



## Pathology & Biology Section – 2005

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### G26 Sudden Death Following Brief Compression of the Neck

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The goal of this presentation is to present a well-documented case of sudden death following brief compression of the neck, and to discuss the possible mechanisms for this phenomenon and methods to evaluate these mechanisms.

This presentation will impact the forensic community and/or humanity by providing a well-investigated case of a type of death which has been poorly documented in the past, and has caused extensive debate

in the forensic pathology community and court system. The presentation will emphasize proper procedures in investigating this type of death.

Nearly all forensic pathology texts make reference to sudden death following brief compression of the neck; these deaths are attributed to a hypersensitive carotid sinus reflex. Review of the medical literature, however, reveals that reports of death by this mechanism refer to elderly individuals with significant cardiovascular disease or other factors that could explain their deaths independent of the neck compression. The vast majority of references to a hypersensitive carotid body discuss only fainting as opposed to sudden death. A case recently investigated in which the death of a 14-year-old youth following brief neck compression was witnessed and thoroughly investigated.

Three reliable witnesses reported that there was a brief tussle with another youth, during which the decedent attacked the other youth and held his neck with both hands. The other youth pushed the decedent against a wall and compressed his neck with one hand while he faced the decedent. The compression continued for 15 to 30 seconds, at which time the decedent collapsed. He was pulseless and apneic; cardiopulmonary resuscitation by a trained bystander as well as paramedics and emergency room personnel continued for nearly an hour before he was declared dead.

A thorough autopsy was performed. This included a complete gross examination with layered, *in situ* dissection of the neck structures, and complete histological and toxicological examination. Multiple microscopic sections of the heart and serial sections of the conduction system were examined during the initial autopsy and re-examined by a cardiac pathology consultant. In addition the carotid bodies and adjacent arteries were serially sectioned and examined by this consultant. None of these procedures revealed an anatomic cause of death or any significant disease or injury. Molecular autopsy for long Q-T syndrome is underway.

The presentation will include detailed history and autopsy results, a review of the pertinent literature, a discussion of possible mechanisms of death in this and similar cases, and a discussion of procedures to be followed in performing a complete investigation of these deaths.

**Sudden Death, Neck Compression, Long Q-T Syndrome**