Preventive Hybrid Approach In A Patient With Known Concomitant Malignant Neoplastic Disease

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INTRODUCTION

In the management of coronary arterial disease (CAD) in patients with known concomitant malignant neoplastic disease, coronary bypass surgery (CABG) is seldom recommended (1). Coronary bypass operations (CABG) can be performed with acceptable risks in the patients with different system cancers. It was emphasized that normal conventional CABG procedure with extracorporeal circulation can cause multiple metastasis and for such patients with cancer diagnosis and operation need other than cardiac operations, off-pump CABG with beating heart procedure is more effective (1-3). In the patients with cancer diagnosis related with various systems, successful CABG procedures cause improvement in symptoms, in quality of life and in survival and also it decreases the risk in the surgical procedures for essential cancer pathology (4).

CASE PRESENTATION

Our case was a 49-year-old male. His chief complaint was exertional chest pain going on for 2 months. He had experienced myocardial infarction almost 5 years ago. He also had been diagnosed as cT3N2M0 larynx cancer and received combined chemo- and radiotherapy. His coronary angiography revealed that there were significant stenotic lesions in left anterior descending (LAD), first and second obtuse marginal branches of circumflex arteries. Moreover, left ventricular ejection fraction was calculated as 30% (Figure 1).
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Figure 1
Figure 1: Preoperative coronary angiographic image of our case showing all of the significant stenotic lesions.

Before operation metastatic investigations were held with brain CT, whole abdominal USG, whole body bone scintigraphy and thoracic CT and no metastatic focus finding was determined. All preoperative biochemical parameters were normal. He was routinely under follow-up of Department of Radiation Oncology where it was declared that his stable condition as complete recovery was still continuing and no contraindication existed for CABG surgery. Same opinion was valid for Department of Otorhinolaryngology. Regarding his cardiac performance and his malignant lesion at an occult stage, we planned to carry out OPCAB surgery in order to avoid the side effects of cardiopulmonary bypass (CPB) in combination with consequent percutaneous coronary angioplasty to the OM2 lesion which was hard to manipulate during surgery as hybrid interventions.

He underwent coronary revascularization with these findings. Following median sternotomy left internal thoracic artery and saphenous vein of the right leg were harvested. Following half-dose heparin administration OPCAB surgery was performed using the Octopus 3 (Medtronic Inc, Minneapolis, MN) stabilizer. The left internal thoracic artery was anastomosed to the LAD, the saphenous vein graft was anastomosed to the first obtuse marginal artery. Exposure of LAD and OM1 branch is achieved by placing a sponge (gauze) under the heart and a deep pericardial suture to elevate and slightly rotate the heart rightward. The patient was extubated at 5th hour postoperatively and the total drainage from the mediastinal drains was 400 mLs in 24 hours, no further platelet or blood transfusions were required. He was transferred to service from intensive care unit on second postoperative day and on 3rd postoperative day a successful percutaneous coronary angioplasty was carried out to OM2 branch of the circumflex coronary artery, also demonstrating that grafts used for revascularization during the OPCAB surgery were patent (Figure 2).

Figure 2
Figure 2: View of successful PTCA and stent implantation to the OM2 branch of circumflex coronary artery on the 3 postoperative day.

He didn't have additional problem and he was discharged home with surgical success and without any cardiac complications at 9th day. He was recommended to admit our outpatient clinic for follow-up.

DISCUSSION
Widespread and successful performance in cardiac operations, leads these operations in the patients with high risk due to other systemic pathologies. Although there has been no definitive data about the outcome of patients with a malignant neoplastic disease who underwent CABG, concerns on systemic inflammatory response to CPB and its consequences has resulted in an unwillingness in cardiologists to offer CABG for these patients.

Recently, several reports suggested that patients with
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concomitant malignant neoplastic disease, the OPCAB surgery has better outcomes and lowered operative mortality because of spared platelet function, less blood loss and avoidance of infection. Hirose and assoc. proved that healing period is shorter and hospital stay and cost, decrease significantly when compared with conventional CABG in the patients with beating heart CABG procedure if the risks of cardiopulmonary bypass procedure are relieved.

Method of choice in patients with various system cancers for coronary revascularization must be coronary bypass in beating heart and must be performed before of synchronically with essential cancer operations and if the patients are not convenient for this procedure operation must be performed with CPB. Concerns about systemic inflammatory response to CPB and its consequences, such as interstitial fluid accumulation and tissue edema formation, impaired immune response, and decreased platelet number and function are factors that make these patients not referred to cardiac surgery, unless a non-cardiac surgery for cancer is necessary with an expectation of long-term survival. Possible systemic tumor dissemination because of the immune system or direct vascular dissemination is another concern during resections performed with CPB. Avoidance of CPB is beneficial for the treatment of malignant neoplastic diseases. The eradication of CPB from coronary bypass operation in patients with malignancy is of paramount importance because CABG plays the role of ensuring the safety of subsequent treatment of the neoplastic disease. In a study from Dyszkiewicz et al, they suggested that in some patients, a possible solution is to perform two grafts to the vessels of greatest importance for myocardial perfusion and, if possible to complete postoperatively, myocardial revascularization with coronary angioplasty.

As a result, if the patients with cancer, have coronary artery disease and are going under surgical revascularization, beating heart CABG, if indicated, relieves cardiac problem synchronically or subsequently and enhances the solution of potential problems during and after the major resection surgery. During conventional CABG, extracorporeal circulation impairs the immune system and negatively affects the defense of host against malignancy. Therefore, patients with severe coronary artery disease who are candidates for oncologic operation should be treated with OPCAB. However literature results support the effectiveness of OPCAB, mostly as a bridge to safe non-cardiac surgery that can be crucial for long-term survival.

In the patients with early stage cancer pathology and having a life-threatening cardiac pathology, cardiac surgical therapy must be performed immediately.

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