

Giant Right Coronary Artery Aneurysms



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Described herein are 2 adults with right coronary artery aneurysms measuring ≥ 4.0 cm in maximal diameter. Each aneurysm contained huge intra-aneurysm thrombus and each coronary artery contained atherosclerotic plaques diffusely. Each aneurysm was resected without complication and each patient has resumed preoperative level of activities without limitations. © 2020 Elsevier Inc. All rights reserved. (Am J Cardiol 2020;125:1599–1601)

Most coronary artery aneurysms are < 2 cm in maximal diameter. Aneurysms ≥ 4 cm are rare. A description of certain clinical and morphologic findings in 2 patients with “giant” right coronary artery (RCA) aneurysms is the purpose of this report.

Case comments

Pertinent clinical and morphologic features in the 2 patients are summarized in Table 1. Both underwent resection of the RCA aneurysm which measured 4 and 10 cm, respectively, in maximal diameter. In both patients, the aneurysm was saccular and contained huge intra-aneurysmal thrombi (Figures 1 to 5). The sac (case #1 only) containing the thrombus was consistent with the previous coronary arterial wall. In case #2, only the intra-aneurysmal

thrombus was excised without its wall. Both patients, 6 months postoperatively, are back doing their preoperative activities without limitations.

Discussion

There are few reports describing coronary aneurysms ≥ 4 cm in diameter. Virmani et al¹ described 52 patients at autopsy with coronary aneurysms. Of the 38 adults in

Table 1
 Pertinent clinical and cardiac morphologic findings in the 2 patients with huge right coronary arterial saccular aneurysms resulting from atherosclerosis

Patient	Case #1	Case #2
1) Age (years)	48	58
2) Sex	Woman	Man
3) Race	Black	White
4) Body mass index (kg/m ²)	32	25
5) Symptoms	CP, D	O
6) Comorbidity	Cancer (breast)	Multiple sclerosis
7) Age (years) aneurysm first diagnosed	40	58
8) Blood pressure (mmHg)	135/90 (I)	110/75
9) Total 12-lead QRS voltage (mm)	102	140
10) Total cholesterol (mg/dL)	107*	229 [†]
11) LDL cholesterol (mg/dL)	47*	102 [†]
12) HDL cholesterol (mg/dL)	44*	37 [†]
13) Triglycerides (mg/dL)	41*	172 [†]
14) Coronary calcium score	–	2800
15) Other coronary aneurysm	+	+
16) Size (cm) of the huge coronary aneurysm	4.0	10.3
17) RCA aneurysm weight (g)	52	139
18) LV cavity dilated	0	0
19) Left ventricular ejection fraction	“Normal”	60%
20) Maximal coronary diameter narrowing		
Left main	–	0
Left anterior descending	0	0
Left circumflex	0	0
Ramus	0	0
Right	95%	?
21) Coronary bypass	+	+

CP = chest pain; D = dyspnea; HDL = high-density lipoprotein; I = indirect; LDL = low-density lipoprotein; LV = left ventricular; O = none; RCA = right coronary artery.

* On rosuvastatin, 20 mg and ezetimibe 10 mg/day.

[†] On rosuvastatin, 20 mg/day.

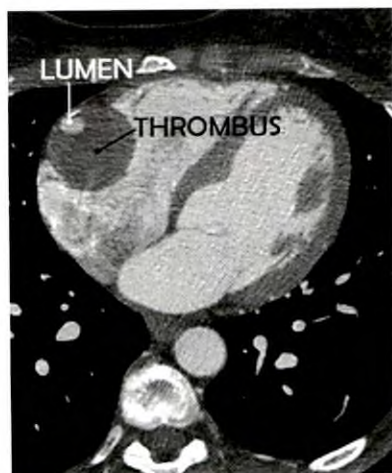


Figure 1. (Case #1, Table 1). Computed tomographic image of the giant RCA aneurysm containing a huge intra-aneurysmal thrombus.

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Figure 2. (Case #1, Table 1). Two views of the exterior of the giant coronary aneurysm arising from the RCA. Both the aneurysmal wall and the intra-aneurysmal thrombus were totally excised as well as the attached RCA. An aortosaphenous venous graft was placed distally.



Figure 3. (Case #1, Table 1). Cross section of the giant saccular aneurysm showing not only the intra-aneurysmal thrombus but the lumen through which blood flowed in the RCA.

whom atherosclerosis was considered the cause of the aneurysm, none had a diameter >2 cm. Of 22 cases of coronary aneurysm reported by Harikrishnan et al,² 2 patients (9%) had aneurysms >4 cm in diameter. Of 20 adults with coronary aneurysms reported by Roberts,³ 5 (25%) had aneurysms ≥4 cm in maximal diameter. Of 1,561 adults with coronary aneurysms reported by Núñez-Gil et al⁴ from a European registry, 82 (5%) had aneurysms ≥4 cm in size. At least 7 case reports^{5–11} have appeared describing coronary aneurysms ranging in size from 6 to 10 cm.

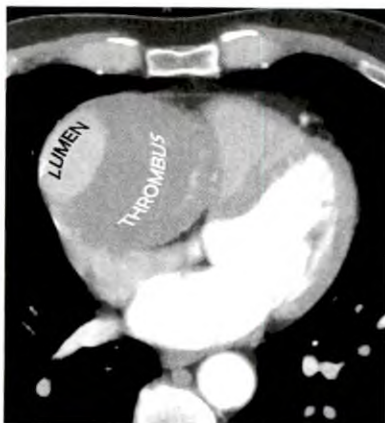


Figure 4. (Case #2, Table 1). Computed tomographic image of the heart showing the coronary aneurysm, both lumen and intra-aneurysmal thrombus.



Figure 5. (Case #2, Table 1) Photographs of the intra-aneurysmal thrombus (left) and a cross section (right). The area where the lumen was present is the space where the ruler is placed (right). The wall of the aneurysm was not resected.

Although its usefulness in patients with small (<2 cm) coronary aneurysms is unclear, resection of large (>4 cm) coronary aneurysms is undoubtedly proper to prevent severe narrowing or obstruction of the lumen of the coronary artery from which they arise to prevent their bulging into a cardiac chamber potentially causing obstruction, valve regurgitation or arrhythmia, and to prevent rupture, a rare occurrence.^{12–17} In 978 cases of coronary aneurysm reported by Swaye et al,¹⁸ none ruptured. A variety of operative procedures have been performed: aneurysmal resection with proximal and distal ligation and coronary bypass (as was done in both of our cases); aneurysmal thrombectomy without sac resection (as was done in our case #2). Anticoagulation appears reasonable in all patients with coronary aneurysms, small or large.

Disclosures

The authors have no conflicts of interest to report.

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