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# Cardiogenic shock due to coronary artery disease associated with interrupted aortic arch

*Choque cardiogênico decorrente de cardiomiopatia isquêmica associada à interrupção do arco aórtico*

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## Abstract

Acute pulmonary edema is a serious event. Its occurrence in association with interrupted aortic arch and coronary heart disease is rare. Recently, an old patient developed cardiogenic shock and acute pulmonary edema due to acute coronary insufficiency, associated with interrupted aortic arch. The coronary angiography revealed occlusion of the right coronary artery and 95% obstruction in the left main coronary artery, associated with interruption of the descending aorta. Coronary artery bypass graft was performed, without extracorporeal circulation, to the anterior descending coronary artery. We discuss the initial management, given the seriousness of the case.

**Descriptors:** Acute coronary syndrome. Aorta, thoracic. Cardiomyopathies. Shock, cardiogenic.

## Resumo

A associação de interrupção do arco aórtico e doença coronária é rara. Entretanto, recentemente nos deparamos com um paciente nessa condição, que culminou com choque cardiogênico e edema agudo de pulmão. A finalidade desta comunicação breve é transmitir e discutirmos se a conduta adotada foi a mais indicada. Sua coronária direita estava 100% ocluída e havia obstrução de 95% em tronco de coronária esquerda, associada à interrupção de aorta descendente. Realizamos apenas enxerto de veia safena para ramo da coronária esquerda, sem circulação extracorpórea. O paciente apresentou boa evolução imediata. Destacamos a conduta inicial adotada, diante da gravidade do caso.

**Descritores:** Síndrome coronariana aguda. Aorta torácica. Cardiomiopatias. Choque cardiogênico.

## INTRODUCTION

Acute pulmonary edema is a severe condition caused by several mechanisms. Its occurrence in association with interrupted aortic arch and coronary heart disease is rare. Recently, we faced a similar serious situation, and the purpose of this brief communication is to discuss the best treatment option for patients in the same condition.

A 61-year-old male patient presented sudden illness on his way to work. As there was an outbreak of H1N1 flu, the test was requested and it was negative. He had a previous stent in the left carotid artery due to an ischemic vascular accident four years ago. He developed acute pulmonary edema a few minutes after being admitted to the emergency room, requiring mechanical ventilation. The chest X-ray revealed pulmonary congestion, presence of Q wave in inferior leads and alteration of ventricular

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repolarization in the anterior wall. The echocardiogram showed inferior ventricular wall akinesia and marked hypokinesia in the other walls. The cineangiogram showed occlusion of the right coronary artery and a 95% obstruction in the left main coronary artery in addition to an interruption at the descending aorta, just after the left subclavian artery origin (Figure 1). Besides developing unstable hemodynamics, requiring inotropic agents, the patient suffered two more pulmonary edema episodes. For Intra-aortic balloon pump was not an option, because of the aortic disease. Percutaneous coronary intervention with stent in the left main coronary artery was suggested, however two interventional cardiology teams did not accept the case.

After 10 days in the intensive care unit, we performed an off-pump left anterior descending artery bypass, with a saphenous graft. Mechanical ventilation was discontinued in the first postoperative day, followed by a good recovery. Just before the patient's discharge, a chest angiotomography was carried out to confirm the aortic arch interruption and to evaluate saphenous graft patency (Figure 2).

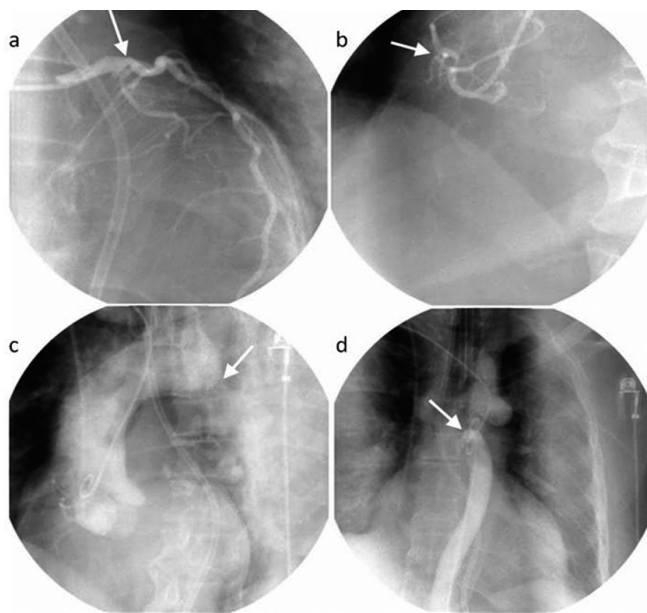


Fig. 1 – Preoperative cineangiogram. a. Left main artery: 95% stenosis (arrow). b. Right coronary artery: proximal occlusion (arrow). c. Aortic arch with complete interruption at descending thoracic aorta (arrow). d. The descending thoracic aortogram shows complete interruption at descending thoracic aorta (arrow). Catheter is inserted thru femoral artery

## DISCUSSION

Interrupted aortic arch is an extremely rare congenital malformation, and only a few cases in adults have been reported [1-4]. In this particular patient, the association of such a severe coronary disease with the interrupted aortic arch might have worsened the pulmonary edema. We chose

the simplest surgical approach (saphenous graft to left anterior descending) because we believed that such a critical patient's condition would not let allow a simultaneous correction (tube between ascending and descending aorta as well as myocardial revascularization) [5]. After more than one year of follow-up, patient remains asymptomatic, despite no intervention being done on the interrupted aortic arch.

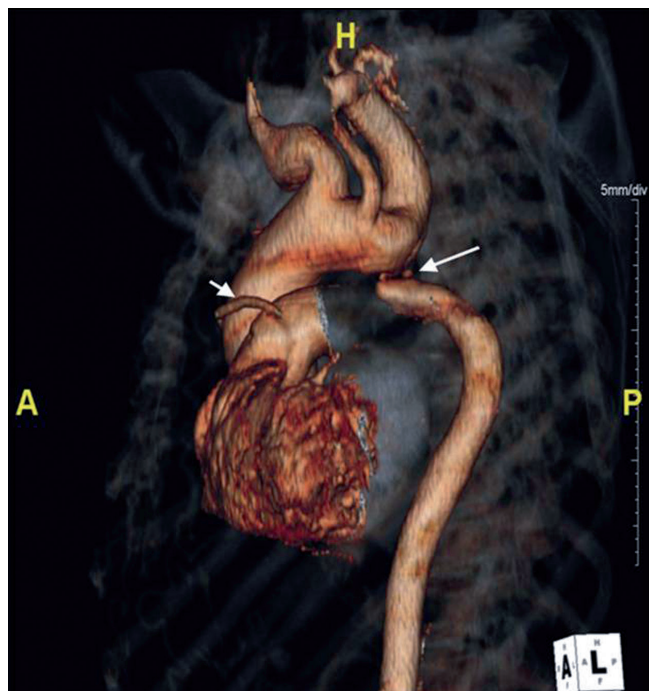


Fig. 2 – Postoperative angiotomography shows interruption of aortic arch after subclavian artery origin (arrow) and a patent saphenous graft (arrow)

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