G9 Spontaneous Coronary Artery Dissection – An Isolated Eosinophilic Vasculitis?: Report of Two Sudden Death Cases

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After attending this presentation, attendees will understand two cases of spontaneous coronary artery dissection, recognize them as a cause of sudden death, and discuss the role of an adequate gross recognition and histological examination with emphasis on the presence and significance of the eosinophilic inflammatory infiltrate that is frequently associated to this disorder.

This presentation will impact the forensic community by increasing the awareness of the existence of this rare natural disorder and demonstrating its pathological characteristics emphasizing in the gross recognition and histological presentation.

Spontaneous dissection of the coronary artery is a rare entity. It has an increased prevalence in women, especially in the peripartum state. It is defined as hemorrhagic separation of the media of the coronary artery with creation of a false lumen, in the absence of chest trauma, extension of aortic dissection or iatrogenic trauma.

The first case involved a 55-year-old woman with no personal or family history of heart disease. History was also negative for systemic disease, recent trauma, or drug abuse. She was last seen in her usual state of good health a few hours before her death. She was found unresponsive by family members at her apartment where she was pronounced dead after unsuccessful resuscitative measures.

At autopsy the decedent was 167 cm tall and weighed 72 kg. Externally there were no signs of natural disease or trauma. The heart weighed 370 g without ventricular hypertrophy or gross ischemia. The coronary arteries were free of atherosclerosis and had a normal distribution. The left anterior descending coronary artery (LAD) had a focal dissection within the media with a hematoma surrounding and compressing the wall causing total occlusion of the lumen. The total length of the dissection was 2 cm, and it started 3 cm from the origin of the LAD.

The second case involved a 43-year-old woman whose medical history was relevant for back pain, occasional episodes of tachycardia and shortness of breath. She had no history of recent trauma or drug abuse. She was in her usual state of health when she complained of increased back pain and shortness of breath. She was taken to the emergency room by family members but was pronounced dead on arrival. At autopsy the decedent was 165 cm tall and weighed 67 kg. Externally there were no signs of natural disease or trauma. The heart weighed 310 g without ventricular hypertrophy or gross ischemia. The coronary arteries had a normal distribution with minimal atherosclerosis. The LAD showed a focal dissection within the media with a hematoma compressing and occluding the lumen of the artery. The total length of the dissection was 1.5 cm at the distal third of the LAD.

A common histological finding for both cases was a dense focal infiltration of the adventitia and the outer media of the dissected coronary artery by inflammatory cells of predominantly eosinophilic granulocytes with a few lymphocytes and mononuclear histiocytes. Polymorphonuclear granulocytes were infrequent. The inflammation did not involve the inner media or intima. The non-dissected portions of the LAD, the rest of the coronary arteries and the myocardium were free of inflammatory infiltrates in both cases. No myocyte hypertrophy, myocardial scarring, or small vessel disease was present.

Spontaneous Coronary Artery Dissection is a rare entity whose precise incidence, etiology and pathogenesis have not been clearly established. Periadventitial and medial wall eosinophilic inflammation have been commonly observed, generating the hypothesis of an underlying localized inflammatory or vasculitic process that predisposes to this condition. This primary process could cause weakening of the arterial wall and subsequent dissection. However it has also been proposed that such inflammation could be a consequence of dissection, rather than its cause.

These two cases illustrate that a detailed examination of not only the affected coronary artery but also the rest of the vasculature and myocardial tissue is essential to identify and understand this process. In order to clarify the pathogenesis of this entity, it is necessary to perform future studies including cases of non-spontaneous dissection of the coronary artery. These cases are presented and discussed with a review of the literature available to date.

Spontaneous Coronary Artery Dissection, Sudden Death, Eosinophilic Inflammation

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