CORONERS COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of Charles Welsford SMITHERS
Hearing dates:	23 August 2017
Date of findings:	15th September 2017
Place of findings:	State Coroners Court, Glebe
Findings of:	**Magistrate Teresa O'Sullivan, Deputy State Coroner**
Catchwords:	CORONIAL LAW – Cause and manner of death Sudden cardiac death
File number:	2014/315485
Representation:	**Sergeant Stephen Kelly, Coronial Advocate**
Findings:	**Identity of deceased**: The deceased person was Charles Welsford Smithers **Date of death**: He died on 26 October 2014 **Place of death**: He died at 12/104 Crown Road, Queenscliff 2096. **Cause of death:** 1. Presumed Cardiac Arrhythmia, 2. Congenital coronary anomaly (absent right coronary artery). **Manner of death:** Natural causes

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REASONS FOR DECISION

Introduction:

This inquest concerns the death of Charles Smithers. Charles died on 26 October 2014. The Inquest was held for the limited purpose of trying to identify the medical cause of Charles' untimely death. The Coronial brief of evidence was tendered as were additional reports provided by Professor Chris Semsarian *(Cardiologist)* and Dr Rebecca Irvine *(Forensic Pathologist)* who both gave oral evidence in the proceedings.

The Inquest:

Section 81 (1) of the Coroners Act 2009 (NSW) requires that when an inquest is held, the coroner must record in writing his or her findings. These are my reasons and findings in relation to the death of Charles Smithers.

The evidence:

Background:

Charles was born to David and Isobel Smithers at St Margaret's Hospital, Sydney on 19 February 1982. Charles has a sister, Emily and three older brothers, Thomas, Edward and Henry.

Charles, or Charlie as he is known to his family, attended Knox Grammar School and graduated in 1999 with a TER of 95.4. After school he attended University in Canberra (the ANU) and Sydney (UNSW) where he was awarded a degree in Commerce majoring in Computer Science in 2004. After some casual jobs he joined Altis Consulting in 2005 where he was employed until his death in 2014.

Charlie was a quiet, kind and unassuming person who left an indelible mark on the lives of those he knew. He was an active person who regularly ran in the 14km City to Surf Fun Run. He was an avid surf life saver and rowed for the Palm Beach surf club regularly where he also competed.

His family was very gracious in providing a copy of the Eulogy read by his father at Charlie's funeral. This provided a wonderful insight into his life and what an important and special person he was to all who knew him. It was very clear from reading the eulogy that Charlie possessed exemplary characteristics. He had a strong commitment to justice, self improvement, and a wonderful sense of humour. He had a lovely temperament and strong capacity for love.

At the time of his death, Charlie had been in a committed relationship with his girlfriend of 16 months, Pamela Reidenbach. They first commenced their relationship in June 2013 and were in the process of moving in together just prior to his untimely death.

Circumstances surrounding the death:

At about 4pm on Saturday 25 October 2014 Charlie and Pamela attended Pamela's 30th birthday party at Manly Wharf for a private cruise with about 20 of their family and friends.

According to those who interacted with Charlie, he appeared cheery, of good health and there was nothing unusual about his behaviour. The cruise returned to Manly at around 8.00pm and Pamela and Charlie continued on to the Manly Wharf Hotel.
They returned to Pamela's unit at about 12.30am where they went straight to bed. According to Pamela, Charlie appeared to be fine and was not complaining of any pain at this time.

At about 4.00am on the same morning, Pamela was awoken by Charlie coughing followed by some wheezing and breathing which initially appeared to her to be abnormal. However, he settled down shortly after and went back to sleep.

At about 7.45am that morning, Pamela awoke as she could feel the weight of Charlie leaning on her. She tried to wake him up but when she placed her hand on his shoulder, he was cold to touch and his face was blue.

When she realised that he was not breathing, she immediately called triple 0. The call was made at 7.48am. She was advised to commence CPR however when paramedics arrived at 7.55am they were unable to find any signs of life. A short time later, police were contacted as Charlie's death was reportable pursuant to s.6 of the Coroners Act (the Act).

Constable Samantha O'Leary from Dee Why Police attended Pamela's address and observed Charlie lying on the mattress in the bedroom. She did not see any visible injuries at the time. Pamela spoke to Constable O'Leary about how Charlie had been such a healthy person who didn't smoke or take drugs. She did recall however a couple of minor injuries he had sustained over the previous 12 months which did not appear significant at the time.

In January 2014 he developed a sore left shoulder that had recently started to cause pain again. Charlie thought it was probably caused by surf boat rowing. In March 2014, Charlie complained of chest pain however he didn't go to the Doctor to have this investigated further. She also recalled on Monday 20 October 2014 her father tapping Charlie on the belly at her parent's house and he appeared to react as if he was in pain but again he did not say anything further and the incident didn't appear of any consequence at the time.

Post Mortem findings:

A post mortem was undertaken by Dr Rebecca Irvine on 27 October 2014. [1]Dr Irvine noted he had no reported significant past medical history, had no regular GP, and took no regular medication.

At autopsy she made the following findings:

- There was significant congestion of the lungs, with frank pulmonary oedema fluid within the central airways.

- There was a congenital absence of the right coronary artery and possible pallor within the posterior septum at the level of the mid ventricles.

[1] Exhibit 1, Tab 1

- There was no definite fatal or acute gross process that would explain his sudden and unexpected demise.

- Coronary artery anomalies are usually considered a cause of death by the exclusion of other factors that may have caused or contributed to death as in this case.

- Congenital coronary artery anomalies are not uncommon *(perhaps 0.1 to 1.2% of the population)* and reported to be a cause of death in up to 4% of athletes.

After a detailed examination she determined the cause of death as being Congenital Coronary Artery Anomaly *(absence of right coronary artery).*

Issues raised by family:

In 2017 Charlie's father wrote to the court requesting a review in relation to the recorded cause of death.

This request arose in part from a report provided to him by Professor Chris Semsarian and Professor Phillip Harris from the Department of Cardiology at Royal Prince Alfred Hospital at Camperdown.[2]

In the report they suggested that the cause of death would more accurately be recorded as either *'unascertained'* or *'unexplained'* as they did not believe Charlie's death was a result of the absence coronary anomaly. The reasons put forward were the following:

- While the autopsy showed absence of a right coronary artery, the left coronary circulation was greater in size than normal, and fully covered the territory of the right coronary artery that was absent. Furthermore there were no features of myocardial ischaemia or infarction at autopsy, indicating no myocardial damage.

[2] Exhibit 1, Tab 4

- The circumstances of his death – he was at rest in bed. In their opinion coronary anomalies usually cause problems with exertion when myocardial demand is increased.

- While coronary anomalies can cause sudden death in the young, the specific absence of the right coronary artery with a compensating large left coronary circulation has not been previously reported.

Therefore they believe although he had an absent right coronary artery, he most likely died with this anomaly rather than from this anomaly.

Dr Irvine's response:

In response to this report, Dr Irvine provided a supplementary report dated 5 April 2017.[3] Dr Irvine indicated that as a group, coronary artery anomalies have been associated with sudden death although acknowledged a cardiologist would be more familiar with the nuances of these conditions. In relation to Professor Semsarian's first point, she stipulated that a finding of acute myocardial ischaemia or infarction at autopsy is the exception rather than the rule in cases where the cause of death is presumed to be cardiac related. She explained that in order to find evidence at post mortem, a deceased must survive several hours with ongoing ischaemia for any changes to become apparent and guide the selection of samples for microscopic examination.

She also indicated how a fatal arrhythmia may intervene at any point and it is presumed that the vast majority of 'cardiac' deaths are due to the mechanism of a fatal arrhythmia, so the absence of demonstrable cardiac ischaemia and infarction is not a reason to exclude a cardiac cause of death, such as coronary artery disease, as to do so would result in a very large number of undetermined causes of death being recorded.

[3] Exhibit 1, Tab 6

In conclusion, Dr Irvine acknowledged that although Professor Semsarian's recommendation was not unreasonable, she was inclined to recommend the existing cause of death not be changed at that time.[4]

Evidence at Inquest:

At the Inquest, Dr Rebecca Irvine and Professor Chris Semsarian gave evidence jointly.

Dr Irvine commenced by explaining that although Charlie's heart was of normal shape and size, there was a very obvious lesion present being the absence of the right coronary artery (the conus artery). Despite this being a rare condition, it is known to be a cause of sudden and unexpected death. She said that although there are other structural conditions such as myocardial bridging or floppy mitral valve which may or may not be associated with sudden unexpected death, the absence of a coronary artery would be something a forensic pathologist could be more convinced about as a cause of death because it has a physiological explanation. She described how the left coronary artery extended around the heart but was unable to say how effective it would have been as a substitute for the absent right coronary artery or what significance if any the absence of the conus artery had on the functioning of his heart.

Dr Irvine also provided the court with an exhaustive analysis of some of the rarer forms of cardiac related disease which she looked for on histological examination but were not identified as a factor in the death of Charlie. As a consequence the exclusion of any other possible cardiac cause left her with only two possible explanations: one being the anomalous coronary artery or alternatively an intrinsic dysrhythmia such as long Q-T syndrome.

Professor Semsarian said the absence of ischemia didn't affect his opinion and was additional evidence that his coronary circulation might not have been the main problem. He also referred to the circumstances surrounding his death (occurring at

[4] Exhibit 1, Tab 6. p.2

rest), including his strong capacity for exercise which he said were all circumstances suggesting Charlie's death was most likely a result of *'presumed cardiac arrhythmia'.*

Dr Irvine was asked whether any significance could be given to the finding of congestion in the lungs as to whether his death may not have been sudden. She did not believe this was a significant finding as most people who die from a heart condition do tend to have significantly congested lungs. In fact pulmonary oedema can develop quite rapidly and its finding at autopsy does not provide any great assistance in determining how Charlie died.

In relation to the relevance of Charlie experiencing chest pain in the months prior to his death, Dr Irvine recalled three episodes of chest or shoulder pain in his history which could have been attributed to a lack of flow of blood or oxygen which she referred to as being consistent with angina that can often resolve with rest or medication. In her opinion, not all persons who experience such attacks do go on to sustain a myocardial infarct.

She was also asked to comment on the finding of an incidental scar identified within the papillary muscle (the fibrous tissue that connects that muscle with the strands of the valve), which she believed may have been evidence of earlier heart damage. She said that she could not place great significance on this finding as a means to explain his sudden death.

Professor Semsarian, when invited to comment on the significance of Dr Irvine's findings, said 40% of young people who die suddenly in Australia have an unexplained cause. Overall about 50% die with light activity or at rest. However, those who die of coronary artery disease who die suddenly were more likely to die during exercise.[5]

He noted as Charlie died in his sleep, this was another piece of evidence which suggested that insufficient blood supply wasn't the main issue and therefore the likely cause was an arrhythmia, (a rhythm problem or a short circuiting of the

[5] Exhibit 1, Tab 5 "*A Prospective Study of Sudden Cardiac Death among Children and Young Adults", The New England Journal of Medicine, 23 June 2016*

electrical system of the heart) that caused his death although the cause of that problem was unknown.

Both experts discussed how the term *'coronary artery anomaly'* was a particular category relating to both the left and right sided arteries which supply blood to the heart. Professor Semsarian indicated how the main coronary arteries are on the left side of the heart and in his experience many people who live in our society can function normally with a blocked right coronary artery without any problems. He stated that most of the literature suggests the incidence of sudden death in which coronary artery anomalies arise from the left hand side. Therefore, the right side artery or absence as being a cause of sudden death is very rarely reported in the literature and he could find no evidence of an absent right sided coronary artery having been listed as a recognised cause of sudden death, although he fairly acknowledged this case was the first he was aware of in which a person had an absent right sided coronary artery.

Professor Semsarian reiterated his view Charlie's death should be more accurately described as being caused from a *'presumed cardiac arrhythmia'* because of the prominence of his left sided circulation which was able to adequately compensate, allowing him to live with this anomaly for many years without previous complications.

In addition, he also relied on Charlie's achievements in sport which went way beyond the ability of most other persons including the lack of any physical evidence of myocardial damage at autopsy. Finally, he also suggested that a '*presumed cardiac arrhythmia'* would hopefully allow future family members who attend a cardiologist to investigate all options rather than limiting investigations to the presence or absence of a particular class of coronary anomalies.

Analysis of Expert Evidence:

As already noted, Dr Irvine was reluctant to amend the cause of death because she did not believe an anatomically demonstrable cause of death albeit rare should be supplemented for a statistical cause of death such as *'sudden cardiac death'.*

In Professor Semsarian's report of 26 October 2016 [6]he initially suggested that the cause of death should be *'unascertained'* or *'unexplained'* however for reasons already outlined, he refined his position to suggest the most likely explanation for Charlie's sudden death is *'presumed cardiac arrhythmia'.*

Although I agree with Dr Irvine, that an anatomical explanation for Charlie's death should always be preferred in preference to a statistical finding, Dr Irvine does agree that even with this anatomical explanation, she is unable to explain how or why Charlie died with the presence of this anomaly and both experts agreed that *'presumed cardiac arrhythmia'* was the most likely cause of death.

After careful consideration of the evidence, in particular the expert evidence of two extremely well qualified experts, Professor Semsarian and Dr Irvine, I find that the medical cause of death should be recorded as *'presumed cardiac arrhythmia'*, noting the *coronary artery anomaly (absent right coronary artery)* as a significant condition.

The evidence does not allow me to determine why this *'presumed cardiac arrhythmia'* occurred.

Conclusion:

Prior to making my formal findings I would like to comment on what a remarkable young man Charlie was. I have been informed that as a testament to his life, his former employer has initiated an annual award in his memory called the *'Charlie's Heart Award'*. This award is presented to the person who best reflects Charlie's kindness, compassion and concern, the hallmarks of his personality and character.

As a young man with his whole life ahead of him, his loss has and will continue to leave an enormous impact on all who knew him. I thank Charlie's family again for sharing Charlie's Eulogy with this court and I extend my sincere condolences to them.

[6] Exhibit 1, Tab 4

I would also like to thank the officer in charge, Constable Samantha O'Leary and the Advocate Assisting me, Sergeant Stephen Kelly for their excellent work.

Findings required by s81(1)

As a result of considering all of the documentary evidence and the oral evidence heard at the inquest, I am satisfied that the death occurred and make the following findings in relation to it:

I find Charles Welsford Smithers died on 26th October 2014 at 12/104 Crown Road, Queenscliff of natural causes from a presumed cardiac arrhythmia, with congenital coronary artery anomaly (absent right coronary artery) being a significant condition present when he died.

The identity of the deceased:

The deceased person was Charles Welsford SMITHERS

Date of death:

26 October 2014

Place of death:

12/ 104 Crown Road Queenscliff , Sydney, New South Wales

Cause of death

1. Presumed cardiac arrhythmia
2. Congenital coronary anomaly (absent right coronary artery).

Manner of death

Natural

I close this inquest.

Magistrate Teresa O'Sullivan

Deputy State Coroner

Date 15 September 2017