

## BOOK REVIEW

James L. Caruso,<sup>1</sup> M.D.

### Review of: *Essentials of Forensic Imaging*

**REFERENCE:** Levy AD, Harcke HT. *Essentials of forensic imaging*. Boca Raton, FL: CRC Press, 2011, 266 pp.

A legendary misquote or urban legend (there is no evidence that the Director of the U.S. Patent Office in 1899, Charles H. Duell, ever said it) goes like this: "Everything that can be invented, has been invented." Anyone in the field of forensics, in fact, anyone engaged in any technology heavy profession, knows how far from the truth that statement is. In fact, it is extremely difficult just to keep pace with the technological advances in the staples of everyday life, like computers and communication devices, let alone innovations in medical technology. While the actual performance of the autopsy has not changed much since Rokitansky's time, the adjunct procedures and ancillary studies available to better interpret the autopsy findings and assist in forensic death investigation have multiplied. For those of us engaged in the practice of forensic pathology, the tremendous advances in DNA analysis and forensic toxicology come to mind. One area that remained relatively stagnant for decades but most recently has seen an exponential growth is the field of forensic radiographic imaging.

The authors of *Essentials of Forensic Imaging* have provided a much-needed reference for those who have already embraced this new technology and introduce a powerful tool for forensic medicine to those who have not yet had the opportunity to appreciate this area of forensic science. The text is organized in a manner similar to a general forensic pathology reference. The first few chapters introduce both forensic pathology and forensic imaging to the reader. After that, the authors provide chapters dedicated to each of the major types of injuries and circumstances of death routinely encountered in the typical forensic pathology practice. One of the strengths of this approach that is also one of the greatest criticisms is that the authors draw heavily from standard forensic texts such as DiMaio and DiMaio, Spitz, and Dolinak in providing general information on gunshot wounds, drowning deaths, and blunt force injuries just to cite a few topics. For an experienced, practicing forensic pathologist or forensic investigator, this is review material best appreciated in greater detail at the cited sources. However, as *Essentials of Forensic Imaging* is every bit as likely to be a reference for a practicing radiologist who has little or no background in forensic medicine, this approach works well. In order for our radiologist colleagues to be fully engaged partners in death investigations, a basic understanding of concepts such as decomposition and wound mechanics as well as a familiarization with the terminology is necessary.

The experienced forensic professionals are rewarded for persistence as each chapter progresses into the details of imaging

technology as it applies to specific types of injuries or circumstances and how an imaging technique may assist in the interpretation of wound patterns, recovery of projectiles and other evidentiary material, and the interpretation of anatomical findings in a variety of forensic settings. Of particular interest are the chapters on deaths that appear to be drowning or blast related.

The authors reference many of the recent contributions in the medical literature on topics such as virtual autopsy but clearly take the stand that forensic imaging is best categorized as an adjunct to the autopsy, rather than a replacement. They are on fairly solid ground in doing so, as the technology already has proven its value in the authors' experience and as noted in the literature review.

As an atlas, the images are excellent and I am unaware of any other text that offers such exquisite radiographic imaging of injuries. While standard radiographs and other more traditional imaging techniques are discussed and displayed, the emphasis of *Essentials of Forensic Imaging* is clearly on axial and three-dimensional (3D) multidetector computed tomography (MDCT). A definite plus is the juxtaposition of autopsy photographs and MDCT images from the same forensic case. Displaying the autopsy photographs and 3D MDCT images in color is another attribute.

Any text that discusses emerging technology may be handicapped by the possibility that some of the technical data on equipment may be outdated soon after or even prior to publication. Another reasonable critique of this text is that there is limited discussion of postmortem artifacts as well as the initial tendency for radiologists to misinterpret or overinterpret perceived postmortem imaging findings, particularly those of the axial skeleton. Radiologists who are accustomed to interpreting images of living patients require an adjusted frame of reference when applying their skills to forensic imaging. The authors do point out that close collaboration, bidirectional feedback, and a collegial approach between radiologist and pathologist are extremely important.

*Essentials of Forensic Imaging* far surpasses the few previous texts on the topic, both as a reference and as an atlas. As more forensic facilities are modernized and add state-of-the-art imaging as part of the autopsy process, forensic pathologists and forensic investigators will need to be familiar with the strengths and limitations of available technology. There will also be a need for skilled radiologists with experience in interpreting postmortem imaging and the ability to communicate findings with the forensic pathologist. I highly recommend the addition of *Essentials of Forensic Imaging* to the library of every forensic practice, and the text should become a standard reference for radiologists interested in death investigation.

<sup>1</sup>Regional Armed Forces Medical Examiner, Navy Recruiting Command, 5722 Integrity Drive, Millington, TN.