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Etiological Assessment for Coronary Aneurysm Discovery

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Abstract **Case Report**

Coronary aneurysms (CA) are localized dilations of the coronary arteries, defined as a dilation greater than 1.5 times the reference diameter of the artery. Their etiology is diverse, ranging from atherosclerosis to genetic factors and inflammatory diseases. This article aims to explore the etiological assessment for the discovery of a coronary aneurysm, based on a clinical observation and epidemiological data, while highlighting the different possible etiologies and therapeutic management perspectives.

Keywords: Coronary aneurysm, coronary angiography, ischemia, atherosclerosis.

INTRODUCTION

Coronary aneurysms have been known since the 18th century, and their classic definition involves a dilation greater than 1.5 times the reference diameter of the artery. They are distinct from coronary ectasia, which represents a diffuse vessel dilation. Their etiology is complex and includes various causes such as atherosclerosis, genetic factors, inflammatory diseases, and other conditions [1].

CASE PRESENTATION

A 53-year-old hypertensive patient was admitted for a non-ST elevation acute coronary syndrome (NSTEMI) following a new episode of angina. Coronary angiography revealed highly aneurysmal coronary arteries, including thrombotic occlusion of the right coronary artery (RCA) III, which was very aneurysmal. The patient was treated with glycoprotein IIb/IIIa inhibitors (Agrastat) and presented aneurysms in the left anterior descending artery (LAD) and circumflex artery (Cx). The medical treatment included dual antiplatelet therapy (aspirin/Plavix) and an oral anticoagulant of the apixaban type to prevent aneurysm thrombosis. The patient was asymptomatic and underwent a comprehensive etiological assessment.

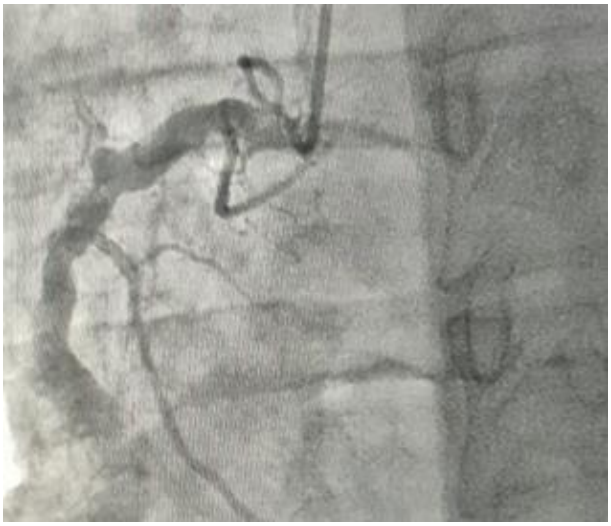

Figure 1: Coronary angiography image shows thrombotic occlusion of the right coronary artery (RCA) that is severe

DISCUSSION

Coronary aneurysms have been described since the 18th century, and their classic definition is based on a dilation greater than 1.5 times the reference diameter of the artery. Some studies even define them based on a more precise diameter. They are found in 0.3 to 4.9% of coronary angiographies performed for various ischemic syndromes [1, 2].

Coronary aneurysms are localized dilations of the coronary arteries, which can have serious clinical consequences such as acute coronary syndromes, thrombosis, rupture, or heart failure. Their etiology is

complex and multifactorial and can be divided into several categories [2, 3]:

Atherosclerosis

Atherosclerosis is the main cause of coronary aneurysms. It results from the accumulation of atheromatous plaques on the coronary artery wall, causing chronic inflammation, degradation of the vessel wall integrity, and aneurysmal dilation. Risk factors associated with atherosclerosis, such as hypertension, smoking, diabetes, and hypercholesterolemia, play important roles in the formation of these aneurysms.

Genetic Factors

Genetic predispositions may play a role in the development of coronary aneurysms, especially in familial cases or in specific diseases associated with genetic alterations of the connective tissue, such as Marfan syndrome or Ehlers-Danlos syndrome.

Inflammatory diseases

Certain inflammatory diseases, such as Kawasaki disease, can lead to the formation of coronary aneurysms in children. Takayasu's disease, a rare vasculitis, can also cause aneurysms in the coronary arteries.

Connective Tissue Disorders

Connective tissue diseases, such as Marfan syndrome and Ehlers-Danlos syndrome, can make vascular walls more fragile and susceptible to dilation under blood pressure.

Iatrogenic complications

Coronary interventions such as stent placement can lead to coronary aneurysms due to vessel wall degradation or other factors.

The management of coronary aneurysms depends on the etiology, size, and location of the aneurysms, as well as the presence or absence of symptoms. In some cases, regular monitoring may be sufficient if the aneurysms are small and asymptomatic. In other cases, medical or surgical intervention may be necessary to prevent complications, such as the use of antiplatelet agents, anticoagulants, or surgical repair of the aneurysms [1-3].

CONCLUSION

The etiological assessment of coronary aneurysms is essential for appropriate management. Atherosclerosis remains the most common cause, but other factors, such as genetic predispositions or inflammatory diseases, should also be considered. Therapeutic management is not standardized and should be tailored to each patient based on the anatomy of the aneurysms and clinical presentation.

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