

Case story

Care of mother and baby post-delivery:
delayed cord clamping and recognition
of the deteriorating newborn

Case story

This case story is based on real events and NHS Resolution is sharing the experience of those involved to help prevent a similar occurrence happening to patients, families and staff. As you read about this incident, please ask yourself:

- Could this happen in my organisation?
- Who could I share this with?
- What can we learn from this?

Topic: Care of mother and baby post-delivery: delayed cord clamping and recognition of the deteriorating newborn

Key points:

1. An Apgar score less than 7 needs resuscitation and is out-with normal parameters.¹
2. Newborn Life Support prioritises expedient neonatal resuscitation for babies who are severely compromised.
3. The value of delaying cord clamping is accepted in practice. For the healthy term infant, it improves iron status through infancy and in preterm infants in good condition it results in increased blood pressure during stabilisation, lowers the incidence of intraventricular haemorrhage and reduces the need for blood transfusions.¹
4. The National Institute for Health and Care Excellence recommends that for healthy women at term after delivery the cord is not clamped within the first 60 seconds and that it should be clamped before five minutes following delivery, although women should be supported if they wish this to be delayed further.² The Neonatal Life Support (NLS) guidelines 2015 also supports this recommendation.
5. World Health Organisation guidance also advises in newly born term or preterm babies that do not require positive-pressure ventilation, the cord should not be clamped earlier than one minute after birth.³ However when newly born term or preterm babies require support, the cord should be clamped and cut to allow effective ventilation to be performed.

Maternity story

A mother in her first pregnancy with a BMI of 24 and no significant medical history was booked for midwife-led care. She received low risk antenatal care. She had a single presentation of reduced fetal movements at 27 weeks, she was reassured after seeing the midwife and being assessed. Her birth plan discussed during admission with her midwife was to have skin-to-skin, delayed cord clamping and for her mother to cut the cord. She contacted labour ward triage having been contracting through the day, and following advice attended the maternity unit.

She arrived onto the assessment area and was assessed by a midwife within 30 minutes. A vaginal examination was performed and the cervix was 5cm dilated, the baby's movements were normal and the fetal heart rate was 125bpm. The risk assessment remained low-risk so she was transferred to the midwife-led unit and the fetus was monitored by intermittent auscultation (listening, typically with a sonic-aid or pinnard).

She progressed rapidly to full dilatation five hours from her initial examination, during which time her pain was managed with gas and air and a single dose of pethidine. She had intense urges to push so was advised to follow her body. Active pushing was then commenced after 30 minutes of involuntary pushing. The fetal heart rate during the active phase of pushing was always above 110bpm.

Delivery occurred 37 minutes after active pushing started. A baby girl was born, and was placed skin-to-skin on her mother's abdomen with the umbilical cord still attached, as planned. The baby's eyes were open but she did not attempt to cry, heart rate was above 100. Apgar score was noted as 5 at one minute (the baby was pale but appeared to 'pink up' with stimulation, heart rate was more than 100, eyes were open but no grimace or cry, 'some' tone, and irregular breathing). Apgar score at five minutes was 6, as the baby seemed to be improving she was left on her mother's abdomen.

Score	0	1	2
Appearance (skin)	Cyanotic/pale all over	Peripheral cyanosis	X Pink
Pulse	Absent	Less than 100	More than 100 X
Grimace (reflex irritability)	Absent	X Grimace/weak cry	Cry with stimulation
Activity (tone)	Floppy	Some flexion	X Active
Respiration	Absent	Slow, irregular	X Good/crying

The midwife continued with her postnatal management assessing for bleeding, weighing absorbent sheets to assess blood loss and measuring the patients' blood pressure as she was complaining of feeling unwell, this was normal. At nine minutes of life it was noted by mum that the baby 'wasn't breathing so well'. The baby was then assessed by the midwife, the cord was clamped and cut and the baby was transferred to the resuscitaire. At 11 minutes the emergency call bell was pulled and neonatal emergency was announced, neonatal resuscitation was commenced. The team arrived at 14 minutes in response. The baby was re-assessed, resuscitated, intubated and transferred to the neonatal unit. There were no reliable cord blood gas values but capillary blood gases from the baby were poor and she had abnormal movements thought to be seizures so she was actively cooled.

Appropriate assessment and management of resuscitation supersedes delayed cord clamping and skin to skin. This case story highlights the ease with which health professionals can become task focused when faced with the multiple requirements that occur in the care of the woman, it also emphasises the need for continued assessment of the neonate especially if their initial assessment such as Apgar is not normal.

Considerations for your hospital

- How often is training provided for neonatal resuscitation?
- What is the appropriate response to a one minute Apgar score of 6 or below?
- Does your training discuss assessment post-delivery or include discussions around delayed cord clamping?
- During your antenatal discussions do you inform the woman about her options and choices around management of the cord and the potential outcomes? Does your hospital/trust have a guideline or policy which involves the management of delayed cord clamping and the contraindications for doing this?
- During a delivery is an assistant available and do they continue to support care until the post-delivery process is complete?

What has happened as a result?

This case was referred to NHS Resolution as part of the Early Notification scheme in light of the neonatal brain injury sustained.

The case will be reviewed to consider whether the injury could and should have been avoided. If appropriate NHS Resolution will work with the family to ensure that they are fully compensated and that they and the staff involved are fully supported throughout the process.

It is very important to note that no amount of money is comparable with the loss of a child or a child living with lifelong neurological injuries. Where poor outcomes occur as a result of deficiencies in care and families are entitled to be fully compensated, NHS Resolution aims to resolve all such fairly and as quickly as possible. The current compensation cost to the NHS for a baby who has long term severe brain injury is on average £10 million. The human costs to the baby, families and clinical teams involved as a result of such cases are immeasurable.

Resources:

1. Resuscitation Council (UK) 118 Resuscitation Guidelines 2010. 11. Newborn Life Support.
2. Royal College of Obstetrician and Gynaecology. Clamping of the Umbilical Cord and Placental Transfusion. Scientific Impact Paper No. 14. February 2015
3. WHO. Guideline: Delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes. Geneva: World Health Organization; 2014.

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