Third stage of labour

Labour and birth together form a continuous process which is often referred to as a series of separate events. Even once the baby is born, the process is not complete until the placenta is outside of the mother’s uterus. This latter part of labour is referred to as the third stage. NCT Bank tutor and antenatal teacher Denise Stanford-Bell outlines the different routes the third stage can take and the evidence base, focusing on key questions that parents may have rather than being an exhaustive review.

What is physiological third stage?

With no medical interventions, and with or without a short break in her contractions, the mother will be able to push her placenta out, preferably with her baby held skin-to-skin and still attached to the umbilical cord. Before this expulsion of the placenta, whilst the placenta is still attached to the uterine wall, the cord will continue to pulsate for a few minutes, if left undisturbed. As a midwife, I have occasionally observed it to pulsate for 20 minutes or more. It continues to supply oxygenated blood to the baby until she starts to breathe on her own. The cord and placenta system will still contain about one third of the baby’s blood, whilst the remaining two thirds is in the baby. At this point, the cord is thick and rubbery and the uterus, under the influence of natural oxytocin, contracts the ‘living ligatures’, stemming blood loss. From observation this process can take from between a few minutes to an hour. The midwife will then check the placenta, to ensure that it is complete and none is left inside the mother. This approach often entails slightly more blood loss immediately after the birth compared with active management of third stage, but this should not present a problem for fit and healthy mothers with a good haemoglobin level.
What does active management entail?
The midwife or doctor will give a uterotonic drug, generally syntocinon or syntometrine, by injection at the top of the thigh, soon after the baby is born. Syntocinon can also be given intravenously if the mother is already on a drip, perhaps for an epidural or if she is in the operating theatre. The cord is then clamped and cut, by the partner if desired. The uterotonic drug makes the smooth muscle of the uterus contract, which normally causes the placenta to quickly detach from the wall of the uterus – which will be accompanied by a visible lengthening of the cord and increased blood loss at the vagina. The midwife will put her hand on the fundus, the top of the uterus, to check that the placenta has come away. Then the midwife may gently pull the placenta out ('controlled cord traction'), whilst guarding the uterus to stop inversion. This usually takes 10-20 minutes.

The updated National Institute for Health and Care Excellence (NICE) guideline recommends for healthy women:

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After administering oxytocin, clamp and cut the cord.

- Do not clamp the cord earlier than 1 minute from the birth of the baby unless there is concern about the integrity of the cord or the baby has a heartbeat below 60 beats/minute that is not getting faster.
- Clamp the cord before 5 minutes in order to perform controlled cord traction as part of active management.
- If the woman requests that the cord is clamped and cut later than 5 minutes, support her in her choice.

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NICE also recommends syntocinon as the choice of uterotonic drug. Some NHS Trusts still choose syntometrine although this has possible side effects including nausea, sickness and and headache, so it is good to check what is used locally.

What happens to the umbilical cord?
If the cord is very short or wrapped tightly around the baby’s neck, health professionals may attempt to free the cord using the ‘somersault manoeuvre’ or rotation of the baby at the perineum. If this is not possible then the cord may need to be cut immediately. For most babies the cord is cut after the birth after first placing two clamps on the cord, the first about 3-4cm from the baby’s navel, and the second a few centimetres further on. The cord is cut between the two clamps, leaving a stump about 2-3cm long at the umbilicus, which will become the baby’s belly button. Cutting does not cause pain as there are no nerves in the cord. The mother may continue to feel contractions, like period or labour pains, which are often stronger with second and subsequent babies. The midwife should ask consent to examine the mother’s perineum and vagina, to see if the skin and/or muscle has torn and requires stitches.

What are the benefits of ‘delayed cord’ clamping?
The Cochrane review: Effects of timing of umbilical cord clamping of term infants on maternal and neonatal outcomes states some important advantages of delayed cord clamping for healthy term infants, such as a higher birthweight, early peak haemoglobin concentration, and increased iron reserves for up to six months after birth. Delayed cord clamping does not seem to increase the risk of haemorrhage or other complications for ‘low risk’ mothers,
though it does appear to be associated with an increased incidence of neonatal jaundice. The Cochrane review suggests, however, that the latter can be managed with a liberal approach so long as phototherapy treatment is available. For preterm babies delayed cord clamping seems to be associated with less need for transfusion, better circulatory stability, less intraventricular haemorrhage and lower risk of necrotising enterocolitis.5

Retired obstetrician David Hutchon writes that as there is is no sudden change in neonatal circulation at birth and the baby has her own circulation to support the transfer from womb to world, allowing a minimum of two minutes will give the baby an increased blood volume of up to 100mls.6 In newborn lambs born by caesarean, deferring cord clamping until the neonatal circulation is established seems to reduce the need for resuscitation, and supports circulation.7 Some human societies practise the method of ‘cord milking’ - pushing the cord blood towards the baby at the time of birth, in order to protect term and preterm babies when delayed cord clamping is not possible. Further research is needed, however, to see if cord milking has overall benefits for babies. We also need more research on the optimal timing for delayed cord clamping, for mother and baby. Across the UK teams are developing the skills for using alongside resuscitation equipment for newborn babies whilst keeping the cord intact.8 At a home birth, a flat hard surface will suffice.

What facilitates the third stage of labour?
The following strategies will support a physiological third stage, and might also help a slow managed third stage: keep the mother in an upright position to take advantage of gravity; encourage her to hold the baby skin-to-skin; breastfeeding, in order to increase her oxytocin levels and promote contractions of the uterus; ensure that she has an empty bladder (a full bladder may ‘block’ the way out); and keep the mother warm and as relaxed as possible.

Why would some mothers need an actively managed third stage?
The mother may be at risk of heavy bleeding (more than 500 mls of blood) if she has had any medical interventions including forceps or ventouse, a very quick or a very long labour, twins or multiple births (resulting in a bigger placental site). In maternity service settings, the midwife or doctor will want to reduce the risk of haemorrhage by recommending an actively managed third stage, with delayed cord clamping wherever possible. Anecdotally, delayed cord clamping is also occurring in theatre at an elective caesarean.
Rhesus negative mothers

Mothers who have the Rhesus negative blood group may wish to have the option of an injection with anti-D immunoglobulin, to prevent her becoming sensitised to any of the baby’s blood cells that may have entered her bloodstream during the birth. She can still have delayed cord clamping and/or a physiological third stage. The midwife can take a blood sample from the cord during the process in order to check whether the baby is Rhesus positive or Rhesus negative. Currently, in the NHS, cord blood is not routinely taken and stored at birth except when there is a known family history of haematological conditions (e.g. leukaemia or haemophilia). However, cord blood can be taken and donated.9

Blood loss after birth and retained placenta

A blood loss of up to 500 mls is generally considered normal.10 Above this it is considered a post-partum haemorrhage (PPH). If blood loss continues then extra uterotonic drugs and other interventions may be employed to safeguard the mother’s wellbeing. Rarely, surgery or hysterectomy may be considered. In about 3% of births, the placenta is still retained within the uterus after either a physiological or managed third stage.11 This requires surgical removal in an operating theatre under spinal anaesthesia if the use of all other oxytocics has failed. The definition of retained placenta depends on the time period used – for example, whether it has not been expelled within one hour of birth. Some settings use a threshold of just 30 minutes, but according to WHO there is no evidence to support this definition.12

Teaching ideas

One idea for working with parents is to engage them with a card-sorting activity. To help parents remember more information, divide a series of statements in two, each on a different card, and ask them to read the cards and try matching pairs of cards to form the correct statements. Visual aids such as placenta and umbilical cord fashioned from material such as wool, and photos or drawings, are helpful to explain the process of labour and birth. For deeper learning in a small group setting, offer different levels of information ranging from the most recent Cochrane reviews, NICE summaries and other journal articles, to NCT fact sheets13, information from Babycentre,14 or Wikipedia. Ask clients to read these for 10 minutes then focus on a topic or set of questions. A conversation around the new NICE guidance and benefits of delayed cord clamping may be the most useful to focus on, so that wishes are carried out at birth, particularly when combined with skills around decision making.

References

13. NCT. www.nct.org.uk
14. Babycentre. www.babycentre.co.uk