

## **The use of Virtual Autopsy in death investigation**

### **Abstract**

Medical Imaging technology particularly Computed Tomography (CT) is the best non-invasive method to evaluate the body and identify the cause of the death or mechanism of injury in death investigation. In the last few years, postmortem computed tomography (PMCT) has been used as an adjunct or in some cases as a replacement to an invasive autopsy in forensic medicine.

Trauma is one of the leading causes of death worldwide among the younger age group. An autopsy is considered the gold standard for postmortem evaluation regarding the detection of the traumatic injuries and causes of death. Due to decreasing numbers of autopsies and imaging development in radiology, PMCT has become a good reliable alternative or an adjunct to autopsy. PMCT can provide an immediate cause of death and detailed pattern of injuries and can detect injuries overseen during autopsies such as gas formation. In trauma cases sometimes the cause of death is often clear but the injury pattern and the mechanism of injury may be very revealing in the incident investigation.

Also, PMCT angiography (PMCTA) has been increasingly used in the field of medico-legal cases as well, particularly in assessing the vascular system. PMCTA can effectively assist the investigations of suspected fatal medical errors of unexpected deaths. They help to identify the source of haemorrhages, vascular anomalies, misplaced medical devices and evaluation of bleeding complications following complex surgery.

PMCT and PMCTA, especially with 3D surface scanning, represent a non-invasive form of obtaining information that was previously provided exclusively by the more invasive traditional autopsy. As the imaging technology continues to develop and becomes more widely available throughout the world, the number of invasive autopsies will reduce particularly in the middle east and Muslim countries.

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