



G124 Utility of Whole Body Postmortem Computed Tomography Imaging in Detection of Elder Abuse: Comparison With and Potential Substitution for Standard Autopsy

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After attending this presentation, attendees will be familiar with the value of CT Imaging in the detection or exclusion of injuries associated with elder abuse.

This presentation will impact the forensic science community by demonstrating how whole body CT imaging can be an efficient triage tool that assists the medical examiner's decision on whether to proceed to conventional autopsy in suspected cases of elder abuse.

Elder abuse (EA) contributing to death is a crime that is difficult to exclude without a full conventional autopsy (CA), even where allegations of abuse are limited to non-physical issues. The potential for use of whole-body postmortem CT (PMCT) as a triage tool to determine the need for CA based on detection of injuries suggestive of physical abuse was investigated.

Method and Materials: Fifty-two decedents (12 M, 40 F; mean age 76 y, range 52-93 y) with associated allegations of EA had PMCT and subsequent CA by state medical examiners within 24 hours of death. PMCT scans were interpreted by radiologists experienced in forensic imaging. Sensitivity of PMCT for injuries suspicious for abuse and other major findings were determined with CA as the standard of reference.

Results: PMCT was concordant with CA for evidence or absence of elder abuse in all cases. PMCT demonstrated multiple previously unreported fractures of varying age consistent with EA in only 1/52 cases. Recent fractures consistent with cardiac resuscitation (CPR) or typical accidental trauma were noted on PMCT in 18/52 (35%) and 5/52 (10%), respectively, but at CA were undetected in 7/18 (39%) and 4/5 (80%), respectively. PMCT misinterpreted an undisplaced cervical fracture in the setting of severe degenerative disease. Cause of death was determined by PMCT in 24/52(46%) and by CA in 50/52(96%) cases.

Conclusion: PMCT is reliable for the detection or exclusion of skeletal injuries suspicious for elder abuse and may be used in correlation with history and external examination to determine the need for CA where allegations or suspicion of abuse are raised. Acute upper anterior bilateral rib fractures were noted in all decedents who underwent full CPR, likely related to osteopenia/osteoporosis. PMCT was not reliable for determination of specific cause of death in this decedent group.

Elder Abuse, Computed Tomography, Autopsy