G67 The Presence of Hyoid Bone Fractures in Self-Inflicted Gunshot Wounds to the Submental Region of the Neck

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After attending this presentation, attendees will understand how hyoid bone fractures may occur in association with self-inflicted gunshot wounds to the neck and head and how postmortem Computed Tomography (CT) can facilitate the identification of hyoid bone fractures in gunshot wounds to the submental region of the neck.

This presentation will impact the forensic science community by providing data demonstrating the presence of hyoid bone fractures in self-inflicted gunshot wounds to the submental region of the neck, a scenario not previously considered as a significant cause of hyoid bone fractures.

Hypothesis: Although within the forensic science community fractures of the hyoid bone are commonly considered to be seen in cases of manual strangulation, hyoid bone fractures can occur in association with self-inflicted gunshot wounds of the head and neck.

Methods: A retrospective review of Armed Forces Medical Examiner System cases 2005-2010 revealed 400 cases of self-inflicted gunshot wounds. The final autopsy reports were reviewed to identify the circumstances of death, the weapon used, entry and exit wounds, and the description of the hyoid bone.

Results: Of the 400 self-inflicted gunshot wounds, 55 were to the submental region of the neck. Of these 55 cases, eight had hyoid bone fractures. When the specific type weapon used was evaluated within the total number of gunshot wounds to the submental region (55); hyoid bone fractures were identified in: one of the five shotgun cases, six of the 35 rifle cases, one of the 10 handgun cases, and zero of the five cases with unknown weapons.

In the eight cases of hyoid bone fracture, postmortem CT was available in five cases and showed hyoid bone fractures in all three. Since this series was reviewed, two additional self-inflicted submental gunshot wound cases were autopsied at our facility. Both cases demonstrated a fracture of the hyoid bone on CT which was confirmed at gross dissection.

Conclusions: Hyoid bone fractures occur with self-inflicted gunshot wounds of the neck and head involving a variety of weapons to include shotguns, rifles and handguns. Forensic pathologists should recognize that hyoid bone fractures may exist in this type of case and postmortem CT is capable of identifying these fractures. The presence of hyoid bone fractures in the setting of gunshot wounds of the neck and head does not necessarily indicate manual strangulation.

Self-inflicted GSW, Hyoid Bone Fracture, Postmortem CT

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