Virtopsy, think before you cut - A review

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Commentary:

Virtopsy is less intrusive radiographic image directed virtual autopsy. Conventional autopsy symbolizes old-style way of postmortem investigations in human beings. However, recent radiographic techniques can complement and might somewhat substitute conventional autopsy. This procedure will aid and be helpful as evidence in forensics and help in court for solving few cases¹. With the changing pattern of investigation, it is important to adapt with these modifications. Newer advancements in the field of diagnosis and imaging will enhance the use and applications of various radiographic techniques in forensics. Virtopsy comes under forensic radiology. It mainly helps in the following:

1. Identification
   - Gender
   - Body length
   - Features (dental, intracorporeal)

2. Documentation
   - Foreign objects (foreign bodies, bullets etc.)
   - Injuries and organ disease (to determine cause and manner of death)
   - Vitality of sustained injuries & wound-age estimation
   - Forensic reconstruction

3. Education
4. Research

Documentation, to examine, and to clarify scientific medical conclusions in living beings and departed people, is the main aim of forensic medicine. This will further imply process in the court for legal calls. To find out the reason and nature of death in departed souls is the main goal of investigations. Some other goals are to assess the vitality of the unrelenting wounds, and to formulate a forensic reestablishment created on the findings².

Different imaging modalities could be used to examine and assess different sites and anatomical structures. It has been observed that even though there is lot of technological advancements in recent years, the application of radiographic imaging modalities is still under progress and needs more future prospective for development. For two dimensional and three dimensional evaluation of autopsy findings Computed Tomography (CT) is the most used or accurate modality to examine conditions like fractures, pathologies like embolism, emphysema and gross tissue injury¹. Soft tissue injury or wounds can be examined well by using MRI- Magnetic Resonance Imaging technique for cases like gunshot in head and neck region, trauma like accidents causing fractures of maxillofacial skeleton etc²,³.

As the technology is advancing it’s important for forensic researchers to understand the few drawbacks of certain imaging modalities used in this field. It has been reported that three dimensional radiographic techniques will enhance the examination and evaluation of finer pathologies or conditions. Hence, Computed Tomography (CT) has been widely recommended for visualization and study of fracture or trauma cases. A number of modalities like Computed Tomography (CT) have been proved to be useful in forensic medicine for documentation of findings. Organ tissue injury, various other organ diseases or conditions can be very well visualized using Magnetic Resonance Imaging (MRI). Yet the differences and comparisons in various findings before and after autopsy or post-mortem results needs to be systematically studied and more research is important in this field. The examination, evaluation, assessment and analysis of findings using radiological modalities like CT and MRI will be useful for researchers in the long run. The evaluation of illness, injury and death in the common inhabitants happens to be the future scope or future applications of this method².

The present poster focuses on use of radiographic imaging in evaluating the possible reason and time of death, thereby supplementing autopsy results. Also, radiological comparison of all the findings before and after autopsy can be carried out radiologically⁴. Hence, it can be concluded that this technique is not dependent on the researcher, its unbiased and non-invasive technique and will help to greater extent in legal cases investigations & can act as invaluable help to forensic pathologist.

Virtopsy is investigator independent, objective and non-invasive technique that has and will make an objective as well as subjective improvement in forensic investigations & can act as a valuable help to forensic pathologist².
References


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