



## CLINICAL PRACTICE

## Maternal deaths — need for improved obstetric care in the Transkei region

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In the year 2000, 529 000 maternal deaths were recorded throughout the world. Of these, 95% occurred in Africa and Asia, 4% in Latin America and the Caribbean, and less than 1% in the developed countries. The global maternal mortality rate is 400 per 100 000 live births, while it is 830/100 000 in Africa, followed by 330/100 000 in Asia (excluding Japan). Worldwide, 13 developing countries account for 70% of all maternal deaths.<sup>1</sup> According to a United Nations (UN) report, African women are 175 times more likely to die during pregnancy and childbirth than Westerners. Overall, African women have a 1 in 16 risk of dying during pregnancy and childbirth,<sup>2</sup> compared with a 1 in 2 800 risk for women from a developed region.<sup>1</sup>

In South Africa the maternal death rate is 340/100 000 live births. Figures for neighbouring countries are Botswana 480/100 000, Lesotho 530/100 000, and Namibia 370/100 000.<sup>3</sup> The maternal mortality rate in South Africa cannot be calculated with any accuracy. A realistic estimate is between 170 and 200/100 000 live births.<sup>4</sup> Considerable under-reporting has been observed in a number of provinces. Maternal mortality was 171/100 000 live births as reported by Spies *et al.* in 1995.<sup>5</sup> Haemorrhage (25%), infection (24%) and hypertensive disease (18%) were the most important causes of death. Thirty-five per cent of all maternal deaths were considered to be preventable.<sup>5</sup> The purpose of the following case presentations is to highlight the necessity for vigilance in identifying complications early, in order to prevent deaths.

### Case 1

A 38-year-old teacher living on the outskirts of Umtata was expecting her fifth baby. She had had 3 previous caesarean operations. At 35 weeks' gestation she was admitted to hospital with a blood pressure of 220/150 mmHg. There was protein in the urine and she was oedematous. An assessment of severe pre-eclampsia had been made and she was put on oral nifedipine and magnesium sulphate and dihydralazine injections.

The cardiotocogram (CTG) showed fetal distress after admission and it was decided to perform an emergency

caesarean operation. A lower segment caesarean section was done under general anaesthesia. A live baby weighing 2 160 g was delivered. In the recovery room it was noticed that the mother had poor urine output. An intravenous injection of furosemide 80 mg was administered, with no rise in urine output. Thereafter she began to froth at the mouth. She was intubated and transferred to the intensive care unit where she had a cardiac arrest. Resuscitative measures failed and the patient was declared dead.

At autopsy, the woman was noted to have cyanotic fingernails, and moderate oedema of the feet. A copious amount of diluted haemorrhagic fluid was found in the peritoneal cavity, a sample of which was sent for chemical analysis. Both kidneys were of normal size, but the right kidney had a puncture wound surrounded by a contusion (Fig. 1). The uterus was 17 x 12 x 3.5 cm in size. The fallopian tubes had been ligated during the caesarean operation. Peritoneal fluid showed urea (16.6 mmol/l), creatinine (213 µmol/l) and uric acid (0.09 mmol/l), suggesting leakage of urine into the peritoneal cavity.

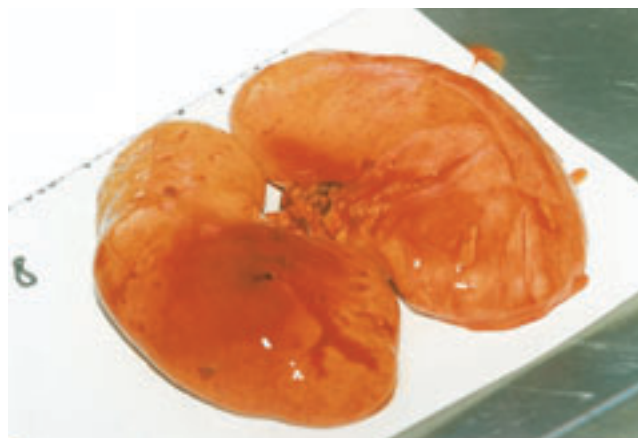


Fig. 1. Case 1. Puncture of the right kidney.

### Case 2

A 23-year-old primigravida was admitted to Umtata General Hospital on 8 June 1998. She had no complaints on admission. She delivered a live baby 3 days after admission and was discharged on the same day. That evening she was found dead in a room at home with the door locked from the inside. She was still holding the baby. At autopsy, the uterus was found to

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Fig. 2. Case 2. Blood clot in the uterine cavity.

be filled with blood (Fig. 2). The cause of death was ascertained to be haemorrhagic shock.

### Case 3

A 34-year-old woman, para 2, was admitted for an elective caesarean section on 12 March 1998. The operation was straightforward and the immediate recovery period was uneventful. The patient died the same evening in the ward. The baby, who was delivered with severe meconium aspiration, died on the same day. On autopsy, about 2 litres of fluid and clotted blood were found in the abdominal cavity. The uterus was empty, with just a few clots. Again the cause of death was found to be haemorrhagic shock (Fig. 3).

### Case 4

A 24-year-old woman, gravida 7 para 4+2, was admitted for elective caesarean section on 4 April 2001. A lower segment caesarean section was carried out successfully, with a live baby



Fig. 3. Case 3. Blood in the pelvic cavity.

delivered at 09h45. The mother's condition changed at around 11h00, when she developed breathing difficulty. She collapsed and was intubated, and cardiac massage was instituted along with defibrillation. She was pronounced dead at 12h40. The doctors suspected pulmonary embolism. At autopsy, pulmonary embolism was confirmed as the cause of death.

### Case 5

A 35-year-old mother of 2 children was brought to hospital but was declared dead on arrival. She had attempted delivery at home to save the cost of going to hospital but had collapsed during the process. At autopsy, it was found that she had a ruptured uterus. A full-term baby was found in the abdominal cavity along with copious amounts of blood.

### Discussion

Although limited in scope in terms of detail, this article attempts to highlight the issues related to maternal death in the



Transkei area. Haemorrhage is a feature common to 4 of the 5 cases presented here. It has been identified as the major cause of maternal death in the Third World.<sup>6</sup> Pregnancy is a physiological process, not a disease, and therefore reducing the risk of liability exposure and avoiding preventable injuries to mothers and infants during labour and birth should be relatively easy.<sup>7</sup> The World Health Organisation (WHO) and UNICEF estimate that no less than 585 000 maternal deaths occur each year, most of which could have been prevented. In 2000, world leaders agreed to work towards reducing the number of maternal deaths by 75% by 2015.<sup>2</sup>

On admission, case 1, a multipara who had had 3 previous caesarean sections, had signs of pre-eclampsia, i.e. high blood pressure, proteinuria, and oedema of the feet. Puncture of the right kidney does not seem to have been considered by the surgeon. Since the patient had signs of primary haemorrhage, namely falling blood pressure and a rapid thready pulse, re-opening the abdomen should have taken place as part of proper postoperative care.

Iatrogenic (physician-caused) illness or death is now recognised as a health hazard of global proportions. Adverse events have become so extensive as to prompt use of the term 'iatro-epidemic'.<sup>8</sup> Although a confidential maternal report in 1999 mentions that unprofessional conduct occurred on a few occasions,<sup>4</sup> the actual prevalence of these injuries is not known. The five major causes of maternal death are: (i) non-pregnancy-related infection (mainly AIDS); (ii) complications of hypertension in pregnancy; (iii) obstetric haemorrhage; (iv) pregnancy-related sepsis; and (v) pre-existing medical conditions.<sup>9</sup> A study<sup>10</sup> in 1992 showed that uninsured patients are at greater risk of suffering medical injuries because of substandard medical care. This could be a contributory factor in the vast majority (92.6%) of maternal deaths occurring among African women.<sup>4</sup> Black Africans are less likely than their white counterparts to receive an array of health care interventions.

Case 3, who also underwent a caesarean section, was found to have about 2 litres of fluid and clotted blood in the abdominal cavity on autopsy. It appeared that the uterine sutures were not haemostatic enough, leading to continuing haemorrhage. There would have been enough time to intervene to save this patient if proper postoperative monitoring had been instituted. It must be emphasised that only an experienced doctor, assisted by another doctor, should carry out operations. There is a tendency to expect junior doctors with limited experience to perform caesarean

operations without close supervision by a senior colleague.

Case 4 died of pulmonary embolism. In 1998, 41 maternal deaths due to acute collapse or embolism were reported in South Africa. These cases comprise 11.5% of all direct obstetric deaths and 7.3% of all reported maternal deaths.<sup>4</sup> Deep-vein thrombosis and pulmonary embolism are sources of significant morbidity and mortality following gynaecological procedures.<sup>11-13</sup>

A study carried out in Malawi in 1992<sup>14</sup> showed that puerperal sepsis-related mortality was 8.5 times higher in women who had undergone caesarean sections than in women who had delivered vaginally. More trials of labour with good monitoring should reduce the number of caesarean operations, thereby reducing the risk to mothers as a result of surgery. Elective lower-segment caesarean section has been demonstrated to carry a greatly increased risk of maternal death — the mortality rate is approximately 4.5 times higher after elective caesarean than vaginal delivery.<sup>15</sup> Adverse events as a result of negligence are more common in obstetric practice than in any other discipline.<sup>16</sup> A review of current institutional policies, protocols, and practice guidelines may help to reduce maternal deaths.

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