H16 Forensic Radiology in Medicolegal Autopsy Practice

Thomas B. Duong, BS, Western Michigan University School of Medicine, 300 Portage Street, Kalamazoo, MI 49007; Ray-Young Tsao, BS*, Western Michigan University School of Medicine, 300 Portage Street, Kalamazoo, MI 49007; Sheila Spotswood, MD, 6230 La Cosa Drive, Dallas, TX 75248; Carolyn V. Isaac, PhD, 1000 Oakland Drive, Kalamazoo, MI 49008-8074; Jered B. Cornelison, PhD, Western Michigan University School of Medicine, Dept of Pathology, 1000 Oakland Drive, Kalamazoo, MI 49008; and Joseph A. Prahlow, MD, Western Michigan University School of Medicine, 300 Portage Street, Kalamazoo, MI 49007*

After attending this presentation, attendees will have gained an appreciation of the wide array of case types in which traditional radiography (X-ray (XR)) plays a valuable ancillary role in medicolegal autopsy performance.

This presentation will impact the forensic science community by providing an overview of case types in which traditional XR provides valuable information as a part of a complete medicolegal autopsy examination. This presentation will also provide important examples and reminders of various "pearls" as well as "pitfalls" concerning postmortem forensic XR.

Forensic radiology encompasses the acquisition, interpretation, and reporting of radiologic images for the purpose of medicolegal investigations, including, but not limited to, cases presented in a court of law.[1] In the context of death investigation, forensic radiology is an extremely important component in the evaluation of certain case types. While XR is the oldest and most widely used modality in forensic radiology, Postmortem Computed Tomography (PMCT) and Postmortem Magnetic Resonance Imaging (PMMRI) have been gaining interest in the forensic community.[1] This review will focus on XR, as it is the modality most readily available and widely used by forensic pathologists.

The American Society of Radiologic Technologists (ASRT) formed a task force in 2010 to investigate training discrepancies among personnel performing forensic XR. Focusing on improving image quality and safety of radiologic personnel, the study found large gaps in existing training paradigms.[2] For example, there are still no set training standards for forensic imagers in the United States, and there is wide variability in the forensic XR services available at different forensic autopsy centers.[2] The National Association of Medical Examiners (NAME) Inspection and Accreditation program requires that accredited medical examiners' offices "have access to radiographic equipment or services," but does not specify that such services actually be located within the medical examiner facility.[3] To better address these deficiencies, those who perform and interpret forensic radiologic imaging studies should have a broad understanding of the case types in which postmortem XR is useful.

Not every forensic autopsy requires postmortem radiologic imaging; however, in some case types, forensic XR is essential. The NAME Autopsy Standards state that X-rays must be taken in the following case types: infants, explosion victims, gunshot victims, charred remains, and cases in which decomposition obscures or causes loss of identifying features and/or evidence of trauma.[4] In addition, several other case types may benefit from postmortem XR, including cases of suspected air embolism, sharp force injury, and certain other trauma, including suspected child abuse cases, unidentified remains, elderly or disabled decedents with suspected abuse or neglect, certain cases with implanted medical devices, and others.

This review presents an overview of medicolegal autopsy case types in which postmortem forensic radiology provides valuable, sometimes essential, information. For each general category of case type, specific examples are provided, along with a discussion of important aspects of the radiologic exam, including potential pitfalls. Providing an overview of forensic radiology in medicolegal autopsy practice better enables the forensic pathology community to develop appropriate standards and to address the deficiencies that currently exist within the medical examiner community.

Reference(s):

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Autopsy, Radiography, X-Ray

*Presenting Author