI procedures. He had complained chest discomfort at early morning for a few minutes one or two times per month since one year ago. When he came back to Japan, he admitted to our hospital for the evaluation of second opinion. From the detailed anamnesis and other examinations (cardiac scintigrams and echo-cardiograms), we judged that his chest oppression attack might be due to coronary artery spasm because of hard work and mental stress. We recommend the administration of calcium channel blocker instead of β-blocker and quit the β-blocker intake. We should transmit the importance of coronary artery spasm for the cardiologists in not only Europe and USA but also Southeast Asia.

KEY WORDS: Japanese, Southeast Asia, coronary spasm

I. Introduction

Coronary artery spasm may be involved in the genesis of various cardiac disorders, such as myocardial infarction, unstable angina, syncope, sudden cardiac death, transient heart failure, and atypical chest symptoms.1-5) According to the past reports, coronary artery spasm in Japanese has three times higher prevalence than Caucasian.6-8) Yasue and Okumura reported the usefulness of acetylcholine (ACh) spasm provocation test for the induction of coronary artery spasm in patients with variant angina.9-11) ACh spasm provocation test become a popular method for the induction of coronary artery spasm in the worldwide during more than a quarter century. We recently reported that abnormal response has increased in Japanese patients by using ACh spasm provocation tests and its cause may be concerned the increase of metabolic syndrome.12) Japanese corporate warrior works in the world. When they work in the foreign countries and become sick, they may not obtain the information and the therapy about the disease in such a domestic patient. Coronary spasticity about racial differences between Caucasian and Japanese is already permeated. However, Japanese cardiologists recognize less racial differences about heart disease between Japanese patients and Southeast Asian patients. We experienced a meaningful case that we should transmit the importance of coronary artery spasm in even Southeast Asia and here we report this case in this article.

II. Case report

He was a 61-year-old Japanese man during posted overseas in Southeast Asia and chief complaint was chest oppression with cold sweating for >30 minutes at rest. Since about one year ago, he had complained some chest discomfort at early morning (am: 5:00–6:00) for a few minutes one or two times per month. However, he had no chest symptoms when working during daytime and he did not take care of his chest discomfort. He had no history of hypertension, dyslipidemia, or diabetes mellitus. History of smoking was observed for 5 years when he was young (20–25 years old) but since then he quit smoking. Because of the disaster of great flood in Thailand, he had hard work, much mental stress and short sleep time less than 2 or 3 hours. During continuous hard work due to the disaster, he complained severe chest
oppression with cold sweating. He urgently admitted to the special cardiology clinic. His ECG had no abnormal changes and cardiac enzyme was not elevated. However, his chest discomfort continued. Physician suspected of ACS, non ST elevation myocardial infarction. Emergency coronary angiography was performed. Severe organic stenotic lesion was not found on both coronary arteries as shown in Fig. 1 and physician finally diagnosed the culprit lesion as diagonal branch with mild-moderate organic stenosis without flow limiting. Physician performed the direct coronary drug-eluting-stent implantation on the diagonal branch, as shown in Fig. 2. After the procedure, his cardiac enzyme did not elevate. He did not complain chest oppression or discomfort after the removal of hard work, mental stress or short sleep time. After the PCI procedure, he moved to another Southeast Asian country. Dual anti-platelets, β-blocker (bisoprolol fumarate: 2.5 mg/day) and strong statin (rosuvastatin calcium: 10 mg/day) were administered at the cardiology clinic.

He came back to Japan at about six month after the PCI. He admitted to our hospital for the evaluation of second opinion. His chest X-ray, ECG finding (Fig. 3), and serum data were almost normal. The value of total cholesterol, triglyceride, LDL-cholesterol, HDL-cholesterol, glycohemoglobin were 82 mg/dl, 40 mg/dl, 28 mg/dl, 36 mg/dl, 5.0% (JDS), and respectively. Cardiac enzyme including troponin-T and CK-MB was within normal limits. Abnormal wall motion was not found on his echocardiograms and adenosine stress thallium cardiac scintigrams showed no ischemic findings.

III. Discussion

No significant stenosis was found on emergency coronary arteriograms. The PCI site had 50% stenosis as AHA classifications and no hazy or no flow limiting. In this case, neither the intravascular ultrasound nor the optical coherence tomography was performed during PCI procedures. We could not prove the plaque rupture at this site. However, judging the detailed anamnesis, he might be initially suspected of CSA. In Europe and USA, these procedures may be sometimes recognized in the cardiac catheterization laboratory and Caucasian may classify this case as an unobstructed coronary artery disease. The majority of Caucasian cardiologists did not perform the spasm provocation tests routinely as Japanese. However, Ong, et al. reported the high prevalence of coronary spasm in patients with ACS and without organic stenosis in German patients. Coronary artery spasm may have no borders. If Caucasian cardiologists performed spasm provocation tests aggressively similar to the Japanese those, they may recognize the real truth in the clinical fields.

In this case, we should perform emergency CAG. However, when no significant stenosis was found, we should think that...
coronary artery spasm might be concerned the genesis of his chest symptoms. If vital sign was stable, we could perform spasm provocation tests, such as ACh or ergonovine. In these situations, control angiograms without the administration of nitrates in the coronary arteries were necessary. After the administration of nitrates into the coronary artery, we should perform spasm provocation tests a few days after the first admission without vasoactive drugs, if possible. Fine and strict diagnosis may lead to the good prognosis in these patients. The β-blocker is first line therapy in the ischemic heart disease in Europe and USA. However, in some patients with coronary spasm, the β-blocker may aggravate the coronary spasticity. The administration of calcium-channel antagonists for CSA is the first line therapy in even Caucasian patients and in Southeast Asian patients. Cardiologists should investigate coronary spasm in patients with chest pain like ACS. In the world, the unnecessary coronary intervention on ACS due to coronary artery spasm with non-obstructed coronary artery disease may be performed. We should investigate the presence and possibility of coronary artery spasm in the cardiac catheterization laboratory and we also should not perform the unnecessary coronary interventions in patients with coronary artery spasm in the worldwide.16)

Coronary artery spasm was frequently observed in East Asia; Korea, China, Chinese Taipei, and Japan. However, we do not understand the incidence of coronary artery spasm in Southeast Asia. Cardiologist in Southeast Asia may not take care of the presence of coronary artery spasm in patients with ACS. Japanese cardiologists should enlighten the presence of coronary artery spasm in ACS in not only Europe and USA but also Southeast Asia. Moreover, we should transmit the importance of coronary artery spasm in the clinical grounds throughout the world.

References

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