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## Record of Investigation into Death (Without Inquest)

*Coroners Act 1995  
Coroners Rules 2006  
Rule 11*

I, Rod Chandler, Coroner, having investigated the death of Andrea Eileen Baldock

### **Find that:**

- a) The identity of the deceased is Andrea Eileen Baldock.
- b) Ms Baldock was born in Launceston on 9 June 1970 and was aged 46 years.
- c) Ms Baldock died on 7 September 2016 at the Launceston General Hospital (LGH) in Launceston.
- d) The cause of Ms Baldock's death was the combined effects of aspiration pneumonia due to gastroparesis following sleeve gastrectomy and ischaemic heart disease with cardiomegaly.

### **Background**

Ms Baldock was single and resided with her mother in Latrobe. She was her mother's carer. Her medical history included obesity (on 7 April 2016 she weighed 143.8kg), Type 2 diabetes mellitus and hypertension. She was on a waiting list to undergo a sleeve gastrectomy to treat her weight loss.

### **Circumstances Surrounding the Death**

On 22 April 2016 Ms Baldock underwent a laparoscopic sleeve gastrectomy at the LGH. The surgeon was Mr Girish Pande. The post-operative course was relatively uncomplicated. A gastrograffin swallow showed delayed emptying of the stomach which Mr Pande attributed to swelling around the surgical site. It was predicted that once the swelling went down Ms Baldock's ability to tolerate food would drastically improve. She was discharged home on 29 April with instructions to take a fluid diet for 4 weeks.

A review of Ms Baldock's medical records during the months following her surgery is instructive. A summary follows.

On 10 May 2016 Ms Baldock presented at the Mersey Community Hospital (MCH) after she collapsed and lacerated her forehead. She gave a history of decreased fluid intake over 3 weeks with vomiting. She was tired and reported decreased urine output. She was hypotensive with a significant postural fall in her blood pressure. She was treated with 1.5 litres of fluid and her blood pressure slowly rose. She was discharged before the results of

blood tests were known. Later they revealed acute renal failure and Ms Baldock was requested to return to the MCH.

On 12 May Ms Baldock re-presented at the MCH and her blood tests were repeated which showed improved renal function. However, Ms Baldock reported that her on-off vomiting persisted. On the same day she was reviewed by Mr Pande in the LGH's surgical clinic where she reported that she was able to drink 1.5 litres of fluids a day. (Her weight was recorded at 127kg indicating a fall of 16 kg at 20 days post-surgery) She was advised to return to the clinic in 3 weeks to undergo an endoscopy and dilation of the stomach tube if her intake had not improved.

On 13 May Ms Baldock visited general practitioner, Dr N Fernando. Further blood tests showed worsening renal function. Persistent vomiting continued.

On 17 May Ms Baldock saw general practitioner, Dr V Chawtur. She reported feeling dry, sipping liquids but also vomiting.

Ms Baldock saw Dr Chawtur again on 20 May. The sutures in her forehead were removed. It was considered that the gastric sleeve was too tight.

On 24 May Ms Baldock re-visited her general practice and saw Dr M Baig. Her diabetic and blood pressure medications were ceased.

On 27 May Ms Baldock again saw Dr Chawtur. He took a history of constant vomiting with a fluid intake of less than 1000 ml/day. Dr Chawtur discussed the situation with Mr Pande's registrar. It was agreed that Ms Baldock would be referred to the MCH for re-hydration.

In the afternoon of 27 May Ms Baldock presented at the MCH. Blood tests showed metabolic alkalosis, significantly abnormal renal function and an abnormal urea creatinine ratio. Further blood tests later that evening showed significant hypokalaemia (low potassium level). It was planned for Ms Baldock to be transferred to the LGH.

In the early morning of 28 May Ms Baldock was transported by ambulance to the LGH. A barium meal follow-through on 30 May showed a trace of contrast only in the duodenum and noted that fluid had been refluxing into the dilated mid and lower third of the oesophagus throughout the screening time. The following day gastroenterologist, Dr B Mitchell performed a gastroscopy. There was mild oesophageal dilation with fluid refluxing from the stomach. The stomach showed no peristaltic waves and some minor food residual. There was a muscular contraction ring in the distal stomach with functional gastric outlet obstruction. The area was dilated and a naso-duodenal feeding tube inserted. It was concluded that Ms Baldock had gastroparesis due to her sleeve gastroscopy. The plan was for tube feeding and naso-duodenal drug administration with review in 4 weeks. The fluid balance chart on 4 June showed an oral intake of 1260 ml and a vomiting volume of 1142 ml suggesting little improvement in the level of vomiting post-dilation. Nevertheless, Ms Baldock was discharged home on 5 June. It seems that at the time of discharge those medications recommended by Dr Mitchell had not been commenced.

Ms Baldock was seen again by Dr Chawtur on 16 June. It was noted that she was still dehydrated with only a slight improvement in her gastric obstruction. Four days later he saw

Ms Baldock again and referred her back to the MCH because of abnormal blood tests. At this time Dr Chawtur noted: *“Despite 1 dilation already the sleeve is so tight it is almost obstructed. She cannot hold down fluid, which tends to sit in her oesophagus and stomach sleeve + then she vomits it up. She can hold down a little custard and yoghurt. As at present she is dehydrated, and has been seriously deficient in potassium (2.3 [mmol/l]) and magnesium, and has had non-sustained ventricular tachycardia”*.

At the MCH electrolyte replacement was provided with intravenous fluid. Three episodes of ventricular tachycardia were reported. It was recommended that she be transferred to the LGH but she refused notwithstanding risk of cardiac arrest. The following day Ms Baldock discharged herself against medical advice.

On 23 June Ms Baldock re-presented to the LGH to be reviewed by the surgical team. She reported an inability to eat or drink for the previous 24 hours. Blood tests showed the same abnormalities as previously. She was reviewed in the afternoon when her heart rhythm was noted to be rapid atrial fibrillation. There was a MET call an hour later when her heart rate increased to 152 bpm. She was admitted to a ward in the early evening. There were further MET calls on 27 and 28 June because of an elevated heart rate. Also on 28 June she had a gastroscopy with re-dilation of the distal stomach. The findings again indicated no movement in the stomach and no mechanical obstruction. Gastroparesis was again diagnosed. She vomited before breakfast on 29 June but was able to keep her breakfast down later that morning and was then discharged. The plan was to repeat the dilation in 2 weeks.

Ms Baldock had a follow-up visit to Dr Baig on 1 July. He noted that she was still magnesium deficient. On 7 July she attended the general surgery clinic. Her weight was noted to be 106.2 kg. She reported tolerating a soft diet but still vomited once a day. Two days later she had a further review with Dr Chawtur.

On 28 July Ms Baldock was returned to the MCH by ambulance following a fall at her home. She had severe electrolyte disturbance and renal impairment. Her c-reactive protein (CRP) was elevated as well as the white cell count. A chest x-ray showed patchy consolidation consistent with bronchopneumonia. It was noted that Ms Baldock had lost 40 kg since her surgery. In the morning of 29 July Ms Baldock discharged herself despite medical advice urging her to remain in hospital.

On 1 August Ms Baldock again attended Dr Baig complaining of feeling unwell. A diagnosis of bronchopneumonia was made and later confirmed by x-ray. She was given oral antibiotics but refused a hospital review. Three days later she was reviewed in the general surgery clinic. She reported that she was eating better with no vomiting. However, her weight was 94 kg indicating a loss of 12 kg in one month. She was referred for review by a dietician.

On 15 August Dr Baig learned of a report that Ms Baldock was not eating or drinking. He called her and she reported that she was well.

Ms Baldock re-presented to the MCH on 22 August via ambulance. She complained of weakness and drowsiness. She was unable to stand unaided. She gave a history of daily vomiting since her surgery. It was noted that she weighed 96 kg, a reduction of 47 kg post-surgery. She was admitted. The following day she was seen by a dietician who noted her to be *“severely malnourished.”* It was recorded that Ms Baldock had been offered a wide range

of nutritional supplements but had declined them. In the early hours of the following morning vomit was found in her bed. She was unaware that she had vomited. Later she had an endoscopy and probably severe gastroparesis and decompression of gastric contents were then reported as diagnoses. On 25 August Ms Baldock was transferred to the LGH for continuation of her care.

Ms Baldock had a further dietician review on 26 August. It was noted that she had lost around 53 kg in less than five months with 20 kg lost since June. It was concluded that she was suffering from malnutrition and chronic dehydration. The following day a petechial rash was present. On 28 August Ms Baldock experienced oxygen desaturation. A chest x-ray showed changes in the right lung. A CT pulmonary angiogram excluded pulmonary embolism but showed evidence of innumerable pulmonary nodules.

On 30 August Ms Baldock's situation was reviewed by Mr Pande and the surgical team. It was determined that because the gastroparesis was not improving that it would be best to offer a surgical gastric bypass. This involved joining the proximal part of the stomach directly to the jejunum thereby passing that part of the stomach that was moving slowly. The following day Mr Pande met with Ms Baldock and explained to her the need for the proposed surgery. She agreed to the procedure but was keen to go home and return the day beforehand. However, Mr Pande persuaded her to remain in hospital explaining that it was desirable to improve her nutrition and hydration and to treat her chest infection. The surgery was planned for 6 September.

On 3 September a MET call was made at 6.45am when Ms Baldock's oxygen saturation had fallen to 83% and her respiratory rate was 28 bpm with associated tachycardia. A chest x-ray showed a new left lower lobe pneumonia. A naso-gastric tube was inserted to empty her stomach.

On 5 September Ms Baldock was reviewed by the anaesthetic registrar. He was concerned by her active chest infection and suggested that the surgery be postponed. Ms Baldock was unhappy with this advice and wanted to go home. Later a family meeting was organised after which Ms Baldock was persuaded to remain in hospital until after the surgery.

The following day Ms Baldock was reviewed by consultant anaesthetist, Dr Greg Best. He advised that Ms Baldock was suitable for surgery that day but only if a High Dependency Unit bed was available for her post-operative recovery. However, such a bed was not available causing the surgery to be cancelled and re-scheduled for 9 September. Nursing notes show that later in the day Ms Baldock was emotionally labile. She was unwilling to mobilise, refused to shower and also refused to participate in physiotherapy.

In the early morning of 7 September a Code Blue call was made when nursing staff observed Ms Baldock to be visibly short of breath. CPR was commenced. However, Ms Baldock could not be revived and she was declared deceased at 3.22am.

### **Post-Mortem Report**

This was carried out by State forensic pathologist, Dr Christopher Lawrence. In his opinion the cause of Ms Baldock's death was the combined effects of aspiration pneumonia due to gastroparesis following sleeve gastrectomy and ischaemic heart disease with cardiomegaly.

In plain English she inhaled food after her stomach stopped emptying properly following gastric surgery for weight loss. She also had heart disease.

Dr Lawrence includes this helpful comment in his report:

*“The autopsy reveals no apparent significant mechanical problem with the sleeve procedure but appearances consistent with gastric aspiration due to a functional gastro-paresis. This led to accumulation of food in the oesophagus and aspiration of food into the lungs. Gastroparesis is associated with Type II diabetes but is not a common complication of laparoscopic sleeve gastrectomy although it can be associated with gastric surgery. Histology of the lungs shows acute on chronic aspiration pneumonia. The vomiting had also been associated with low potassium.”*

## Investigation

This has been informed by:

1. An affidavit provided by Michael Baldock, a brother of Ms Baldock.
2. Reports provided by Dr Baig and by Mr Pande.
3. A review of Ms Baldock’s hospital records undertaken by research nurse, Ms L K Newman.
4. A report upon Ms Baldock’s medical care and treatment compiled by Dr A J Bell as medical adviser to the coroner.

In his report Dr Bell included these observations:

- That sleeve gastrectomy is becoming a common form of weight loss surgery. It involves reducing the size of the stomach by converting it into a long tube. This requires stapling the stomach along its length and then removing the excess. Its advantages include low complication and mortality rates, the ease of performing the procedure, preservation of the pylorus (distal end of the stomach), maintenance of the food passage and the avoidance of foreign material. Its most common complications include bleeding, narrowing or stenosis of the stoma and leaks. Common side effects are nausea and delayed gastric emptying, each of which contribute to less fluid intake and dehydration.
- Gastroparesis involves partial paralysis of the stomach. It is also described as delayed gastric emptying. It causes food to remain in the stomach for an abnormally long time. Cardinal symptoms are nausea, vomiting, early satiety, bloating and/or upper abdominal pain. Multiple conditions have been associated with gastroparesis but the majority are idiopathic, diabetic or post-surgical.

Dr Bell also offered these opinions:

- That Ms Baldock was a suitable candidate for anti-obesity surgery.
- Gastroparesis is a recognised complication of surgery. It is difficult to treat in its severe form. There is a natural reluctance to treat it with gastric bypass surgery and the preferred course is to give non-invasive therapies time to be effective.
- In this case gastroparesis was almost certainly a consequence of Ms Baldock’s surgery.

- That the prevention of Ms Baldock's aspiration was virtually impossible. Best management required a nil-by-mouth regime and use of a naso gastric drain tube and a naso-jejunal feeding tube. However, entries in the LGH notes suggest that Ms Baldock resisted their use.

### **Findings, Comments and Recommendations**

I accept Dr Lawrence's opinion upon the cause of death.

The evidence clearly shows that from the outset Ms Baldock's post-operative recovery was beset with difficulties, largely attributable to her gastroparesis, which were unpleasant and must have caused considerable distress. Her experience confirms Dr Bell's advice that gastroparesis is a condition which is difficult to treat.

It is my understanding that the surgical remedy for gastroparesis is gastric bypass surgery which is a major procedure which has complications of its own. It is therefore prudent to treat this as a last resort and instead to employ non-invasive therapies and give them ample time to work. Quite properly this course was taken in this instance. However, the history in the 3 months following the diagnosis of the gastroparesis suggests to me that Ms Baldock's management was ad hoc, unstructured, largely unmonitored and without any direct supervision. This leads me to **recommend** that the LGH conduct a review of its practices surrounding the post-operative care of weight reduction patients with a view to having in place a structured and closely monitored plan designed to maximise the prospects of patient recovery, particularly in those instances where post-surgical complications arise.

Finally, I make the observation that this tragic case very clearly illustrates that weight reduction surgery is not risk free and should not be lightly embarked upon, particularly without having first exhausted all suitable non-invasive options.

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 needed to register her death under the *Births, Deaths and Marriages Registration Act 1999*. I do not consider that the holding of a public inquest would elicit any significant information further to that disclosed by the investigation conducted by me. The circumstances of the death do not require me to make any further comment or to make any recommendations.

I convey my sincere condolences to Ms Baldock's family and loved ones.

**Dated:** 16<sup>th</sup> day of June 2017 at Hobart in the State of Tasmania.

**Rod Chandler**  
**Coroner**