G125 Sudden Unexpected Death of a Teenager Due to Peripheral T-Cell Lymphoma

Evan Himchak, BS, and Valerie A. Fitzhugh, MD , Univ of Medicine and Dentistry of New Jersey, 150 Bergen St, Newark, NJ 07101; and James B. Conway, and Abraham T. Philip, MD, Regional MEO, 325 Norfolk St, Newark, NJ 07103*

After attending this presentation, attendees will learn of an unusual hematological malignancy that caused the sudden and unexpected death of a 13-year-old girl, who had no prior clinical history or diagnosis of the condition.

This presentation will impact the forensic science community by highlighting a previously unreported cause of sudden, unexpected death of a teenager. This presentation will include a brief review of the classification schemata currently used by hematologists and oncologists for these type of malignancies and cluster differentiation markers used to establish the diagnosis.

The decedent, a 13-year-old female, was having a sleepover at the home of friends, whom she and her parents knew from church. At 2:00 a.m., she reportedly complained of chest and back pains and began to vomit. She requested the host family call her parents, as she wished to go home. Her mother and stepfather rushed to the place where she had her night out with friends. By the time her parents made the 12.5-mile 25 min trip, she had vomited several times and had become unresponsive. She was rushed to the hospital, where she was pronounced dead. During an in-depth forensic investigator interview, it was later revealed that she had complained of episodic chest pains for approximately two months. The pains were described as spasmodic chest and back pains, which started and resolved spontaneously. She was otherwise a normal child coping with scholastic challenges and playing soccer as part of her athletic curriculum. Her older male sibling had a childhood heart murmur, details unknown, which had resolved with age. Her biological father also had a heart murmur, not otherwise specified.

At autopsy, the decedent was of appropriate build and nutrition. Her heart at initial dissection revealed a thickened aorta when it was cut proximal to the arch. On further examination, the aorta was thickened at its origin, with extreme narrowing of the coronary ostia. The thickening also involved the pulmonary artery and the left atrium. Within the left atrium, the tumor had eroded the myocardium creating a 1cm defect in the anterior leaflet of the mitral valve, near the valve annulus. Histological sections revealed sheets of small-to intermediate-sized blue cells encasing the aorta, parts of the pulmonary artery, the left auricle and the mitral valve. The initial differential diagnosis suggested a Ewing sarcoma/primitive neuroectodermal tumor, lymphoma, or a rhabdomyosarcoma. The blue cells were strongly reactive to CD 45 and CD 3 with focal reactivity to CD 20, CD 99, and BCl-2. The tumor was diagnosed as a Peripheral T-Cell Lymphoma (PTCL).

The sudden, unexpected, death of an apparently healthy teenager is always tragic. Epidemiological studies on deaths in children under 20 years of age has a bimodal distribution with a large cluster under the age of 4 years and another large cluster in the 14 to 20-year-age groups. Much has been published about the causes of death in these two groups. A preliminary search of the English language literature revealed no cases of sudden, unexpected deaths due to hematological malignancy in the 6 to 14-year-age groups. In the United States, of the malignant lymphomas, the T-cell sub types are much fewer than those bearing B-cell markers. A British survey based on the tumor registries of England, Scotland, and Wales over a 20 year period identified 25 cases of T-cell lymphomas, comprising 1.6% on Non-Hodgkin's lymphoma registrations. PTCLs are extremely rare in children and very little is known about their natural history, therapeutic options, or prognostic indicators.

Sudden Death, Teenagers, Lymphoma

 ** Presenting Author*