G17 Drowning of a Child With a Cardiac Fibroma of the Interventricular Septum

Darshan R. Phatak, MD, and Luis A Sanchez, MD, Harris County Medical Examiner Office, 1885 Old Spanish Trail, Houston, TX 77054*

After attending this presentation, attendees will have a better comprehension of the nature of the presentation of this potentially fatal mesenchymal cardiac tumor, an understanding of the gross and microscopic pathology and the physiology of potentially fatal disturbances to cardiac function resulting from the size of the tumor and location in the heart.

This presentation will impact the forensic community and/or humanity by demonstrating why it is strongly recommended that those involved in the determination and certification of the cause and manner of death familiarize themselves with cardiac tumors" presentation, pathology and lethal potential and remember to include them in their differential diagnosis when confronted by cases such as this one.

This presentation will have a positive impact on pathologists, coroners, medical examiners, other autopsy practitioners and humanity at large as it can heighten general awareness towards a potentially treatable cardiac tumor that may be found either incidentally or strike down children, a vulnerable population subset, without warning.

A four-year-old Hispanic female child drowned in a swimming pool at a family gathering and had a past medical history of cardiomegaly and a heart murmur which were diagnosed neonatally, yet reportedly neither treated nor followed medically since infancy. Prior to death, the decedent had no health complaints or behavioral changes. At the scene, the decedent's stomach was bloated and clear fluid was reported in the respiratory tract.

Pertinent autopsy findings included cerebral edema, serous fluid within the pleural cavities, pneumonomegaly, and hepatosplenomegaly. Cardiomegaly and a fibroma of the interventricular septum were also found at autopsy. Toxicological tests were negative.

The majority of primary cardiac tumors are benign, with fibromas representing five percent of all cases. In the pediatric population, it is the second most common primary tumor of the heart after rhabdomyomas. The tumor also has a predilection to form within the interventricular septum and grows in size rapidly. Despite the lack of aggressive behavior or any metastatic potential, fibromas of the heart can interfere with normal physiologic function due to the interdigitation of tumor cells around and between cardiomyocytes and cardiac blood vessels and the possibility of entrapment and disruption of the cardiac conduction system that can result in a fatal arrhythmia. In addition to immediate local effects, the physical alteration of the cardiac muscle also results in pathologic changes of the other organ systems that will also impair the health of the individual over time.

The tumor is often surgically resectable or treatable by heart transplantation so therefore, proper diagnosis and prompt treatment can be lifesaving. Cardiac fibromas may also occur in the setting of the nevoid basal cell carcinoma syndrome (Gorlin-Goltz syndrome), so it can be beneficial for parents and other relatives to know the diagnosis. The most important lesion in the differential diagnosis is fibrosarcoma, a malignancy that is rare in the heart and in the general pediatric population. In a primary cardiac tumor, it is also of crucial importance to rule out a metastasis from a primary tumor of another location, as the treatment will vary.

This case of cardiac fibroma serves as a good example of a primary cardiac tumor's potential for fatal presentation in a child. Sometimes children with congenital heart abnormalities do not receive close monitoring of their health under a physician's care, and it is strongly recommended that those involved in the determination and certification of the cause and manner of death familiarize themselves with cardiac tumors' presentation, pathology and lethal potential and remember to include them in their differential diagnosis when confronted by cases such as this one.

Cardiac, Fibroma, Drowning

 ** Presenting Author*