



### **G39 Benefits and Limitations of Postmortem Multislice Computed Tomography as Adjunct to the Perinatal and Pediatric Autopsy**

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After attending this presentation, attendees will understand the basics of the radiologic investigation of perinatal and pediatric death by Multislice Computed Tomography (MSCT) as well as the advantages and the limitations of this method.

This presentation will impact the forensic science community by serving as an introduction of postmortem MSCT as a useful noninvasive adjunct to classic autopsy or even as a potential replacement in cases when autopsy is refused by the next of kin.

Perinatal and pediatric autopsy provides essential diagnostic information not only for parents but also for medical audit and clinical trials. The autopsy rate is decreasing throughout the world for numerous reasons. Medical imaging has always been part of the autopsy process, but in the last decade there has been increased interest in imaging as additional to or a replacement for autopsy. A retrospective data analysis of thirty child autopsies will be presented with correlation in all cases with previously performed MSCT. Postmortem whole body six slice CT imaging was performed on average of twenty-three hours after death. Reconstructions in 1.25mm thickness (soft tissue and lung kernel). Radiological diagnosis was carried out by two radiologists, each with three years experience in postmortem/pediatric radiology. The comparison between autopsy and cross sectional imaging showed a high diagnostic accuracy for intracranial hemorrhage, pulmonary pathologies, the visualization of other (partly) gas containing structures like the intestines and bony pathologies like fractures or tumor caused erosions of bony structures. Obvious weaknesses of the unenhanced CT imaging lied in the detection of cardiovascular vascular pathologies and subtle pathologies of the central nervous system. CT imaging does not provide a histological diagnosis, although histopathologic examination contributes often important information regarding the cause of death. This is clearly a crucial issue if CT is to be used to replace autopsy. A possible solution is the application of CT-guided biopsies to gain histological specimens. The emerging field of postmortem CT angiography could help to close the gap in vascular imaging. This study shows that postmortem CT imaging alone is not a sufficient complete replacement of classic autopsy in the perinatal and pediatric death. Despite the drawbacks, we are convinced of the potential of this method as a planning tool and complement to the classical pediatric autopsy and as the method of choice when autopsy is refused by the next of kin.

**Postmortem CT, Perinatal Autopsy, Pediatric Autopsy**