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Case Report

# Giant right coronary artery aneurysm presenting as a paracardiac mass

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**Abstract**

Coronary artery aneurysms, commonly atherosclerotic, are usually asymptomatic and can be diagnosed incidentally during investigation for ischemic heart disease or on autopsy. An asymptomatic giant right coronary artery aneurysm presenting as a paracardiac mass discovered on autopsy is reported here. Even though there was great concern due to its large size, complex atherosclerotic lesions, and potential obstruction of blood flow, it had no direct link to the cause of death. We also review the literature on giant right coronary artery aneurysms exceeding 5 cm in the last 10 years. © 2008 Elsevier Inc. All rights reserved.

*Keywords:* Giant coronary artery aneurysm; Atherosclerosis; Coronary artery disease; Autopsy

## 1. Introduction

Coronary artery aneurysms (CAAs) are dilatations >1.5 times an adjacent normal coronary artery [1]. The most common etiology reported is atherosclerosis (accounting for 50%), followed by congenital origin and Kawasaki disease [1]. Usually asymptomatic, they can manifest clinically with angina, myocardial infarction (MI), or sudden death, especially when too large [1–6]. We present detailed anatomopathological features of a single giant right CAA presenting as a paracardiac mass and discovered incidentally on autopsy.

## 2. Pathology and histology

A 65-year-old apparently healthy white man died suddenly at home. On autopsy, massive intra-abdominal hemorrhage due to rupture of an infrarenal fusiform atherosclerotic aneurysm was found. The heart weighed 610 g. A very large paracardiac mass lying anterior and lateral to the right atrium and right ventricle was observed. This mass proved to be a true right coronary artery (RCA) aneurysm measuring 10×6×6 cm, starting after a 15-mm-long segment of normal-sized RCA given off the aorta. The aneurysm involved a large segment of the RCA, including the right marginal artery (RMA), leading to a mass effect, compressing and pushing backward the right atrium, and finishing as a 4-cm-long normal arterial segment along the atrioventricular groove to give off the posterior descending artery in the interventricular groove. The RMA appeared as a small normal bifurcated segment leaving the inferior portion of the aneurysm to the right ventricle. No other dilatations of the coronary arterial tree were seen. After sectioning, the lumen was found to be filled with a large amount of organized thrombus with a small residual lumen (Fig. 1). Histologically, the aneurysmal wall showed atherosclerotic

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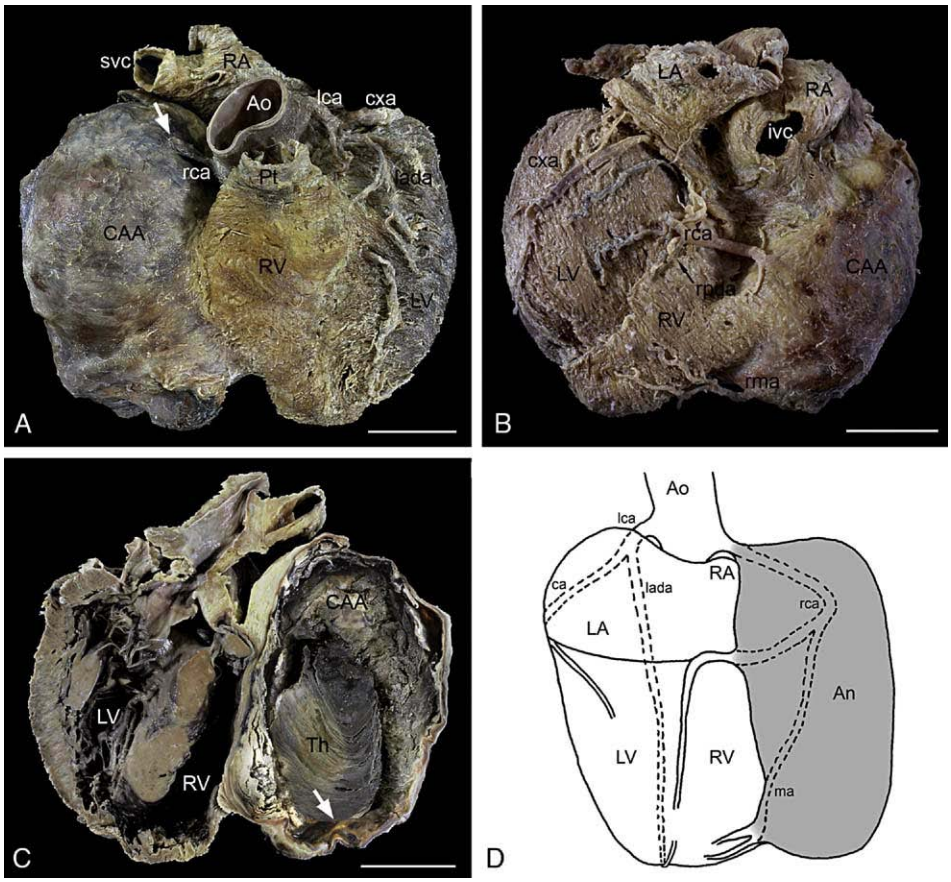


Fig. 1. (A) Anterior view of the heart. A giant CAA (10×6×6 cm) that starts after a 15-mm-long segment of normal-sized RCA giving off the aorta (arrow) and pushing back the right atrium. (B) Posterior view of the heart. The coronary aneurysm finishes as a 4-cm-long normal arterial segment along the atrioventricular groove to give off the posterior descending artery in the interventricular groove (arrow). The RMA appears as a small normal bifurcated segment leaving the inferior portion of the aneurysm to the right ventricle. In (A) and (B), the epicardium was removed to better show coronary vessels. (C) Coronal section of the heart. The coronary aneurysm almost completely filled by a thrombus. The wall is thickened with lipid deposits (arrow). (D) Schematic representation of the coronary vessels with the aneurysm implicating a large segment of the RCA, including the marginal artery, and following as normal artery segments to give off the posterior descending artery and the marginal one.


Fig. 2. (A) Microscopic section of the wall of the CAA from the site of "origin" (arrow in Fig. 1A) where it is connected to the RCA, showing the transition from the arterial wall to the wall of the aneurysm. Note the dense fibrocollagenous thickening of the intima that is present in the initial segment of the RCA rising gradually with loss of smooth muscle cells within the media in the aneurysm. Hematoxylin–eosin staining; original magnification, 100×. (B) Atherosclerotic fibrocalcific wall with thrombus, extracellular lipids, mononuclear cells, and lymphocytic inflammatory infiltrates in the aneurysmal wall (section corresponding to the arrow of the Fig. 1C). Hematoxylin–eosin staining; original magnification, ×160. Ad: adventitia; Ao: aorta; CAA: coronary artery aneurysm; cxa: circumflex artery; Int: intima; ivc: inferior vena cava; lada: left anterior descending artery; LA: left atrium; lca: left coronary artery; LV: left ventricle; Med: media; Pt: pulmonary trunk; RA: right atrium; rca: right coronary artery; rma: right marginal artery; rpda: right posterior descending artery; RV: right ventricle; svc: superior vena cava; Th: thrombus. Bar=3 cm.