MAGISTRATES COURT of TASMANIA

CORONIAL DIVISION

Record of Investigation into Death (without inquest)

Coroners Act 1995
Coroners Rules 2006
Rule 11

I, Rod Chandler, Coroner, having investigated the death of Maureen Ann Rogers

Find:

(a) The identity of the deceased is Maureen Ann ROGERS ('Mrs Rogers').

(b) Mrs Rogers died on 3 November 2012 at Unit 2/6 Kensington Gardens in Norwood.

(c) Mrs Rogers was born at Colchester in England on 24 May 1941 and was aged 71 years.

(d) The cause of Mrs Rogers' death was a cardiac tamponade due to an ascending aortic dissection.

Circumstances Surrounding the Death:

Mrs Rogers was a widow and a retired Probation Officer and Teacher's Aide. She resided alone at Unit 2/6 Kensington Gardens in Norwood. Her past medical history included osteoarthritis, hip replacement, spinal stenosis and sciatica. She also suffered from macular degeneration.

In the early hours of 2 November 2012 Mrs Rogers developed a sudden onset of epigastric or stomach pain. An ambulance was called and she was assessed by paramedics. They were concerned that Mrs Rogers had an acute coronary syndrome. Pain relief required 8mg of intravenous morphine. Mrs Rogers was transported to the Launceston General Hospital ('the LGH') and presented to the Emergency Department. ('the ED').

Mrs Rogers was seen by Dr Kannan Ramanathan at 8.19am. He recorded pain in the epigastric region with no chest pain and no radiation of the pain. It was described as burning in nature. Mrs Rogers indicated that it had been present for a month. Clinical examination noted epigastric tenderness. A diagnosis of gastritis was made. The treatment plan was for a repeat ECG, repeat troponin testing and administration of pain relief. (In total Mrs Rogers was administered 20mg of morphine whilst in the ED). Because of differential diagnoses of duodenal perforation and thoracic aortic dissection a CT scan of the abdomen was also ordered. The clinical information provided to the radiologist was, *"Suspected duodenal perforation/dissection of aorta."*

A non-contrast CT scan of Mrs Rogers' chest and abdominal aorta was done at 12.08pm. (It was non-contrast because Mrs Rogers was allergic to iodine). The radiologist was Dr Anil Gupta.

His report noted: *"No acute abnormality seen in the chest and abdomen in this non-contrast examination."*

At 3.00pm Mrs Rogers was medically reviewed. At this time her pain was described as central stabbing chest pain (severity 8/10, radiating to the back and also to the epigastrium but *"predominantly the pain was in the chest."*) It was relieved by leaning forward. Her vital signs were recorded as stable. An ejection systolic murmur was noted in the aortic area. The ECG changes were sighted by Dr Thomas David. The management plan was for no acute cardiac intervention. The troponin test was repeated and the value recorded as low.

At 3.20pm the nursing staff recorded Mrs Rogers' pain in these terms; *"9/10 pain in epigastric, retrosternal, mid-scapular more left sided."* However, by 5.30pm the pain in her chest had subsided but there remained mild pain in the posterior thorax scapular region. Dr Ramanathan discussed the level of Mrs Rogers' pain and the test results with her and her son, Ian. It was recommended that she go home. She was advised to return to the hospital if the pain persisted or increased.

Mrs Rogers was taken home by her son. He left her unit at about 6.30pm. At about 8.15am the following day a neighbour, Ms Lola Cortnage, called on Mrs Rogers to check on her. She called out to her but did not get a response. She believed that she may have been asleep. She then telephoned Mr Ian Rogers and suggested that he return to his mother's unit to check on her. At about 8.30am Mr Rogers arrived at the unit. He found his mother in her bed. She appeared deceased. An ambulance was called and promptly attended. Paramedics examined Mrs Rogers and were satisfied that she had passed away. Officers of Tasmania Police then attended and undertook a brief inspection. They were satisfied that there was no evidence of any suspicious circumstances.

Investigation:

State Forensic Pathologist, Dr Christopher Lawrence, carried out a post mortem examination. His report includes this comment; "Autopsy revealed a cardiac tamponade, as well as dissection of the ascending aorta, with a tear within the tunica intima, located immediately proximal to the origin of the right subclavian artery. The dissection extended distally into the aortic arch and descending aorta and in a retrograde direction towards the heart and around the proximal coronary arteries. A second tear within the tunica intima was present within the descending thoracic aorta. There are no aortic aneurysms."

In Dr Lawrence's opinion the cause of Mrs Rogers' death was a cardiac tamponade due to an ascending aortic dissection. I accept this opinion.

The investigation of the circumstances of Mrs Rogers' death has also included the following:

1. The consideration of affidavits provided by Dr Kannan Ramanathan, Dr Thomas David and jointly by Dr Arvind Madras and Dr Ramanathan Parameswaran.

2. An examination of Mrs Rogers' hospital records.

3. Consideration of a report provided by Dr A J Bell in his capacity as Medical Consultant and Adviser to the Coroner.

4. Consideration of a letter provided by Messrs Murdoch Clarke, solicitors, and written on behalf of Radiologist, Dr Anil Gupta. Enclosures with that letter included reports

from Dr Gupta and radiologist, Dr Darren Ault. (The report from Dr Ault had been sought by the Australian Health Practitioners Regulation Agency (AHPRA))

5. Consideration of a report provided by Dr Michael Carr, Director of Medical Imaging at the Royal Hobart Hospital.

6. Consideration of a second letter provided by Messrs Murdoch Clarke and including a further report provided by Dr Gupta.

7. Consideration of a report provided by radiologist Dr Philippa Taplin. This report had been commissioned by Dr Gupta's solicitors.

In my previous findings I commented that an affidavit had been sought from Dr Gupta but had not been received. Dr Gupta's solicitors have since provided material which satisfies me that the LGH administration failed to inform Dr Gupta of multiple requests made by the Coroner's Office for Dr Gupta to provide an affidavit. It follows that any inference that Dr Gupta has not co-operated with the coronial investigation should not be made.

It is evident that this investigation has brought to light multiple opinions upon the interpretation of Mrs Rogers' non-contrast CT scan. It is helpful for me to set out the salient points from each of them.

I begin with Dr Gupta. The representations made on his behalf coupled with the contents of his own reports indicate these matters:

- Dr Gupta acknowledges that a review of the imaging does reveal a displacement of mural calcification which he describes as a subtle indirect sign of intramural haematoma and which raises the suspicion of dissection.

- That Dr Gupta, whilst aware that the displacement of mural calcification was a sign of dissection, had not previously seen this sign in practice.

- That Dr Gupta accepts that he failed to recognise the displacement of the mural calcification and as a result a dissecting aorta was not diagnosed and recorded in his original report.

- That Dr Gupta very much regrets his error and acknowledges the distress it has caused Mrs Rogers' family and friends.

In Dr Ault's view the images demonstrate an "abnormal separation of the calcified intima in the aortic arch extending into the descending thoracic and abdominal aorta indicative of an aortic dissection." He describes the findings as "subtle" but says they should have been appreciated by Dr Gupta.

When providing his report Dr Carr had access to the reports of both Drs Gupta and Ault. He also was able to view the original images of Mrs Rogers' CT scan. He makes these comments:

- A diagnosis of dissection of the aorta was obvious from the CT scan and should have been made by Dr Gupta.

- The error made by Dr Gupta was inexplicable given that he was specifically requested by the clinician to exclude dissection of the aorta as the diagnosis.

- That Dr Ault considered the diagnosis of a dissection to be "straightforward."

- In his report Dr Ault used the word "subtle" in its usual radiological sense to mean that the signs of a dissection on the scan were clearly visible if assessed carefully. It was wrong to imply that the word "subtle" was intended to mean that the signs of a dissection were difficult to see. They were not.

In Dr Taplin's opinion an aortic dissection is visible on the CT scan. She says, "There is a hyperdense crescent in the ascending aorta, clearly visible on these non-contrast scans. This is a well recognised sign of dissection. There is also stranding and hyperdensity of the mediastinal fat, indicating leak/rupture." Dr Taplin also describes the findings as "subtle" but says a radiologist with experience in an acute hospital emergency department should not have missed the diagnosis.

In his report Dr Bell has made the following comments which I consider particularly pertinent:

- The initial assessment undertaken by Dr Kannan Ramanathan was appropriate and thorough. However, the history of sudden onset pain in the epigastric region requiring 8mg of morphine intravenously for relief is more suggestive of a cardiovascular event than it is of gastritis.

- Mrs Rogers was taking a proton pump inhibitor for treatment of her reflux. This is a class of drugs designed to reduce stomach acids. It is those acids which cause gastritis. This makes the diagnosis of gastritis unlikely in Mrs Rogers' case and this is particularly so given that her level of pain required management by administering a moderately high dose of morphine. (In the ED Mrs Rogers was administered 20mg of morphine. This was in addition to the 8mg given by the ambulance officers).

- It would ordinarily be difficult to detect a thoracic aortic dissection by a CT scan done without intravenous contrast. However, in this instance the aortic dissection is clearly visible due to the displaced calcification within the intima of the aortic wall. Also, the colour differentiation between the centre of the aorta to the outer rim area of the aorta suggests dissection. The dissection should have been recognised by Dr Gupta and reported.

- Dr Gupta should have advised the medical staff that a non-contrast CT scan was not an acceptable means of eliminating aortic dissection.

- By the time of her 3.00pm review Mrs Rogers' presentation had changed. She had severe stabbing chest pain radiating to the back and relieved by leaning forward. A systolic ejection murmur was noted in the aortic area. Right coronary artery flow difficulties were discernible on ECG. These elements were all suggestive of an aortic dissection.

- It was unsound to discharge Mrs Rogers home with a diagnosis of gastritis which had necessitated management with morphine, particularly as she had been taking a proton pump inhibitor for her reflux.

- Survival by a person suffering an aortic dissection is rare unless treated. Treatment requires an immediate reduction in blood pressure with surgery involving replacement of the aortic root and the aortic heart valve. This is known as the Bentall's procedure. It would have necessitated Mrs Rogers' transfer to the Royal Hobart Hospital.

- The Bentall's procedure is major surgery. There is a 40 to 50% mortality rate for persons of Mrs Rogers' age. There is also a 10% risk of stroke or other vascular complications. Survivors of the procedure usually make a good recovery.

Findings, Comments and Recommendations:

It is clear upon the evidence and I so find, that at the time of Mrs Rogers' presentation to the LGH she was suffering from an aortic dissection which required immediate surgery. Although that surgery involved substantial risk the failure of the LGH medical staff to properly diagnose Mrs Rogers and recommend the necessary treatment denied her all opportunity of a full recovery and an extended life.

I have set out in detail the evidence upon the CT scan. It leads me to make these points:

- The scan showed signs of an aortic dissection which should have been appreciated by Dr Gupta and the diagnosis made.

- It was an error on Dr Gupta's part to record *'no acute abnormality'* on his report of the CT scan. Dr Gupta now acknowledges this error. The report should have included the diagnosis of an aortic dissection.

- There are differing opinions on whether the signs of an aortic dissection visible on the scan should be properly described as 'subtle.' This debate is, to my mind, largely irrelevant. This is so because I am satisfied that the signs, however described, were sufficiently clear on the scan to be recognised by an experienced hospital radiologist such as Dr Gupta.

There were, as Dr Bell has pointed out, aspects of Mrs Rogers' clinical picture consistent with a diagnosis of an aortic dissection, more so than gastritis. However, it is apparent, and I so find, that the medical staff were misled by Dr Gupta's CT scan. It is a matter of concern that Dr Gupta did not make the diagnosis of aortic dissection and report upon it. It is also of concern that Dr Gupta did not include in his report a warning to the treating clinicians that the absence of contrast made it difficult to detect an aortic dissection. Had this warning been conveyed to them it is possible that the clinicians may have placed less reliance upon the scan results and more reliance on those other signs consistent with a diagnosis of an aortic dissection.

The circumstances surrounding Mrs Rogers' unfortunate death lead me to **recommend** that the LGH undertake a review of the competencies of its radiological staff with a view to putting in place, if deemed necessary, processes for their updated training and the proper supervision or monitoring of their work.

I have decided not to hold a public inquest into this death because my investigation has sufficiently disclosed the identity of the deceased, the date, place, cause of death, relevant circumstances concerning how her death occurred and the particulars to register the death under the *Births, Deaths & Marriages Registration Act 1999*. I do not consider that the holding of a public inquest would elicit any significant information further to that already

disclosed by the investigation conducted by me. The circumstances of the death do not require me to make any further comments or other recommendations.

I conclude this matter by conveying my sincere condolences to Mrs Rogers' family.

Dated: 22 April 2015 at Hobart in the state of Tasmania.

Rod Chandler
CORONER

Addendum

On 3 December 2014 Coroner Olivia McTaggart, as Delegate of the Chief Magistrate for the State of Tasmania, directed that the investigation by Coroner Rod Chandler into the death of Maureen Ann Rogers be re-opened. That direction was given following information being received indicating that radiologist, Dr Anil Gupta had not been given an opportunity (due to the failings of the management of the Launceston General Hospital) to provide the Coroner with information which he considered relevant to the circumstances of Mrs Rogers' death. The above findings of Coroner Chandler replace his previous findings made 28 April 2014, and have regard to information provided by Dr Gupta and further investigations made.