

## H90 Sudden Cardiac Death Due to Vasculitis: Case Reports and a Review of the Literature

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**Learning Overview:** After attending this presentation, attendees will understand that vasculitides are systemic diseases responsible for sudden cardiac death. Moreover, the postmortem findings could help in providing validated clinical diagnostic criteria and promoting a timely diagnosis.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing the usefulness of an accurate postmortem macroscopic and microscopic analysis of sudden cardiac death due to vasculitides for improving the epidemiological and pathophysiological data on these diseases.

Vasculitides are a group of disorders characterized by inflammation of blood vessel walls; they can cause various organ disorders depending on the size of the affected blood vessels. Although the classification algorithm for systemic vasculitides is periodically updated, there are currently no validated clinical diagnostic criteria. These diseases can often involve the aorta and coronary arteries and cause Sudden Cardiac Death (SCD) in subjects without any prior symptoms. Here, two cases of SCD due to vasculitis, showing different macroscopic and microscopic findings, are reported along with a brief literature review.

**Case 1:** A 43-year-old woman with sudden onset of new symptoms, including malaise, dyspnea, and retrosternal pain, underwent ergonomic testing. During the warm-up phase (about 50 seconds from the start), she suddenly lost consciousness and fell to the ground; ventricular fibrillation was observed on the monitor at the time. The woman died despite cardiopulmonary resuscitation. An autopsy was performed. Gross examination of the aorta showed intimal thickening with a fibrous, pearly-white appearance similar to fibrous plaques and a wrinkled appearance on the surface of the intimal aortic sinus (“tree barking” effect). At routine histology, there was severe narrowing of the left coronary ostium showing severe intimal thickening and inflammation; the left anterior descending artery showed obstructive intimal proliferation and thrombosis; some areas of coagulative necrosis were present in the myocardial tissue. Toxicological analysis was negative.

**Case 2:** A 34-year-old woman was found dead in her bed. Relatives stated that the young woman never suffered from any illnesses or diseases. The autopsy revealed a cardiac tamponade associated with an aortic dissecting aneurysm rupture. Histological analysis of the aorta showed fibrosis and diffuse leucocytes infiltration of the vessel's dissection edges and fibrinoid necrosis of the tunica media. Severe intimal hyperplasia of coronaries was observed. Myocardial tissue showed interstitial fibrosis and hypertrophy of myofibers. Toxicological analysis was negative.

In both cases, the deaths occurred unexpectedly and suddenly and were related to the aortic and/or coronaries damage mediated by a large vessel vasculitis with findings suggesting Takayasu arteritis.

The literature highlighted that the postmortem diagnosis of this disease can be performed by macroscopic and microscopic investigations. Postmortem Computed Tomography (CT) as well as the clinical presentation can also offer useful information. Autopsy studies suggest that large vessel vasculitides are more common than reported in epidemiological studies, suggesting the importance of an accurate postmortem diagnosis.

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### Sudden Cardiac Death, Vasculitis, Forensic Pathology