

Venue: ISIS
21st August 2007
1515-1630 hr

Symposium 2E: Forensic autopsy

S2E-1. MRI/CT assisted autopsy

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Radiography has been assisting the investigation of death since its earliest days. Such assistance, while valuable in selected cases, has been elevated to a higher plane in recent years with the availability of Computer Assisted Tomography and Magnetic Resonance Imaging. Reductions in the cost of the technology has increasingly brought CT scanning within the range of some forensic pathology organizations. Experience is now building on the use of the technology in death investigation, and the proper role of the technology is becoming clearer. Some proponents of the technology have used the term “virtopsy” or “virtual autopsy” to convey a sense of what can be achieved. Such terms can raise unrealistic expectations among families and others, and CT assisted autopsy more accurately conveys the place of CT in the autopsy context. This presentation attempts to set out the framework within which these new and powerful imaging techniques can most productively contribute to death investigation.

S2E-2. The modern approach to the negative autopsy

Ong BB

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In routine Coroner’s work, a small number of cases do not demonstrate a cause of death after an initial post mortem examination. Excluding the group of sudden infant deaths, these cases usually belong to young individuals who die suddenly and unexpectedly. Reasons for failure to elicit a cause of death are manifold. These include cases of poisoning, functional type cause of death or subtle changes which may or may not be present with any special investigations. A systemic and sequential investigation has to be undertaken if the post-mortem examination is initially negative. The circumstances of death should be reviewed with special emphasis to medical history and family history. Causes of death with minimal autopsy findings has to be excluded e.g. epilepsy. It may be important to revisit the scene either retrospectively or by the use of photographs/images. These may give clues to functional types of cause of death e.g. excited delirium, choking (with subsequent clearing of passageway), removal of apparatus in autoerotic asphyxia etc. The post-mortem examination has to be reassessed. Emphasis should be on the examination of the heart especially with regards to the coronary arteries. Subtle changes of cardiomyopathy should be looked for (hypertrophic cardiomyopathy, right ventricular dysplasia, non-compaction cardiomyopathy). The examination of the cardiac conduction system has to be considered especially in sudden unexpected death in the young. Increased sampling for histology of the heart should be considered (e.g. myocarditis may be patchy and may require extensive sampling for diagnosis). A thorough toxicology analysis should be performed. It may be beneficial to discuss with the toxicologist first on possible drugs/toxins to test. Vitreous electrolytes may be helpful. It will be impossible to thoroughly investigate every single case and investigation has to be tailored towards individual cases, e.g. in septic cases - microbiology testing, in anaphylactic shock - serum tryptase analysis, air embolism - radiology. In sudden death suggestive of cardiac arrhythmia, one should

consider molecular analysis although such tests are limited presently. Consider storage of specimen (e.g. blood) should newer molecular tests come to light in the future. Finally, the investigation must not stop at the post-mortem examination. The immediate family should be investigated for presence of cardiac arrhythmias as many of these cases are familial. Finally, if the post-mortem examination and all tests are negative, the cause of death should be given as “Unascertained” with a discussion on possible causes of death.

S2E-3. Death in healthcare and forensic pathology

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Over the last few decades there has been a gradual erosion of the so called hospital or clinical autopsy. As a result the role of the medicolegal autopsy has been transformed from a tool to assist with civil, criminal and social justice issue to a multipurpose public resource that has significant implications for health service planners and providers. This expansion of the role of the medicolegal autopsy presents concerns that autopsies conducted as part of a legal process may not meet the needs of the health care sector. Studies in the UK and Australia have shown that both the medical and legal aspects of the medico-legal death investigation are often inadequate to meet the needs of health care institutions and government health service providers. In Victoria Australia the inadequacies identified in the traditional Coroner’s autopsy in the case of health treatment related deaths were analysed leading to the introduction of a process for combining clinical and pathological investigations. This new process ensures that health care quality issues as well as traditional medico-legal issues were addressed as part of the medical investigation for the Coroner.