VICTORIAN INSTITUTE OF FORENSIC MEDICINE

SUPPLEMENTARY REPORT ON CASE NO. A00043/23
SAMANTHA RAYE

THIS IS AN AMENDED REPORT AS AT 23/06/2023 AND SUPERSEDES ANY PREVIOUS REPORTS

My name is Linda Elizabeth ILES and my professional address is the Victorian Institute of Forensic Medicine, 65 Kavanagh Street, Southbank, Victoria 3006.

I am a registered medical practitioner practising as a specialist in forensic pathology.

My qualifications are Bachelor of Medicine (MB), Bachelor of Medical Science (B Med Sci) and Bachelor of Surgery (BS) with Honours, from the University of Tasmania. I am a Fellow of the Royal College of Pathologists of Australasia by examination in anatomical pathology. I hold the Diploma in Medical Jurisprudence in Pathology from the Society of Apothecaries of London (DMJ (Path)), and am a founding fellow of the Faculty of Post Mortem Imaging of the Royal College of Pathologists of Australasia.

I am employed as a Forensic Pathologist at the Victorian Institute of Forensic Medicine and am an Adjunct Associate Professor in the Department of Forensic Medicine at Monash University.

My practical experience in Forensic Pathology commenced in 2000. I commenced full time professional forensic pathology practice in Victoria in 2005. I was subsequently employed as a Consultant Forensic Pathologist in the Section of Forensic Medicine and Science at the University of Glasgow from March 2007 until January 2009 and received specialised training in Forensic Neuropathology at the University of Edinburgh. I resumed practicing forensic pathology in Victoria in July 2009.

I am head of Forensic Pathology Services at the Victorian Institute of Forensic Medicine and co-ordinate the Institute's neuropathology service.

65 Kavanagh Street
Southbank VIC 3006
Australia
ABN 15 887 032 583

T +61 3 9684 4444
F +61 3 9682 7353
vifm.org

21 June 2023

Thirty-five haematoxylin and eosin stained slides labelled 89/449 RAYE, Samantha (slides 1-35, block designation not supplied) have been provided for review.

HISTOLOGY

Central Nervous System

The section from the **cortex** demonstrates occasional lymphocytes around venular structures in the subarachnoid space. Within the cortical ribbon, scattered red neurons are present within both the upper and deeper layers of the cortex. This change is focal.

The sections containing **thalamus** and **internal capsule**, **lentiform nucleus** and **claustrum** showed no features of definite acute neuronal injury. Capillary congestive changes are noted. The ventricular ependyma is well preserved and normal. The section containing the **third ventricle** demonstrates minor micro-haemorrhages within the mamillary bodies. The ventricular ependyma is normal. The section containing the **amygdalae** demonstrate occasional red neurons. This is not associated with inflammation. Foci of perivascular lymphocytosis are noted. The section containing the **hippocampus** demonstrates features of acute neuronal injury throughout Ammon's horn with patchy neuronal sparing within CA2 and CA3. This is not associated with inflammatory change.

The section from the **cerebellum** demonstrates a light lymphocytic infiltrate within the subarachnoid space. Purkinje cells and neurons within the dentate nucleus are normally preserved. Sections containing the midbrain, medulla and pontomedullary junction demonstrate occasional collections of lymphocytes in the subarachnoid space. There is no significant brainstem parenchymal inflammation.

Cardiovascular System

The sections of myocardium are within normal limits.

Respiratory System

The sections containing lung show acute bronchitis and well developed bronchopneumonia.

Gastrointestinal Tract

Liver: Nonspecific sinusoidal congestive changes only.

Pancreas: Autolysed; no overt pathological changes are evident.

Genitourinary Tract

Kidneys: Morphology relatively well preserved. There is no evidence of ascending infection or overt tubular or glomerular pathology.

Haemopoietic and Lymphoreticular System

The spleen is within normal limits.

Endocrine System

The adrenal and thyroid glands are within normal limits.

Other

Samples of peripheral nerve/subcutaneous tissue are within normal limits (blue inking noted).

COMMENTS

1. Examination demonstrates acute bronchitis and well-developed bronchopneumonia. Neurohistology shows features of patchy acute neuronal injury in the single section of separate cortex, scatted red neurons in the amygdala and established acute neuronal injury throughout the hippocampus and in the adjacent collateral sulcus. Of note, there is sparing of Purkinje cells within the cerebellum and the dentate nucleus. There is a background of a patchy light lymphocytic infiltrate within the subarachnoid space and foci of perivascular lymphocytosis without overt parenchymal inflammation.

2. The presence of a lymphocytic infiltrate in the subarachnoid space and perivascular lymphocytosis may indicate a mild aseptic (viral) meningitis. This may or may not be symptomatic. This is not associated with encephalitic change. Low level lymphocytic inflammation within the meninges and surrounding intracerebral vessels without parenchymal inflammation is seen in autopsy material from time to time without preceding symptomology and its significance is uncertain. There is however evidence of significant acute neuronal injury within the hippocampus and patchy acute neuronal injury within the single section of cortex that has been sampled.

3. The combination of these findings suggests a prolonged period of decreased consciousness prior to death, with features of early hypoxic ischaemic or metabolic neuronal injury. The pattern of acute neuronal injury is nonspecific but *may* be seen in hypoglycaemic brain injury. It is unlikely in my view that the light chronic inflammation in the subarachnoid space is a primary operating factor in Ms Raye's death.

4. In summary, whilst the findings at autopsy are nonspecific, they could be accounted for by insulin toxicity precipitating hypoglycaemia and consequent hypoglycaemic brain injury with a prolonged agonal period with the development of acute bronchopneumonia. Similarly, intoxication with a central nervous system depressing agent resulting in a prolonged period of decreased consciousness and hypotension prior to death may give similar appearances. Given the extent of toxicological analysis initially performed, I cannot differentiate between these two propositions based on the autopsy findings alone.

I, Dr Linda Iles, acknowledge for the purpose of Rule 31.23 of the Uniform Civil Procedure Rules 2005 that I have read the Expert Witness Code of Conduct in Schedule 7 to the said rules and agree to be bound by it.

I hereby acknowledge that this statement is true and correct and I make it in the belief that a person making a false statement in the circumstances is liable to penalties of perjury.

Date Signed: 23 June 2023

Assoc. Prof. Linda Iles
B Med Sci, MB BS (Hons), FRCPA, DMJ (Path), FFPMI (RCPA)
Head of Forensic Pathology
Victorian Institute of Forensic Medicine