



## Pathology/Biology Section - 2015

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### H93 Visualization of Myocardial Infarction by Postmortem Single-Organ Coronary Computed Tomography: A Feasibility Study

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After attending this presentation, attendees will understand that radiological examination is generally considered a good complement for conventional autopsy; nevertheless, it was thought to have limited application in cardiovascular pathology.

This presentation will impact the forensic science community by demonstrating the main diagnostic findings in postmortem multi-detector coronary artery computed tomography in cases of sudden death in adults.

**Introduction:** Postmortem imaging is increasingly used in the forensic field in cases of natural death related to cardiovascular diseases, which represent the most common causes of death in developed countries. Whereas radiological examination is generally considered a good complement for conventional autopsy, it was thought to have limited application in cardiovascular pathology. The goal of this study was to investigate the role of postmortem multi-detector coronary artery Computed Tomography (CT) in cases of sudden death in adults.

**Materials and Methods:** Eleven patients that were revealed by standard autopsy procedures to be negative for macroscopic extra cardiac lethal findings were selected for the study. Later, isolated single organ Postmortem Computed Tomography Coronarography (PMCTA) using an iodinated non-ionic contrast medium was conducted in these same individuals. After computed tomography examination, all isolated hearts were carried to the forensic pathologist to undergo a conventional histology assessment.

**Results:** In seven of the 11 cadavers, a final diagnosis of myocardial infarction was made after a complete autopsy and histology procedures. In six of the 11 cases, PMCTA scanning of the isolated hearts confirmed the autopsy findings and showed the presence and localization of occlusions or severe stenosis as well as the extension of the myocardial hypoxic area by the extravasation of contrast medium.

**Conclusion:** Isolated single-organ PMCTA could be considered a valid and useful tool in combination with traditional autopsy investigation (macroscopic sections and histology) for identifying the cause of death by recognizing the presence and degree of coronary artery disease and myocardial infarction area visualization.

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#### Postmortem TC, Myocardial Infarction, Sudden Cardiac Death