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The Eternal Multidisciplinary Debate: Staged or Simultaneous Surgery? Patient with Polyvascular Disease Undergoing Carotid and Coronary Surgery

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Abstract | **Case Report**

Background: The combination of coronary and carotid artery disease is not rare since both entities share the same risk factors. However, when surgery is indicated for both pathologies, the question that remains is whether to opt for a simultaneous or staged surgery. ***Case Report:*** We report the case of a 73-year-old male, with a history of uncontrolled hypertension, dyslipidemia, diabetes and heavy smoking, admitted with an acute chest pain. Physical examination revealed bilateral carotid bruits especially at the right side. Electrocardiogram showed an ST depression in the anterior, lateral, inferior and posterior leads. Troponin was high. Trans-Thoracic Echocardiography showed an ischemic cardiopathy with preserved ejection fraction. Coronary angiography showed a triple-vessel disease requiring surgery. CT angiography of the neck showed a right carotid artery stenosis of 90 % also requiring surgery. He underwent a simultanous intervention with good outcomes. ***Conclusion:*** There are many debates about the choice of a simultaneous or staged surgery T the indications are still unclear. Multicentric studies must be carried out.

Keywords: Simultaneous Surgery, Cardiovascular diseases, Coronary Surgery, dyslipidemia.

INTRODUCTION

Cardiovascular diseases especially coronary artery and cerebro-vascular diseases are a worldwide health issue. They are the first cause of death globally taking 17.9 million lives each year [1]. An association between carotid occlusive disease and coronary artery disease is well known. This combination is not rare since both entities share the same risk factors. Their management must involve cardiologist, vascular surgeon and resuscitator. The indications of the carotid atherosclerosis screening in patients undergoing coronary artery by pass (CABG) are nowadays clear. However, when surgery is indicated for both pathologies, the question that remains is whether to opt for a simultaneous or staged surgery. The aim of our case report is to discuss the different surgery management approches in those patients through a case report with a litterature review.

CASE REPORT

A 73-year-old male, with a history of uncontrolled hypertension, dyslipidemia, diabetes and heavy smoking, presented to the emergency room with acute chest pain an intermittent claudication and an erectile dysfunction. The patient had no history of recent stroke, transient ischaemic attack or neurological disorders. Physical examination revealed the absence of distal pulses, femoral and bilateral carotid bruits especially at the right side. Theres were no signs of heart failure. Cardiac auscultation didn't reveal any abnormal murmur or bruit. EKG showed a ST depression in more than 6 leads and a ST elevation in aVr lead. Troponin test was positive. Trans-Thoracic echocardiography (TTE) showed sign of ischemic cardiopathy with abnormal ventricular wall motion. The left ventricular ejection fraction was within normal range. The TTE didn't show any signs of any myocardial infarcation complications. Coronary angiography shows severe stenosis of the distal and ostial left coronary artery, of the left ascending artery of the circumlfex and the right coronary artery requiring surgery (Figure 1, 2 & 3). Neck CT angiography showed a right internal carotid artery severe stenosis

(90%) and a left internal carotid mild stenosis (60%). The patient underwent simultaneous synnchronous carotid artery endarterectomy (CEA) and quadruple coronary artery bypass graft with good outcomes.

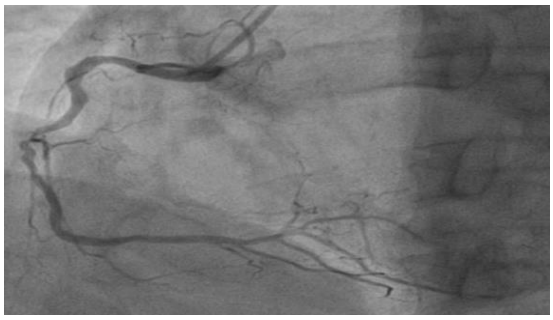

Figure 1: Conoarography showing severe Stenosis of the right coronary artery

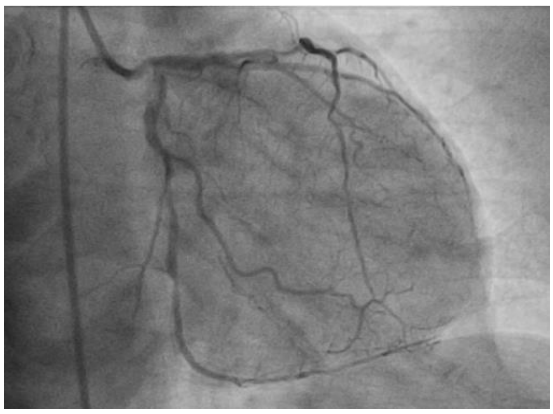

Figure 2: Coronarography showing severe stenosis of the cirumflex and the left ascending artery

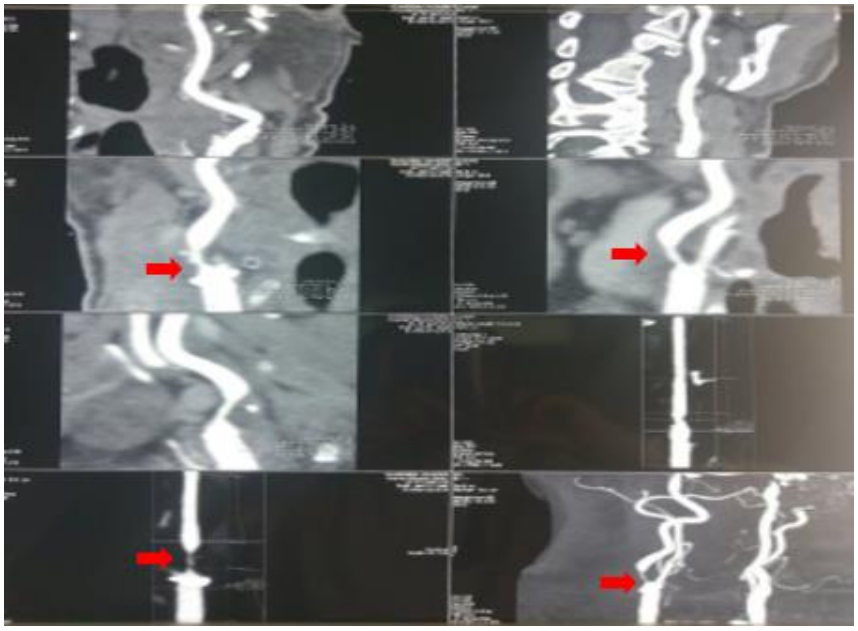

Figure 3: Neck CT-scan showing a right internal carotid artery severe stenosis (90%) and a left internal carotid mild stenosis

DISCUSSION

Significant carotid artery disease in patients undergoing CABG is between 3% and 12% [2]. Combination of coronary artery disease and severe carotid artery stenosis is an indicator of impaired prognosis [3].

Eventhough stroke risk during CABG is increased by significant carotid artery stenosis, the optimal order and timing of surgical intervention for patients with both carotid and coronary artery disease remains unclear [4]. According to Naylor *et al*., [4] Simultaneous surgery is associated with a higher risk of perioperative mortality. However, according to

Ničovský *et al*., [3] synchrounous surgery could be performed with low hospital mortality.

In a staged procedure, the carotid lesion is treated first and the coronary bypass si performed following a variable time interval. A reverse staged procedure treats the coronary ischemia by CABG followed by CEA under a separate anesthetic [5]. In case of a carotid endarterectomy before coronary artery bypass, the risk of myocardial infarction increases [4]. Reversibly, when coronary artery bypass comes before endarterectomy, the risk of stroke is higher [4]. Our patient underwent a simultaneous surgery with good outcomes.

CONCLUSION

The combination of coronary artery disease and carotid artery stenosis at a surgical stage is not uncommon, with many debates about the choice of a simultaneous or staged surgery. Multicentric studies must be carried out to decide on the question once and for all.

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