

# Posthumous Caesarean section in women with type 1 diabetes mellitus: two cases at one hospital in northern India

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*To the Editor:* The prevalence of type 1 diabetes is much greater in India than previously thought [1]. Better medical care and awareness have led to improved survival in children with type 1 diabetes. However, sex discrimination in certain areas means that girls and young women with diabetes still find it difficult to access medical care [2, 3]. The situation worsens when they reach marriageable age, as they face social stigmatisation and find it difficult to get appropriate partners. Even after marriage, the prevailing cultural milieu is not conducive to good health.

The challenges faced by these women are most prominent during pregnancy [4], when a combination of factors makes it difficult for them to complete pregnancy successfully. This report is about two unfortunate young women with type 1 diabetes who died during labour, but were successfully delivered by posthumous Caesarean section.

The first patient was 15 years old when she developed diabetic ketoacidosis. She remained in moderately good control on a variety of regimens, including basal–bolus and premixed insulin twice daily. She did not develop chronic complications, although her haemoglobin levels remained low at  $\leq 100$  g/l. She married at the age of 23 years without telling her husband or parents-in-law that she had diabetes. She took one injection of insulin at the school where she worked as a teacher, but would go without insulin during holidays. She

had chronic uveitis and self-medicated with oral corticosteroids intermittently. During this period, the patient became pregnant and was ‘officially diagnosed’ as having gestational diabetes by the obstetrician (B. Kalra), starting thereafter on a basal–bolus regimen. Glycaemic control was moderately good, with HbA<sub>1c</sub> between 7.0% and 8.0% on 70 units of insulin/day. During the second trimester, the patient developed hypertension, which was controlled with methyldopa 250 mg and nifedipine 20 mg twice daily. Pregnancy proceeded smoothly, and at 36+5 weeks of gestation, the patient was advised to return 2 days later for an elective lower segment Caesarean section (LSCS) in view of breech presentation. However, on the next day she was brought to the hospital breathing heavily, and died within minutes of being wheeled into the ward. Analysis of patient history revealed that she had not taken medication for 24 h. The situation was explained to the grieving relatives and a posthumous LSCS performed immediately after consent was obtained. A baby girl weighing 2.5 kg was delivered, with primary apnoea (Apgar score 1/9). She was intubated and made an uneventful recovery, later being adopted by her maternal uncle. The father has since re-married.

The second case, a 23-year-old woman in her second pregnancy, presented as an unbooked patient at 34+2 weeks of gestation (by dates). The patient had had uncontrolled type 1 diabetes for 4 years, with irregular medical care and intermittent bolus insulin therapy; she had had vaginal leaking for 24 h. Ultrasound showed maturity equivalent to 37 to 38 weeks of gestation. Previous obstetric history had been uneventful, with one full-term delivery by Caesarean section 4 years previously. The patient had not seen any physician for diabetes care during pregnancy.

On arrival, this patient was in active labour, had cephalic presentation, with moderate contractions, 100% effacement,

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and cervical dilatation of 4 cm. There was no scar tenderness and a normal delivery was planned. Casual blood glucose was 23 mmol/l and urine ketones were elevated. There was no clinical evidence of acidosis. Serum pH was not checked. A normal saline–insulin–potassium drip had just been started when the patient went into irreversible cardiorespiratory arrest. The condition was explained to the persons accompanying the patient (including her husband, who said he was not aware that his wife had ‘permanent diabetes’), and they gave consent for a posthumous LSCS. A baby boy weighing 3.6 kg and with plethoric facies was delivered; the Apgar score was 8/10. The family refused neonatal care and took the baby home without waiting to receive specific information on neonatal care.

Posthumous deliveries by Caesarean section have been reported earlier [5], but this is perhaps the first report of a case series in women with type 1 diabetes. While both case histories were different (booked vs unbooked patient, first vs second pregnancy, moderately well controlled vs poorly controlled diabetes), they shared many similarities. Thus both patients were being taken care of by their parents, with the husbands not actively involved in treatment. Both also had poor compliance with regard to prescribed medication, and/or poor healthcare or healthcare-seeking behaviour. In addition, both patients died within minutes to hours of reaching hospital, probably because of diabetic ketoacidosis or its complications. Possible causes of death may have been congestive heart failure, hypokalaemia, acidosis or cerebral oedema. Infection or septicaemia were unlikely in both cases.

The two babies delivered by posthumous Caesarean section were lucky in that the obstetrician, endocrinologist and neonatologist were on site and available when the mothers died. Decision-making procedures unhindered by red tape, quick reflexes, and the immediate procurement of

informed consent led to quick delivery, enabling the lives of the two children to be saved.

However, we would have liked to have saved the two mothers as well. In particular, better counselling, and involvement of the husbands and mothers-in-law in antenatal care, could well have changed the outcomes. However, this would only have been possible in the context of an effective social awareness campaign about the needs of young people with type 1 diabetes [4], with a strong focus on the special needs of young women, especially during pregnancy.

**Duality of interest** The authors declare that there is no duality of interest associated with this manuscript.

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