

Reducing the risk of uterine rupture in induced labour — coronial recommendation for the development of clinical guidelines

Anne Howard and Meg Jones HEALTH LEGAL

Inquest into the death of Aurora Doreen Maureen Sleep

On the evening of 17 November 2011, Aurora Sleep was delivered by emergency caesarean section at 38 weeks gestation.¹ During the emergency caesarean, it was discovered that Aurora and the placenta had moved into her mother's abdominal cavity as a result of a uterine rupture,² which led to Aurora being "deprived of life sustaining oxygen".³ Consequently, Aurora died four days later from hypoxic brain injury.⁴

Background

Aurora's mother, Ms Ashlee Brown, had been pregnant a number of times prior to conceiving Aurora.⁵ On one previous occasion, the pregnancy resulted in a termination in December 2010 as "the foetus was anencephalic".⁶ However, a few months later, in February 2011, it was discovered that "the uterine contents had not been completely evacuated",⁷ which led to Ms Brown undergoing a dilation and curettage (D&C) to remove "the remaining foetal tissue".⁸ During the procedure, the fundus (top portion) of Ms Brown's uterus was perforated. A laparoscopic examination of Ms Brown's abdomen was subsequently performed to determine the extent of the damage. As there was no "significant bleeding"⁹ and Dr Olesnicky, Ms Brown's treating obstetrician and gynaecologist, was of the view that the perforation would heal naturally over time,¹⁰ the perforated uterus was not sutured.

A few weeks later, Ms Brown became pregnant with Aurora. Ms Brown was seen by doctors at the Hawkins Clinic (the Clinic) in Mt Gambier during her pregnancy.¹¹ At 38 weeks gestation, she presented to the Clinic and it was discovered that she had "developed unstable blood pressure".¹² In an attempt to avoid Ms Brown developing pre-eclampsia, it was decided that her labour should be induced so that she could deliver the baby "as soon as possible".¹³ Consequently, Ms Brown was admitted to Mt Gambier hospital on the evening of 17 November 2011 for the purpose of inducing labour.

At hospital, the induction of labour was facilitated by applying prostaglandin gel to Ms Brown's cervix.¹⁴

Prostaglandin gel had been used successfully to induce labour a number of years previously, when Ms Brown gave birth to two healthy children by vaginal delivery.¹⁵ Shortly after the gel was applied, Ms Brown began to experience "frequent and painful contractions of the uterus".¹⁶ A few hours later, it was decided that an emergency caesarean was required to deliver Aurora, as Ms Brown's contractions were now "accompanied by non reassuring cardiotocograph (CTG) traces in respect of [Aurora's heartbeat]".¹⁷

An emergency caesarean section was performed, during which it was discovered that Ms Brown's uterus had ruptured. This led to Aurora and the placenta moving into the abdominal cavity, causing Aurora to be "deprived of life sustaining oxygen that otherwise would have been delivered through the placenta".¹⁸ Aurora was "born without overt signs of life" and a heartbeat was not detected for 19 minutes and 50 seconds.¹⁹ Ms Brown was also required to undergo a subtotal hysterectomy as a result of the uterine rupture.²⁰ Aurora died four days later as a result of hypoxic brain injury.

Issues for consideration at the inquest

The relevant issues before the coroner were whether:

- there was a connection between the uterine rupture and the earlier perforation of Ms Brown's uterus during the D&C procedure;
- the administration of prostaglandin gel contributed to the uterine rupture; and
- at the time of Aurora's birth, there were in existence guidelines or protocols in relation to the appropriateness or otherwise of administering prostaglandin gel to induce labour in Ms Brown's circumstances.²¹

In considering the third issue, it was relevant for the coroner to look at the well-known Monthly Index of Medical Specialities (MIMS) publication (the Guidelines),²² as they existed at the time of the inquest, which included among a "list of contraindications for the use of prostaglandin gel in the induction of labour 'previous

uterine surgery”²³ While the list of contraindications did not specify exactly what type of uterine surgery was contraindicated to the use of prostaglandin gel, the coroner noted that it would “naturally include a caesarean section”.²⁴ Uterine rupture was also listed in the Guidelines as a “possible adverse outcome”²⁵ to the use of prostaglandin gel. The interpretation of this reference to “previous uterine surgery”, specifically whether it included a perforation of the uterus, was relevant at the inquest.

Evidence

At the inquest, evidence was heard from the medical professionals who were involved in Ms Brown’s pregnancy and the birth of Aurora. An expert report was also provided to the court.

Dr Olesnicky was the obstetrician and gynaecologist who performed the D&C during which Ms Brown’s uterus was perforated. At the inquest, Dr Olesnicky told the court that Ms Brown was made aware of the perforation²⁶ and that her discharge summary, which specifically noted “procedure complicated by perforated uterus so laparoscopy performed”,²⁷ was sent to the Clinic. Dr Olesnicky also stated that a scar on the uterus should be taken into account in determining a woman’s mode of delivery,²⁸ and that, in the circumstances, he believed that Ms Brown should have had a caesarean section.²⁹ This was because Dr Olesnicky was of the view that Ms Brown’s “contractions had been far too frequent and too strong and it was this that had probably caused the dehiscence of her scar”.³⁰ Furthermore, in Dr Olesnicky’s view, prostaglandin gel was “totally contraindicated in anyone whose [sic] got a scar on their uterus”.³¹ In relation to this, Dr Olesnicky made reference to the Guidelines, which in his view suggested that “the use of prostaglandin gel was totally contraindicated in people with a uterine scar”.³²

Dr Zwijnenburg, of the Clinic, saw Ms Brown a number of times during her pregnancy. She told the court that she was aware of the perforation to Ms Brown’s uterus, but that, as it was small, she did not believe it to have any significance in terms of Ms Brown’s pregnancy and delivery.³³ Dr Zwijnenburg also did not believe that the perforation constituted any contraindication, either to vaginal delivery or to the use of prostaglandin gel.³⁴ Specifically, in cross-examination, counsel assisting Dr Zwijnenburg gave evidence that Dr Zwijnenburg was not aware of “any prohibition ... that one should not use prostaglandin gel in connection with the induction of childbirth where there has been a perforation of the fundus of the uterus”.³⁵

Dr Zwijnenburg was not involved in Ms Brown’s delivery, as she was at that time on leave. Dr Dunn, an experienced general practitioner, saw Ms Brown on one occasion three days before her induction of labour.

Dr Dunn’s evidence at the inquest was that “he did not believe that the previous perforation carried any material risk in an induction procedure that would be stimulated by the use of prostaglandin gels and that it was not a risk that needed to be explained to the patient”.³⁶

Dr Lucie Walters, an associate professor in rural medicine education, was the general practitioner who managed Ms Brown’s induction and administered the prostaglandin gels.³⁷ Her retrospective notes produced to the court during the inquest noted, in effect, that Dr Walters was fully aware of Ms Brown’s previous uterine perforation, and did not consider it relevant to her induction.³⁸ In Dr Walters’s oral evidence, she also stated that she did not believe there to be “any prohibition on inducing labour by the application of prostaglandin gels in a patient who had a uterine perforation”³⁹ of the type present in Ms Brown (ie, one that was small, naturally healing and not requiring sutures). Dr Walters also testified that she “would not have characterised a perforation where no form of surgical suturing was required as ‘uterine surgery’, as described within the MIMS guidelines”.⁴⁰

Dr Gayford, an obstetric registrar who was involved in the emergency caesarean section surgery and Ms Brown’s subtotal hysterectomy, was consulted by Dr Dunn regarding Ms Brown’s induction. She gave evidence that she was not informed of the previous perforation.⁴¹ Dr Gayford stated that had she known this information, “she would not have been able to give Dr Dunn an off-the-cuff opinion”, as she would have had to have looked “closer at the particular case”. However, Dr Gayford gave evidence that “she did not consider a perforation of the uterus that did not require surgical repair to fall within the description of ‘uterine surgery’ for the purposes of the documented contraindications to the use of prostaglandin gels as set out in the [G]uidelines”.⁴²

Expert evidence was given by Professor Pepperell, a retired professor of obstetrics and gynaecology. He provided the court with a written report, which suggested that the risk of uterine rupture in a patient whose labour is induced through the application of prostaglandin gels, and where there has been a previous uterine perforation at the uterine fundus, is between 5% and 10%.⁴³ The coroner agreed that this was “an appreciable risk”.⁴⁴ However, the coroner noted that neither the expert report nor any other literature that had been presented during the inquest dealt specifically with the “risk of uterine rupture ... in cases involving induction of labour using prostaglandin gel in a woman who has had a previous uterine perforation that has not required surgical correction”.⁴⁵ Furthermore, in relation to the interpretation of the Guidelines, in cross-examination, Professor Pepperell appeared to concede that “perforation by an instrument during a D&C procedure where

the wall of the uterus was compromised but where no surgical repair was necessary, would not necessarily satisfy the definition of ‘prior uterine surgery’, as it would be generally understood by medical practitioners”.⁴⁶ However, he still maintained his personal view that, “if a woman had a perforation of the uterus, she had effectively had previous uterine surgery and that therefore the risk of rupture is increased”.⁴⁷

Ms Brown’s evidence to the court was that she had never been “told of any possible complications, difficulties or risks involved” in the induction of the pregnancy and “in particular of any issue that might be posed by the previous perforation”.⁴⁸ Furthermore, Ms Brown gave evidence that had she been aware of the risk of uterine rupture and the potential alternative of elective caesarean section, she would have chosen not to put her “baby at any risk”.⁴⁹ The coroner noted that there was “obvious hindsight involved in a consideration of what Ms Brown would or would not have done had she known of the risk that might be posed either to herself or her baby by virtue of the previous perforation and the administration of prostaglandin gel during induction”. However, the coroner accepted Ms Brown’s evidence and commented that Ms Brown gave a “very strong impression ... that had she been advised that there was a risk that was low but which was nevertheless not nil, she would have elected for a caesarean section”.⁵⁰

Findings

The coroner found that the cause of Aurora’s death was “hypoxic-ischaemic encephalopathy attributed to intrapartum asphyxia secondary to uterine rupture and subsequent displacement of the placenta and baby into the maternal abdominal cavity”.⁵¹ The coroner also found that the administration of prostaglandin gel caused Ms Brown to experience “excessively strong and frequent uterine contractions”,⁵² and that these caused her uterus to rupture.⁵³ Furthermore, the evidence supported the conclusion that the scar on Ms Brown’s uterus arising from the prior healed perforation was the site of and source of the uterine rupture,⁵⁴ and that the “administration of prostaglandin gels contributed to Ms Brown’s uterine rupture”.⁵⁵ For these reasons, the coroner concluded that “Aurora’s death could have been prevented if the use of prostaglandin gels to induce Ms Brown’s labour had been avoided”,⁵⁶ as the evidence before the court was that Aurora was a “healthy and viable unborn child”⁵⁷ prior to the induction of labour.

The coroner found that it was open to the medical practitioners to interpret the relevant contraindications in the Guidelines as “confined to a previous uterine surgical procedure per se, not including a uterine perforation that had not required surgical intervention”.⁵⁸ For this reason, and on the evidence before the court, the

coroner was not “persuaded” that the doctors involved in Ms Brown’s pregnancy and the birth of Aurora “should have appreciated that the risk of uterine rupture posed by Ms Brown’s previous uterine perforation and the administration of prostaglandin gels was a material risk that needed to be conveyed to Ms Brown”.⁵⁹

Recommendations

The coroner made a number of recommendations pursuant to s 25(2) of the Coroners Act 2003 (SA) in relation to the use of prostaglandin gel to induce labour and directed that a copy of the inquest findings and recommendations be relevantly given to the Minister for Health and Ageing, the Chief Executive Officer of the Royal Australian and New Zealand College for Obstetricians and Gynaecologists, and the South Australian Branch of the Australian Medical Association for the education of its members.⁶⁰

Specifically, the coroner made a recommendation that “clinical guidelines be developed ... relating to the risk of uterine rupture occasioned by the administration of prostaglandin gel in a woman who has had a previous uterine perforation whether surgically repaired or not”.⁶¹ The coroner stated that these guidelines should include reference to:

- the specific outcome in this case;
- uncertainty in respect of the degree of healing of the uterine rupture;
- the need to take into consideration the time that has elapsed between the uterine perforation and a subsequent labour;
- the need to take into account any relationship between the size of the perforation and the incidence of rupture;
- that there will be a risk of rupture, whether calculable or not, which is greater than nil; and
- the need to consider that the individual woman’s response to prostaglandin may not be predicted with certainty.⁶²

Furthermore, the coroner made a recommendation that “members of the medical profession be advised that in the case of a uterine perforation that has not required surgical repair, there is a need to explain to the patient any risks associated with that rupture and any possible future consequences resulting from it”.⁶³ In addition, the coroner made a recommendation that “the medical profession be advised that in all cases where induction of labour is to be effected by use of prostaglandin gel”, consideration needs to be given to the matters listed for reference in the clinical guidelines to be developed, and that those matters be discussed with the patient.⁶⁴



Anne Howard
Solicitor
Health Legal
anne.howard@healthlegal.com.au



Meg Jones
Law Student
Health Legal

Footnotes

1. *Coroners' Court of South Australia Inquest into the death of Aurora Doreen Maureen Sleep* (SACOR 24/2013 (1870/2011)) at 1.1.
2. Above, n 1, at [1.1].
3. Above, n 1, at [1.1].
4. Above, n 1, at [1.1].
5. Above, n 1, at [1.2].
6. Above, n 1, at [1.2].
7. Above, n 1, at [1.3].
8. Above, n 1, at [1.3].
9. Above, n 1, at [1.3].
10. Above, n 1, at [1.3].
11. Above, n 1, at [1.4].
12. Above, n 1, at [1.4].
13. Above, n 1, at [1.4].
14. Above, n 1, at [1.4].
15. Above, n 1, at [1.2], [1.4].
16. Above, n 1, at [1.6].
17. Above, n 1, at [1.6].
18. Above, n 1, at [1.1].
19. Above, n 1, at [1.7].
20. Above, n 1, at [1.7].
21. Above, n 1, at [2.1].
22. These Guidelines were published by MIMS Australia, a supplier of independent medicine information to Australian healthcare professionals. MIMS Australia publishes the Guidelines annually. They contain complete product information for all regis-

tered medicines in Australia and relevant guidelines from drugs in pregnancy categories to the childhood immunisation schedule.

23. Above, n 1, at [3.4].
24. Above, n 1, at [3.4].
25. Above, n 1, at [3.4].
26. Above, n 1, at [5.6].
27. Above, n 1, at [5.6].
28. Above, n 1, at [5.8].
29. Above, n 1, at [5.8].
30. Above, n 1, at [4.3].
31. Above, n 1, at [5.8].
32. Above, n 1, at [5.8].
33. Above, n 1, at [6.2].
34. Above, n 1, at [6.3].
35. Above, n 1, at [6.9].
36. Above, n 1, at [6.19].
37. Above, n 1, at [6.21].
38. Above, n 1, at [6.21].
39. Above, n 1, at [6.25].
40. Above, n 1, at [6.25].
41. Above, n 1, at [7.2].
42. Above, n 1, at [7.2].
43. Above, n 1, at [8.2].
44. Above, n 1, at [8.2].
45. Above, n 1, at [8.3].
46. Above, n 1, at [8.14].
47. Above, n 1, at [8.14].
48. Above, n 1, at [9.4].
49. Above, n 1, at [9.4].
50. Above, n 1, at [9.8].
51. Above, n 1, at [11.1(1)].
52. Above, n 1, at [11.1(3)].
53. Above, n 1, at [11.1(3)].
54. Above, n 1, at [11.1(4)].
55. Above, n 1, at [11.1(6)].
56. Above, n 1, at [11.1(7)].
57. Above, n 1, at [1.1].
58. Above, n 1, at [11.1(15)].
59. Above, n 1, at [11.1(15)].
60. Above, n 1, at [12.1] and [12.6(1)].
61. Above, n 1, at [12.6(2)].
62. Above, n 1, at [12.6(2)].
63. Above, n 1, at [12.6(3)].
64. Above, n 1, at [12.6(4)].