G39 Recovery and Processing of Multiple Partial and Total Cranial Fresh Cadaver Heads Purportedly for Surgical Teaching

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The goals of this presentation are to: (1) make attendees aware of the presence in the community of fresh, non-embalmed human surgical specimens available on the private market; and, (2) detail an occurrence where 15 whole or partial human heads were turned into a coroner's service for disposal and how they were evaluated and documented prior to their disposal.

This presentation will impact the forensic science community by assisting attendees to: (1) recognize the importance of having a mass fatality plan in place with an emphasis on dental identification; (2) have an awareness of the procurement, selection, and suitability of human specimens used for teaching purposes; and, (3) be cognizant of unethical practices related to full-body donation, including informed consent and precious metal "harvesting."

Medicine and science benefit from the use of human specimens for teaching and research, from educating medical students to taphonomy lab studies. This presentation will impact the forensic science community by making members mindful of how procurement occurs, why specimens must be suitable for their intended use, and selective disclosure of information regarding the fate of a body when consent is given. An increased awareness and ability to recognize disrespectful practices will contribute to the reporting of, and investigation into, unsavory and perhaps unlawful interference involving human specimens, and guide its regulation and oversight.

The Office of the Chief Coroner (OCC) was asked for cremation certificates for 15 human heads. These were procured for a dental implant surgery course. Information was obtained that the supplier — from outside of Canada — may have been under investigation unrelated to these specimens. Therefore, the OCC decided to review and confirm specimen identity.

This situation was treated like a "miniature, controlled, multiple-fatality incident," providing organized specimen analysis and as a training exercise for morgue staff in multiple-fatality protocols. Through joint efforts of specialists including a forensic anthropologist, advanced practice pathology assistants, a forensic pathologist, and an odontologist, the specimens were photographed, examined, and documented including: CT scanning, dental radiography, and DNA sampling. A summary examination and report on all specimens were completed.

After the exercise, it was discovered that this raised more questions than answers. The majority of specimens were clearly not suitable for implant training, having one or more of the following problems: (1) being completely dentate with few sites for implantation; (2) advanced sinus pneumatization; (3) inadequate alveolar bone; and, (4) presence of grossly carious roots. This made these "wasted" specimens. Furthermore, there was little uniformity in sectioning and disarticulation of specimens. Subjects were received as either partial, half, or full-head specimens. The variety of dissections observed begs the question of whether those providing their consent for body donation were informed of the extent to which their body would be "altered" or whether their body would be exported. It was also observed that more than a third of the specimens exhibited some loss of coronal structure and cast restorations, as evidenced by residual crown-cementation material and in the absence of any trauma/caries.

Additionally, teeth with non-precious materials in these same specimens were present and unaltered. The removal of these restorations, presumably posthumously, may have been deliberate and it is possible that these restorations contained precious metals that could be sold profitably for scrap.

Positive identification was achieved for all specimens. The early years of acquiring human cadavers for medical education purposes is tarnished. As far back as the late 1700s in North America, medical schools required specimens. Laws permitted the use of a deceased individual for this purpose if they were a criminal, the body was unclaimed, or the individual had given prior consent — which was rare. This lack of supply generated a market for human cadavers and "resurrectionists" would retrieve the recently buried for profit. This unlawful practice continued for years. In Ontario currently, bequeathals of a body for education and research is regulated by the Trillium Gift of Life Network Act (2002) and the Human Tissue Donation Act. Provided that there is no objection by next-of-kin, an individual can give consent prior to their passing or next-of-kin have authority to consent. The act states that the "use of the body or

for the removal and use of the specified part or parts" may be used for therapeutics, medical education, or scientific research. Although there is no age restriction, suitability is based on cause of death, illnesses, recent surgical procedures, and weight. Legally, the anatomy inspector must have documented the name, sex, age, birthplace, and last place of residence, as well as the name of the school and date where the body was delivered.

Anatomical Teaching Specimens, Dental Identification, Postmortem Interference