## G57 Death By Giant Cells: Report of Two Cases of Sudden Cardiac Death Due to Giant Cell Inflammatory Processes

*Rebecca A. Hamilton, MD*, Office of the District 21 Medical Examiner, 70 Danley Drive, Fort Myers, FL 33907; Linda Sullivan, BS, Wuesthoff Reference Laboratory, 6800 Spyglass Court, Melbourne, FL 32940; and Barbara C. Wolf, MD, Office of the District 21 Medical Examiner, 70 Danley Drive, Fort Myers, FL 33907*

After attending this presentation, attendees will be familiar with the differential diagnosis in cases of sudden cardiac death due to giant cell inflammatory processes involving the myocardium and will understand the roles of histologic examination and immunohistologic studies in arriving at the correct diagnosis.

This presentation will impact the forensic community and/or humanity by elucidating the clinical and pathologic issues involved in distinguishing the subgroup of sudden cardiac deaths resulting from inflammatory processes with giant cells that affect the heart.

The medical examiner or coroner usually investigates sudden and unexpected deaths in individuals without documented disease processes that would provide reasonable explanations for the deaths. These include the unexpected deaths of individuals who have been diagnosed with a known chronic natural disease that was not expected to cause death at that point in time as well as those cases in which the deceased had no known pre-existing natural disease at the time of death. Cardiovascular disorders, most notably arteriosclerotic and/or hypertensive cardiovascular disease, account for the majority of sudden and unexpected natural deaths. Less commonly documented are disease processes directly affecting the myocardium. In these cases, histologic examination of the myocardium is often essential in reaching a diagnosis.

Granulomatous inflammation of the myocardium can occur in the course of a number of systemic disease processes including infectious etiologies such as fungal, mycobacterial and parasitic infections, as well as hypersensitivity reactions and rarely autoimmune disorders. In many of these disorders giant cells comprise a component of the inflammatory infiltrate. Systemic granulomatous processes of unknown pathogenesis, most notably sarcoidosis, may also be associated with involvement of the myocardium. In contrast, giant cell myocarditis, also known as idiopathic myocarditis, a rare, frequently fulminant, and fatal disorder of unknown etiology, is isolated to the heart and lacks systemic involvement.

The majority of systemic granulomatous disorders that involve the heart are diagnosed prior to death due to their protracted clinical course and symptomatolgy related to the involvement of other organs.

Occasionally, however, these disorders are associated with sudden death due to pathologic involvement of the heart. These cases are likely to be investigated by a forensic pathologist, particularly if the individuals do not have antemortem diagnoses. Because of its isolation to the heart and rapid clinical course, giant cell myocarditis is most likely to be diagnosed at the time of autopsy. Indeed, an individual may be asymptomatic and sudden death may be the presenting manifestation of the disease.

This study reports two cases in which sudden death resulted from giant cell inflammatory processes affecting the myocardium. Both individuals lacked antemortem diagnoses. In one case an 18-year-old man who had been asymptomatic except for a 2 ½ month history of vague abdominal pain was found dead at work. Postmortem examination revealed a semigranulomatous, mixed inflammatory cell process involving the left ventricle that was associated with giant cells and lacked myocardial fiber necrosis and tissue eosinophilia. Numerous well-formed, noncaseating granulomas were found in the lungs, pulmonary hilar lymph nodes and kidneys. The diagnosis of sarcoidosis was rendered. The second case involved a 43-year-old man with a ten year history of intermittent chest pressure and cardiac arrhythmias who collapsed at work. The heart showed a similar mixed inflammatory cell infiltrate that included giant cells, although focal myocardial fiber necrosis and eosinophils were also present. Thorough gross and microscopic examination revealed no involvement of other visceral organs or lymph nodes and the diagnosis of giant cell myocarditis was rendered.

**Giant, Cell, Myocarditis**

 ** Presenting Author*