

# Simultaneous surgery for obstructive coronary artery disease and ulcerated gastric cancer

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## ABSTRACT

A patient with ulcerated gastric cancer causing mild anaemia and simultaneous three-vessel coronary artery disease (CAD) underwent “off pump” coronary artery bypass grafting (OP-CABG) and total D2 gastrectomy.

## INTRODUCTION

Patients affected by significant CAD and simultaneous intra-abdominal malignancies represent a dilemma in therapeutic priority (1). Such patients face an high risk of acute myocardial infarction (MI) during or after major abdominal surgery (2). We present the case of a patient affected by ulcerated gastric cancer and obstructive coronary disease.

## CASE REPORT

A 77 year old male was admitted to our General and Emergency Department with epigastric pain and microcytic hypochromic anaemia (Hb 10.2 g/dl, MCV 78 fl).

An oesophago-gastro-duodenoscopy followed by endoscopic ultrasound showed a T3N0 ulcerated tumor of the gastric body. CT scan was negative for metastases. Biopsy specimen revealed a poorly differentiated intestinal adenocarcinoma. Operative risk assessment was performed, as in all patients with high cardiovascular risk, on a cardiological pre-operative evaluation. The Electrocardiogram and the color-doppler Transthoracic Echocardiography gave indications of a coronary arteriography. A three vessel disease was identified.

Unsuitability of coronary lesions for primary percutaneous transluminal coronary angioplasty (PTCA) followed by stenting for the high risk of neoplastic bleeding in case of an immediate double antiplatelet medication was assessed during a multidisciplinary staff of cardiothoracic and general surgeons. A simultaneous “off pump” coronary artery by-pass grafting (OP-CABG) and total gastrectomy procedures were performed.

For the first step, patient underwent median sternotomy and pericardium was opened. Multiple

OP-CABG procedures were performed, grafting the left internal thoracic artery to the left anterior descending. A saphenous vein graft was anastomosed to the posterior descending and a second one to the obtuse marginal. After reversing heparinization and achieving hemostasis, the thoracic incision was sutured to avoid any contamination. A median laparotomy was performed. The tumor was localized in the superior third of the gastric body. There were no hepatic metastases or peritoneal carcinomatosis. An intraoperative cytology on peritoneal lavage was negative for neoplastic seedings. A total gastrectomy with D2 lymphadenectomy was accomplished.

A first generation cephalosporin (Cefazoline 2 g i.v.) was administered for antibiotic prophylaxis at the time of anesthesia induction. A post-operative antithrombotic prophylaxis with low molecular weight heparin (LMWH) 4000 UI subcutaneous (sc) was administered. The post-operative cardiac and surgical course was uneventful and standard clinical and functional parameters were within normal ranges. Oral intake was begun on the 6<sup>th</sup> postoperative day after a water-soluble contrast swallow study to exclude anastomotic leakage. LMWH 4000 UI sc and Aspirin 100 mg via oral intake were administered from the 1st postoperative day without any sign of gastro-intestinal bleeding. The patient was discharged in good condition on the 14<sup>th</sup> post-operative day. There were no complications for six-months.

## DISCUSSION

Patients affected by severe CAD experience an high risk of myocardial infarction during or after major surgery (2). Coronary revascularization appears to be a priority in managing patients with concomitant malignancy and CAD (1).

Nevertheless, percutaneous transluminal coronary angioplasty (PTCA) isn't suitable for all coronary lesions and long-term antiplatelet therapy exposes patients to high risk of bleeding in case of ulcerated digestive tract neoplasm (3). Also standard myocardial revascularization with Cardiopulmonary Bypass (CPB) and aortic cross clamping has potential deleterious effects on neoplastic patients, enhancing the systemic inflammatory response and attenuating the immune response (3,4). Cytokines released after CPB are involved in the immunologic response against neoplastic diffusion and cell mediated immunity suppression (5). The Extracorporeal Circulation (ECC) circuit requires full heparinization increasing risk of gastrointestinal bleeding. OP-CABG allows lower levels of anticoagulation reducing bleeding risk. ECC lungs bypass could break a physiologic barrier against systemic diffusion of neoplastic cells. Finally, cardiac surgery requires prolonged postoperative care delaying further surgery for malignancy (3).

Simultaneous treatment of both diseases has several advantages: decreases general anesthesia related risks such as pneumonia or drug-induced complications; prevents both neoplastic disease progression and/or risk of MI if a two stage approach has been chosen; decreases the risk of post-cardio-surgical gastric bleeding after intraoperative anticoagulation

by early removing of the ulcerated lesion and reduces the two stage surgical stress of the patient (1).

Simultaneous “off pump” CABG and gastrectomy could be performed without increasing risk in patients affected by simultaneous CAD and gastric malignancy. It reduces CPB’s adverse effects and intraoperative acute MI and tumor progression risks if gastrectomy is delayed. Furthermore, “off-pump” CABG may yield a better outcome with a shorter recovery time, a lower intraoperative and post-operative need for blood transfusion and reduced postoperative morbidity in patients with gastric malignancies requiring myocardial revascularization (3,4,6-8).

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