G89 Postmortem Angio-CT in Decomposed Bodies — A Foul Business?

Sabine Franckenberg, MD, Winterthurerstrasse 190/52, Zurich 8057, SWITZERLAND; Garyfalia Ampanozi, Buehlstrasse 20, Bern, CH-3012, SWITZERLAND; Patricia M. Flach, MD, Winterthurerstrasse 190/52, Zurich, SWITZERLAND; Michael Thali, MD, Universitat Zurich, IRM/Forensic Institute, Winterthurstrasse 190/52, Zurich CH-8057, SWITZERLAND; and Steffen G. Ross, MD, Winterthurerstrasse 190/52, Zürich, SWITZERLAND*

After attending this presentation, attendees will understand the characteristics in postmortem Computed Tomography-Angiography (pmCTA) in decomposed bodies and know about the general elements in postmortem angiography, as the use of a special contrast agent mixture and the injection technique with a roller pump. Attendees also will learn about the typical minimally invasive inguinal vessel approach and will be familiar with the necessary equipment to perform pmCTA in decomposed bodies. They will also be shown selected case examples.

This presentation will impact the forensic science community by proving that pmCTA is feasible even in heavily decomposed bodies and gains valuable information in addition to an unenhanced pmCT scan. Also demonstrated will be some advantages over conventional autopsy, where preparation and display of pathologies often is hindered by autolytic tissue.

Postmortem cross-sectional imaging has become an important element in forensic investigations over the last decade, primarily by supporting the classical autopsy, which is still considered the gold standard for determining cause and manner of death. Postmortem radiology, especially pmCTA, made great progress in displaying vascular pathologies, such as aortic ruptures or vascular obstructions in fresh bodies, in a minimally invasive manner. However, the detailed diagnosis of these pathologies in decomposed bodies remained a domain of the classical autopsy. Many forensic institutes and medical examiner's offices are privileged to either possess a CT scanner themselves or are able to do postmortem scans on machines in departments of clinical radiology.

A simple injection protocol is used consisting of a divided injection of the contrast mixture, first into the arterial and, in a second step, into the venous system, without establishing "real" circulation. Up until now, this technique has proven its proficiency in more than 200 cases.

According to this research, cannulation of the relatively large femoral vessels is the most reliable and fastest access to the vascular system for pmCTA. Harvesting of body fluids and/or tissue samples (blood, muscle, urine, Cerebrospinal Fluid (CSF)) for quantification of substances in the toxicological examination has to be done before angiography to avoid a dilution of the substances targeted. Harvesting of kidney samples in the absence of urine can be done during autopsy, since the dialysate of kidney samples is used for toxicological pretests only (solely qualification of substances, no quantification).

Other forensic pathologists and radiologists are encouraged to become aquainted with this simple, comparatively low-cost and yet significant method in forensic imaging.

pmCTA, Decomposed Bodies, Postmortem Radiology

 ** Presenting Author*