Case Report

Obtuse marginal coronary artery aneurysm on CT coronary angiogram

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Abstract

Coronary artery aneurysms are rare. We present an unusual case of an isolated coronary artery aneurysm in the obtuse marginal artery detected on a computed tomographic coronary angiogram, which is unlikely to be significant for the patient. A Medline literature search did not find a similar case.

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1. Introduction

The incidence of coronary artery aneurysms is low, varying between 0.2% and 5%, based on several angiographic studies [1–9]. The lowest incidence of 0.2% was found in Tunick et al.’s study of 8422 patients [7]. The largest study, the Coronary Artery Surgery Study registry, involves approximately 20,000 patients, and found a 4.9% prevalence of coronary artery aneurysm [10].

Atherosclerotic coronary artery aneurysms are the most common types in Western countries [1,2], followed by congenital causes [1,2]. Congenital causes include vascular malformations such as coronary fistulas and coronary arteriovenous malformations, as well as genetically inherited disorders such as Marfan syndrome, neurofibromatosis, and polycystic kidney disease [9]. Less common acquired causes include infection, drug use, Kawasaki syndrome, connective tissue diseases, and trauma [2,9]. A patient with a coronary artery aneurysm at an unusual location is presented.

2. Case report

A 77-year-old female patient with a history of hypertension, hypercholesterolemia, and recurrent chest pain presented for an outpatient computed tomographic coronary angiogram (CTCA) in April 2016. This revealed an isolated 4 × 4 mm saccular aneurysm arising from the midsegment of the first obtuse marginal branch (Figs. 1 and 2). Her obtuse marginal branch is a small-caliber vessel. The aneurysm demonstrated no internal thrombus. This was managed conservatively. She represented a year later with recurrent chest pain and had a repeated CTCA in April 2017, which demonstrated no change in the aneurysm. Other findings included mild proximal left...
3. Discussion

Coronary artery aneurysms are most commonly found in the right coronary artery, followed by the left anterior descending and left circumflex arteries [2]. Branch vessel aneurysms are very rare. To our knowledge, there is no existing publication regarding an isolated mid-obtuse marginal artery aneurysm on Medline search. There has only been a case report of a very small aneurysm at the origin of the obtuse marginal artery, associated with 2 other aneurysms in the left main and right coronary arteries [11].

While invasive coronary angiography remains the gold standard imaging technique for coronary artery aneurysms, CTCA is now a sensitive and specific noninvasive technique [12]. CTCA provides additional information about the presence of intraluminal thrombi [1,13] or plaque formation. CTCA further provides information about the anatomical location, relationship to adjacent structures [1], and vessel wall thickness, and may provide clues as to the etiology. Conventional coronary angiography may underestimate the size of aneurysms due to internal thrombi, or may miss aneurysms when they are occluded [1].

Most coronary artery aneurysms are asymptomatic, but some may present clinically with angina, myocardial infarction, congestive heart failure, or sudden death [12]. Complications from coronary artery aneurysms include thrombosis, embolism, spasm, and rupture [12].

The management of aneurysms depends on the etiology and whether there are any complications [9]. In atherosclerotic aneurysms, most patients are managed with medical therapy, with cardiovascular disease risk management, and consideration of antiplatelet or antithrombotic therapy [14]. Invasive options, when required, are coronary artery bypass surgery and percutaneous treatment, such as with covered stenting and coiling [12,14].

4. Conclusion

We present a rare case of a small isolated aneurysm at the mid-obtuse marginal branch. CTCA is considered as a better imaging method than conventional angiography for aneurysm characterization.

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