NHS Resolution

Case story

Good practice in managing umbilical cord prolapse

Case Story

Advise / Resolve / Learn

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: Management of a patient at risk of umbilical cord prolapse – example of good practice

Key points:

- Although there are certain risk factors that increase the chance of an umbilical cord prolapse occurring, it can occur in any pregnancy.[1]
- Membranes will rupture prior to the onset of labour in up to 1 in 10 pregnancies.[2]
- Perinatal mortality is increased by more than ten-fold when cord prolapse occurs outside the hospital compared to inside the hospital setting.[1]
- Delay in diagnosis to delivery because of transfer to hospital time appears to be a contributing factor to perinatal mortality[1].
- Women with an unstable, oblique or transverse lie should have a detailed risk-benefit discussion regarding the possibility of spontaneous rupture of membranes occurring in the community and the perinatal mortality associated with this.[1]
- Although cord presentation is not screened for, if it is identified on ultrasound scan after 37 weeks, a detailed risk-benefit discussion should occur with a senior obstetrician regarding the likelihood of a cord prolapse occurring and ongoing management.

Maternity story

A 38 year old mother in her fourth pregnancy booked for Midwifery-led care. She had previously had three uncomplicated pregnancies with three vaginal births at term.

She underwent routine antenatal care with no other concerns. Abdominal palpation at the 36 week antenatal appointment found the baby was in a transverse lie and she referred to the hospital for an ultrasound scan by the midwife. There were no other maternal or fetal concerns. This ultrasound was performed the following day and confirmed a transverse lie with loops of cord seen next to the cervical os. The mother was asked to wait to speak to a doctor, however was unable to wait due to childcare reasons. The midwife explained the importance of adopting a 'knee-chest' position and of seeking urgent assistance via ambulance should the mother's membranes rupture in the community and arranged a follow-up appointment in the antenatal clinic later that week.

The mother attended the antenatal clinic at 36+3 and after confirming the fetal lie to still be transverse, was advised by a senior obstetrician about the risks of cord prolapse with the option to be admitted to hospital from 37 weeks gestation as a precaution. The mother was initially reluctant to be admitted due to childcare issues. However, a discussion about the difference in management and outcome if a cord prolapse occurred in hospital compared to in the community allowed her to make an informed decision for admission to the maternity unit from 37 weeks. A consent form for caesarean section was completed as a precaution with written information also given, in the event of an emergency caesarean section be required.

At 37 weeks the mother was admitted to the maternity unit and a full antenatal assessment, including cardiotocography (CTG) was performed which was normal. A review was undertaken by the admitting obstetric team, who confirmed the baby was still in a transverse lie with a plan made to consider a stabilising artificial rupture of membranes at around 39 weeks.

The mother had an uneventful admission, with daily obstetric review from the on call team until 37+6 when she reported irregular tightening's and discomfort. Her observations were normal and a CTG was commenced which was also normal. The midwife discussed performing a vaginal examination due to the tightening's which the patient consented to and revealed the cervix to be 1cm dilated so she was given oral analgesia.

Two hours later she pressed her call bell as she had experienced spontaneous rupture of membranes with clear liquor draining. A midwife attended immediately and performed a vaginal examination. This revealed the cervix to be 4cm dilated with a palpable loop of cord in the vagina. The midwife pulled the emergency buzzer to summon help and requested a '2222 Obstetric Emergency' call be placed via switchboard for a cord prolapse. She remained elevating the presenting part from the loop of cord to facilitate blood flow whilst awaiting arrival of the obstetric team. On arrival of the on call obstetrician, the CTG was showing some variable declarations with a baseline of 130 beats per minute and a plan was made to proceed to Category 1 Caesarean Section. The obstetric anaesthetist on call also attended the antenatal ward and sited a cannula. The theatre team were informed and plans were made to transfer directly to the obstetric theatre. The CTG remained on and as the

mothers' contractions begun to increase in frequency the decelerations increased in length and depth, terbutaline was requested and administered prior to leaving the antenatal ward.

The neonatal team were called in advance and requested to attend immediately. The midwife continued to elevate the presenting part during transfer to enable blood to continue to flow to the baby and the CTG was reconnected immediately on arrival in the operating theatre 9 minutes later. Once the CTG was connected a fetal bradycardia was noted to 70 beats per minute and the decision was made to perform a general anaesthetic. An uncomplicated caesarean section was performed with a decision to delivery time of 26 minutes.

The baby was born in poor condition with cord gases of venous pH of 7.25 and BE –4.8 and arterial pH 6.98 and BE of -16.2. The baby was noted to be floppy on the neonatal unit so the decision was made to commence therapeutic cooling. The baby was cooled for 72 hours and a Magnetic Resonance Imaging Scan was normal showing no evidence of hypoxic ischaemic encephalopathy. The parents were debriefed afterwards and the appropriate clinical incident proforma was completed. The trust reviewed the case to determine if anything could or should have been done differently, which in this case was felt to be none, with the outcome of this investigation shared with the parents and wider maternity team. The baby underwent routine paediatric follow up and was discharged with normal developmental milestones.

Good practice points

This case has several areas of good practice which may have contributed to the normal outcome for the baby:

- The community midwife identified an abnormal lie and referred for an ultrasound scan which was performed promptly.
- The mother was provided with a risk versus benefit discussion regarding the recommendation for admission to hospital in patients at higher risk of a cord prolapse, such as transverse lie.
- Caesarean section consent was obtained prior to admission in the case of an emergency to ensure informed consent was obtained and the mother had an opportunity to ask questions.
- The mother underwent a daily obstetric review whilst admitted ensuring the on call team were aware of her, her medical history and reason for admission.
- The mother was aware of the importance of informing a member of staff if her membranes ruptured straight away.
- The midwife looking after the patient offered and discussed performing a vaginal examination prior to administering pain relief when the mother reported contractions on the antenatal ward.

- Staff identified the cord prolapse and appropriately summoned additional help via the emergency call system immediately, elevating the presenting part from the cord.
- Once the cord prolapse/obstetric emergency was identified, the mother was transferred directly from the antenatal ward to the obstetric theatre for Caesarean Section, rather than to labour ward first. This reduces the decision to delivery time in an emergency reducing the length of potential harm.
- A category 1 Caesarean section was called in light of the CTG abnormalities and diagnosis of cord prolapse and delivery was achieved within 30 minutes as per national guidance.
- As the CTG showed signs of fetal compromise in the presence of increasing contractions, terbutaline was administered.
- The neonatal team were alerted and requested to attend the birth in advance.
- Therapeutic cooling was undertaken as per national guidance.
- The parents were debriefed and the appropriate clinical review paperwork was completed.
- Learning from the investigation was shared with the parents and wider maternity team.

Everything that could have been done to reduce the harm to the baby was done in this situation. Without this prompt management the outcome could have been significantly different.

Considerations for your hospital

- Do you have guidance on the management of a mother at risk of cord prolapse, such as with an unstable lie or with a cord presentation?
- Do you have clear guidance on the categorisation of Caesarean Section and recommended decision to delivery times?
- Do you have a policy which advises the direct transfer from any antenatal area in the event of an emergency directly to the obstetric theatre if caesarean section required?
- Is cord prolapse included as part of your annual multi-disciplinary team training?
- Do you have a process for learning from cases that demonstrate good practice and provide feedback to the clinicians involved?
- How would you feel managing this situation?

What has happened as a result?

This case was referred to NHS Resolution as part of the Early Notification Scheme in light of the therapeutic cooling that the baby underwent.

Cases like this will be reviewed to consider whether the events could have been avoided or managed differently. Where appropriate NHS Resolution will work with the Trust and 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 £12 million. The human costs to the baby, families and clinical teams involved as a result of such cases are immeasurable.

Resources:

1. RCOG Umbilical Cord Prolapse – Green top Guideline No. 50 – November 2014. https://www.rcog.org.uk/globalassets/documents/guidelines/gtg-50-umbilicalcordprolapse-2014.pdf

2. Gibbs r, Karlan B, Haney A, Nygaard I. Danforth's obstetrics and gynaecology. 10th ed. Philadelphia: Lippincott Williams & Wilkins; 2008.