CITATION: *Inquest into the death of Ralph William Lynch* [2016] NTLC 026

TITLE OF COURT:	Coroners Court
JURISDICTION:	Darwin
FILE NO(s):	D0083/2015
DELIVERED ON:	21 October 2016
DELIVERED AT:	Darwin
HEARING DATE(s):	10 October 2016
FINDING OF:	Judge Greg Cavanagh
CATCHWORDS:	**Failure of radiologists to recognise intracranial pressure build-up on CT scans, failure of doctors to recognise symptoms of intracranial pressure**

REPRESENTATION:

Counsel Assisting:	Kelvin Currie
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Judgment category classification:	B
Judgement ID number:	[2016] NTLC 026
Number of paragraphs:	51
Number of pages:	12

IN THE CORONERS COURT
AT DARWIN IN THE NORTHERN
TERRITORY OF AUSTRALIA

No. D0083/2015

In the matter of an Inquest into the death of

RALPH WILLIAM LYNCH
ON 18 AUGUST 2014
AT ROYAL DARWIN HOSPITAL

FINDINGS

Judge Greg Cavanagh

Introduction

1. Ralph William Lynch (the deceased) was born 2 December 1946 in Newcastle, New South Wales to Ruth and William Lynch.

2. In 1975 he met Serena in Sydney. They married. They had four daughters.

3. Mr Lynch and his wife worked together in hotels and later in supermarkets. In 2012 they came to the Northern Territory and obtained a two year contract with the Arnhem Land Progress Aboriginal Corporation (ALPA) as a managing couple for remote community stores. They worked in Gapuwiyak, Palumpa and Kalkarindji.

4. Mr Lynch had been seeing a cardiologist for problems with his heart rhythm since 2008. The main problem he suffered from was intermittent atrial fibrillation. In January, February and March of 2013 he was Careflighted out of Palumpa suffering from cardiac problems.

5. One of the medications he was taking was Warfarin. He underwent regular INR (International Normalised Ratio) checks at the local Health Clinic to gauge his clotting factors.

6. In February 2014 he was Careflighted out of Kalkarindji again suffering chest pains.

7. On 1 August 2014 Mr Lynch saw the Cardiologist, Dr Ilton at the Kalkarindji Clinic. He complained of having headaches every day for the last two weeks. Dr Ilton arranged for a CT scan to be conducted at Katherine.

8. Mr Lynch had the scan on 6 August 2014 at a private provider, Katherine Diagnostic Imaging. The results of the scan were said to be unremarkable. Mr Lynch returned to Kalkarindji that same day.

9. The following day, 7 August 2014 he again presented at the Health Clinic with a headache. He explained that the headache came on about two hours after taking his medication. It was thought that maybe it related to his angina and hypertension medication. It was suggested he stop taking that medication for four days after which he would have a further review.

10. On Saturday 9 August 2014 Mrs Lynch contacted the clinic. She said the pain was worse and it now hurt to move his neck. He was assessed: his Glasgow Coma Score (GCS) was 15 (perfect score for consciousness); neurological observations were unremarkable. The District Medical Officer prescribed medication for the pain and organised for a transfer to the Royal Darwin Hospital on Monday morning, 11 August 2014.

11. At 7.30pm that same day Mr Lynch once more attended the Clinic. He had headaches on movement. Neurological observations were again

unremarkable. The District Medical Officer (DMO) prescribed more medication for the pain.

12. At 9.30am on Sunday (10 August 2014) the DMO asked that the Clinic assess how Mr Lynch had fared overnight and to withhold his Warfarin. He was observed throughout the morning.

13. At midday the DMO called the Emergency Department at the Royal Darwin Hospital. He said they were struggling with pain management. The only medication that seemed to be providing relief was the opiate, Endone. The DMO sought that Mr Lynch be airlifted out that day. However, he was told that was not possible and advice was given to increase the dosage of Endone. Mr Lynch was sent home with a plan of further review at 6.00pm that afternoon.

14. When reviewed at his home at 6.15pm his GCS was still 15. The neurological observations remained unremarkable. However he said the pain was 10 out of 10. He was provided further medication for pain. He was provided further medication at 10.30pm that night.

15. At 5.30am the following morning (11 August 2014) Mr Lynch telephoned the clinic saying that he had taken medication for pain at 3.00am but that his pain was 100 out of 10 and he had vomited twice.

16. At 8.42am the doctor asked for a high acuity flight. It was decided by the Department that he would be upgraded from a normal low acuity charter flight to a low acuity Careflight. The difference was that a nurse would be on board.

17. Prednisone was added to his medication. That appeared to have some effect and permitted him to sleep. He was still sleeping at 11.30am and reported to be lightly snoring. At midday the pain was returning and he was given Brufen. The pain subsided to 5-6 out of 10. He was sleeping once again at 1.00 pm. At 3.10pm he was reported to be awake

and his pain was 5-6 out of 10. Careflight left Kalkarindji, with Mr Lynch on board at 4.20pm. He arrived at the Emergency Department at 6.15pm.

18. He was seen by the doctor at 8.52pm. He was fully conscious with a Glasgow Coma Score of 15. He was recorded amongst other things as having a constant, throbbing and pulsating headache. He said the pain was 10 out of 10 and it felt like his head was in a press. He was mildly photophobic, had neck stiffness, walked with an unsteady gait and swayed to the right side. He was referred to the medical registrar.

19. The medical registrar reviewed him in the Emergency Department at 2.00am (12 August 2014). The notes of the consultation are extensive and clear. The medical registrar was of the opinion that there were some migraine features and some intracranial pressure features. The registrar also considered the possibilities of a space occupying lesion and a cerebral venous sinus thrombosis. He indicated that they needed to be ruled out. He also questioned whether the issue might be normal pressure hydrocephalus. Mr Lynch was admitted under the Medical team consultant Dr Rebecca Pearson. Warfarin and Clexane were withheld.

20. Dr Rebecca Pearson saw Mr Lynch in the Emergency Department on the Ward Round that morning at about 9.05am. Her observations of him were that his headache was worsening and was accompanied by confusion that morning. He was oriented to place but not time. She requested a CT scan and MRI/MRA brain scan and asked that his INR be checked and if it was equal to or greater than 1.4 that he be given vitamin K. That was to prepare for a possible lumber puncture. The provisional diagnosis was encephalitis.

21. At 10.30am his GCS had dropped to 14 out of 15 and at 10.41am the nurses commenced hourly neurological observations. The CT scan was

performed at midday. It showed a subarachnoid haemorrhage and an acute on chronic subdural haemorrhage.

22. At 3.45pm Dr Pearson requested a CT angiogram to exclude berry aneurysm and contacted General Surgery and ICU seeking surgical and ICU review. Mr Lynch was admitted to ICU at 6.15pm. At that stage it was recognised that when reading the CT scan of 6 August 2014 (performed in Katherine) with the CT scan on 12 August 2014 that the previous scan had in fact shown a subdural haematoma.

23. In the period leading up to 8.10pm Mr Lynch was reviewed by the surgeon Mr Read. Mr Read decided it best to treat Mr Lynch conservatively. The plan was that if his GCS dropped below 13 out of 15 then another CT scan should be done. If that showed an enlargement of the subdural haematoma with midline shift then it was likely he would operate.

24. The next morning the GCS of Mr Lynch dropped rapidly to 8 out of 15 and by the time he was taken to the theatre it was too late. The insult to the brain had already occurred. He did not regain consciousness.

25. After the operation he developed fevers and then multi-organ failure. His family were aware that he would not have liked to be kept alive needing intensive organ support. That was removed and he died at 7.30pm 18 August 2014.

26. It was a tragic and wholly avoidable death.

Misinterpretation of condition

27. At that stage it was thought that he had died due to “subarachnoid haemorrhage and subdural haematoma due to warfarin therapy for chronic atrial fibrillation”.

28. The Royal Darwin Hospital reported the death but the Coroner's Office at the time did not think it to be a reportable death.

29. However, in April of 2015 Mrs Lynch wrote to the Coroner. She had obtained a copy of the medical notes and found in them a notation that the reading of the CT scan on 6 August 2014 at Katherine was incorrect. A coronial investigation was commenced.

First CT scan

30. During the course of the coronial investigation a report was obtained from Professor Brian Owler. He reviewed the CT scan of 6 August 2014. He stated:

> "There are thin collections over the frontal lobes bilaterally. These are of a mixed isodense / hypodense appearance. The appearance is more prominent on the right compared to the left. These changes are subtle but may represent small areas of chronic subdural haematoma.
>
> I could not see evidence of subarachnoid haemorrhage or other intracranial pathology on that scan.
>
> Assuming the chronic subdural haematomas were recognised, I would expect that the warfarin would immediately be ceased and its effects reversed.
>
> At the time of 6th August 2014, the headaches were not severe and the collections very small. Cessation of warfarin and a repeat CT scan in 5 days may have been a reasonable course of action.
>
> If the patient had deteriorated clinically, with symptoms of raised intracranial pressure, the patient should be transferred to a tertiary centre for definitive diagnosis and treatment."

31. However the subdural haematomas were not recognised and the warfarin was not ceased until 10 August 2014.

Second CT scan

32. The report on the second CT scan stated that there was "subarachnoid haemorrhage and acute on chronic subdural haemorrhage left frontal region and cerebral falx region". Professor Owler was of the opinion that there was no subarachnoid haemorrhage. In his opinion it was a 'pseudo subarachnoid haemorrhage' due to the venous congestion in the setting of raised intracranial pressure.

33. He said that the CT scan performed at midday on 12 August 2014 in fact indicated:

> "bilateral chronic subdural haematomas. There is effacement of the third ventricle and basal cisterns. The intracranial pressure is clearly raised."

34. Professor Owler was of the opinion that Mr Lynch should have undergone bilateral burrhole drainage of the chronic subdural haematomas on 12 August 2014. If that had happened, he said, the clinical situation was still retrievable.

Misleading CT scan reports

35. It was clear from the evidence that the relatively late retrieval of Mr Lynch from Kalkarindji was primarily due to reliance by the medical practitioners on the radiologists report of the CT scan performed on 6 August 2014.

36. That report stated in part: "No acute intra or extra-axial mass, collection or haemorrhage is seen". The report concluded that there was, "No acute intracranial pathology".

37. The radiologist report relating to the CT scan at midday on 12 August 2014 diagnosed a subarachnoid haemorrhage when there was none. It showed the appearance of one due to intracranial pressure. There was no differential diagnosis or suggestion of the subarachnoid

haemorrhage potentially being a pseudo subarachnoid haemorrhage due to intracranial pressure from the subdural haematomas.

38. That misled the medical practitioners into believing that what they were dealing with was a subarachnoid haemorrhage rather than intracranial pressure.

39. Dr Ravi Padmanabhan, likely the Consultant with oversight of the reporting of the CT scan at midday on 12 August 2014 was out of Australia at the time of the inquest, but he provided information through his lawyer:

> "The initial CT scan on 12 August 2014 has demonstrated the presence of acute on chronic bilateral subdural haematomas, the presence of high-density material in the subarachnoid spaces around the brainstem and in the Sylvian fissures and mass effect.
>
> Whilst the presence of the high-density may be due to effacement of the cisterns and sulci from mass effect from the subdurals, acute subarachnoid haemorrhage can have a similar appearance."

40. However the CT report did not provide information to that effect. That is, it did not provide information that the diagnosed subarachnoid haemorrhage might be high density material due to intracranial pressure.

41. Dr David Croser, Radiologist and Clinical Director of Darwin Private Hospital's Radiology Department gave evidence that although a rare condition, pseudo subarachnoid haemorrhage is a teaching point, it is taught as a "trap". He indicated that there should have been a differential diagnosis indicating the possibility of the appearance of the subarachnoid haemorrhage being due to intracranial pressure.

Classic presentation of intracranial pressure

42. The Department of Health accepted the opinion of Professor Owler and obtained a report from Neurosurgeon, Dr Nick Vrodos as to what changes to procedures might be made to ensure such presentations were not misinterpreted in the future.

43. Doctor Vrodos pointed out that the presentation of Mr Lynch was classic of intracranial pressure. He wrote:

> "… there are multiple nursing and medical entries documenting increasing headache, nausea, loss of appetite; documented variability in conscious state with GCS as low as 13 and perhaps even 12 and persistent hypertension for which he required multiple doses of Hydralazine.
>
> There is no question that this clinical syndrome is classical of raised intracranial pressure – surgical pathology was identified by midday Tuesday 12 August 2014 …
>
> I believe this was an eminently preventable death …"

44. Dr Lewis Campbell an Intensive Care Consultant gave evidence that Mr Lynch was also suffering bradycardic (slower than normal heart rate). He said that is also often a sign of intracranial pressure.

45. However the classic symptoms were not recognised for what they were. Mr Read said he was "blindsided". He put too much emphasis on the presumed subarachnoid haemorrhage. At the time he was not aware of the potential for pseudo subarachnoid haematomas in the setting of raised intracranial pressure. Consequently he did not think it appropriate to contact the neurosurgical team in Adelaide.

46. He expressed his deep regret to the family of Mr Lynch and said that since his death he has changed his practice. He said, "I would say that my threshold for making contact with a neurological consultant is now

much lower, particularly in respect to patients admitted with head injury to ICU".

Changes by the Hospital

47. The Director Medical Services at the Top End Health Service, Dr Charles Pain gave evidence as to changes made to ensure the failures in diagnosis and treatment were not repeated.

48. The primary change was said to be:

> "Early referral for specialist opinion: because this may improve the chance of identifying those patients who have an intracerebral haemorrhage, particularly when imaging investigations and clinical signs and symptoms do not align"

49. Dr Pain also indicated that it was understood that access to neurosurgery is recognised to be a priority in future developments at the Royal Darwin Hospital. Since May 2016 the Hospital has been setting up a neurosurgical service and hopes to attract a neurosurgeon. I was told that $8.3 million is to be invested in 2016/17 and $9.3 million ongoing allocation.

Findings

50. Pursuant to section 34 of the *Coroners Act* ("the Act"), I am required to make the following findings:

> "(1) A coroner investigating –
>
> (a) a death shall, if possible, find –
>
> (i) the identity of the deceased person;
>
> (ii) the time and place of death;
>
> (iii) the cause of death;
>
> (iv) the particulars needed to register the death under the *Births, Deaths and Marriages Registration Act*;

51. I find as follows:

(i) The identity of the deceased was Ralph William Lynch born 2 December 1946 in Newcastle, New South Wales.

(ii) The time of death was 7.30pm on 18 August 2014. The place of death was the Royal Darwin Hospital.

(iii) The cause of death was raised intracranial pressure due to bilateral chronic subdural haematomas.

(iv) The particulars required to register the death:

1. The deceased was Ralph William Lynch.

2. The deceased was of Caucasian descent.

3. The deceased was employed as a Store Manager at the time of his death.

4. The death was reported to the coroner by the Royal Darwin Hospital.

5. The cause of death was confirmed by Professor Brian Owler.

6. The deceased's mother was Ruth Lynch and the deceased's father was William Lynch.

Dated this 21st day of October 2016

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JUDGE GREG CAVANAGH
TERRITORY CORONER