AIMS For a better birth...

The Natural (Gentle) Caesarean

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By Jenny Smith

The background

Caesarean section is the commonest operation globally, and in some UK hospitals the commonest mode of birth.

NHS Trusts in England reported a 42% rate of caesarean in 2023/24.[1] This paper will not focus on the reasons for having a caesarean, whether these be medical or social, but on how caesarean surgery techniques can be more sympathetic to the physiology of the body.

During the early 2000s, the question of how to improve caesarean birth both physiologically and psychologically for parents, resulted in a service improvement initiative at Queen Charlottes and Chelsea Hospital, London, and the publication of Natural Caesarean paper in 2008.[2]

The aim of the natural caesarean technique was to emulate the process of a normal birth, the mother witnessing baby's birth at same time as the surgical team, the baby being born slowly by a process of wriggling and support ('walking the baby out'), followed by delayed cord clamping with the baby receiving his or her full quota of blood from the placenta, and skin to skin contact between the mother and baby to assist with the baby's physiological adaptation to being born and to optimise the initiation of breastfeeding.

Although this technique was originally developed for caesareans with cephalic presentation babies (head down), women with breech babies now enjoy many of the steps of natural caesarean, particularly once

the baby's head is released and the baby seen to be well.

In favourable circumstances, twin babies may also be able to enjoy a modified version of this approach.

Antenatal Education – Physical and physiological preparation

All women, regardless of birth choice, may benefit from discussions on how to modify the caesarean approach in order to replicate some of the advantages of vaginal birth and thus improve health and wellbeing for mother and baby in this eventuality.

Optimisation of iron levels in pregnancy (Hb 110 g/L and above) is encouraged in case surgery is elected or becomes necessary. A diet rich in iron and protein helps to counteract the complications of blood loss and promote healing.

Trying to keep active in pregnancy will also enhance mobility in the postnatal period, reducing risks of deep venous thrombosis, which is more common after surgery.

A delay in breast milk production can occur following surgical birth.[3] Colostrum harvesting is encouraged after 37 weeks of pregnancy, and information given regarding physiology of colostrum and breastmilk production. Colostrum can be frozen and later defrosted and given to the baby (by finger sucking and syringe) to supplement breastmilk.

A positive and proactive approach to health and wellbeing during pregnancy and for birth supports the physiology of the body, including recovery and healing after surgery. Practicing 4/8 breathing exercises [4] and body relaxation is encouraged, so that when stress and anxiety occur, these techniques are able to calm both body and mind. These simple breathing and relaxation exercises can be practiced very effectively in the operating theatre, with calming music played, and reducing periphery theatre lighting chosen by parents if wished.

A few items from home, such as a pillow and night shirt, brings comfort to the birth room. These can be gathered beforehand. The subtle smell of home is noted by the olfactory centre in the brain informing the person's subconscious that all is well. If the mother has slept with a muslin cloth on her breasts in the later weeks of pregnancy, this can be placed over the baby during skin to skin time after the birth, increasing the skin microbiome and facilitating bonding. Should the baby need to spend time in an incubator, this cloth can be tucked in as well.

The size of the caesarean incision should be discussed with the parents antenatally, as if this is very small the chance of requiring a forceps delivery of the baby's head is more likely. NICE guidance says to "only use forceps in caesarean birth if there is difficulty delivering the baby's head. The effect of neonatal morbidity of the routine use of forceps at caesarean remains uncertain".[5]

Discussion in antenatal sessions about the roles of each member of the professional team in attendance at a caesarean birth will avoid unnecessary alarm at the time.

This study showed that free access to drinking water before a planned caesarean significantly reduced

the chance of vomiting around the time of the surgery and was much prefered by the mothers. It was also helpful in maintaining the woman's circulatory volume and reducing the risk of a drop in blood pressure.

The natural (gentle) caesarean technique

The technique described was designed to emulate a spontaneous vaginal birth. The approach involves distinct steps that are different from the traditional caesarean:

The process of Auto-resuscitation: Ideally, the baby's head is born by a cupping motion of the surgeon's hand alongside fundal pressure, allowing for a slower and more gentle emergence of the baby that is closer to that experienced by the baby during a physiological vaginal birth and reducing the risk of skin marks or trauma. Once the baby's head is out, the body remains in the uterus for a couple of minutes for the soft tissues to squeeze the baby's chest. Unlike babies born by vaginal birth, there is not the usual pressure of the birth canal to assist in the drainage of lung fluid. This delayed approach of birth gives time for the mother's soft tissues to press on the baby's rib cage, increasing the expulsion of lung fluid and making the possibility of Tachypnea Of The Newborn (TTN) or 'wet lungs'[6] less likely. During this time the baby breathes externally whilst also receiving oxygenated blood from the placental circulation.

Walking the baby out (slow delivery): The baby shoulders are then born with a process of baby wriggling, uterine contraction and gentle assistance from the obstetrician.

Delayed cord clamping and easier separation of placenta: The slower birth of the baby gives time for a more natural separation of the placenta, and indeed, if the parents want this, a lotus birth (where baby and placenta remain attached together) can also occur.

NICE guidance (1.4.34)[5] recommends that an injection of Carbetocin, which is an oxytocin derivative drug, is given to actively manage the third stage in caesareans. Rather than manually removing the placenta, which increases the risk of endometriosis, this drug mimics natural oxytocin, causing a more physiological uterine contraction that results in the placenta peeling away from the uterine wall.

In the Cochrane review in 2010, it was shown that delayed cord clamping improves iron status in infants up to six months after birth, although there is a possible risk of jaundice, which would require phototherapy.[7] The World Health Organization (WHO) has called for delayed cord clamping of up to 3 minutes in all births, and NICE guidance recommends up to 5 minutes.[8] Seventeen women having a caesarean took part in a 2020 pilot study[9] to see if removing the placenta before clamping the cord was safe. This method was successful in all but one case (94%). The authors concluded that this simple method has the potential to reach the WHO goal in caesarean birth with minimal apparent risk. This 2024 study compared the technique of cord milking (gently squeezing the umbilical cord from the placenta towards the infant to transfer blood from the placenta to the baby) to delayed cord clamping during a caesarean, finding that both were better than immediate clamping, with 'milking' being useful if a 'delay' wasn't possible. The 'Wait for White' campaign website has more evidence-based information on delayed (optimal) cord clamping.

Direct Skin to Skin: Skin to skin contact, as this article shows, physiologically benefits babies in a number

of ways. It keeps them warmer, stabilises their heart rate and other health markers, reduces crying at birth, improves mother baby interaction and breastfeeding success.[10], [11] There may also be benefits in the mother's response to their own baby crying.[12] It was shown that the mother's brain response to their own baby crying was significantly higher in the vaginal birth group compared to that of women in the caesarean birth group. It would seem that skin to skin not only improves the physiology but also the psychology of the mother-baby relationship.

Consideration of surgical drapes used during caesareans: Opaque paper drapes are usually placed as a screen clipped up to drip stands, that is unclipped to view the baby and then re-positioned back for the rest of the operation. Some drapes have a clear window with an opaque 'curtain' that is lifted for the parents to see their baby and then lowered again. More recently, and designed especially to facilitate the natural caesarean, there is a new hatch drape. This is designed so that the baby can be passed by the midwife (with sterile gloves) through the paper hatch and placed immediately on the mother's chest. The drape is replaced with another sterile opaque drape for the remainder of surgery. The placental cord is then cut by parents or can remain attached with the placenta in a plastic kidney dish until cord cutting by parents later on.

Physiological recovery, breastfeeding and future pregnancies: Introduction of the natural caesarean technique, followed by prolonged and unrushed skin to skin is beneficial in terms of physiology as early breastfeeding encourages uterine contraction, reduction of blood loss, breastfeeding and bonding[2]

Steri-strips (adhesive paper strips) applied to the wound promote physiological skin healing, or silicone dressings followed later by massage of scar with Bio-oil[13] or something similar.

Women are encouraged to mobilize as soon as spinal anaesthesia wears off, and urinary catheter and cannula can be removed as soon as safe following birth. Early light diet and drinking is encouraged. If bloating occurs following surgery chewing gum, a warm pad for any shoulder tip pain, and peppermint tea can help. Peppermint tea,[14] or coffee,[15] also increases motility (movement) in the bowel, helping return it to normal action.

Mothers are encouraged to spend long periods of time 'skin to skin' with their babies, as it benefits both physiologically. 'Skin to skin' between baby and partner is also recommended. Throughout this time, support will be needed to provide for the mother's needs and with baby care.

Future pregnancies will depend on the reason for the first or current caesarean, but when cesarean birth is necessary or preferred, this modified more gentle approach to surgery that includes everything possible to align with the physiology of the body, enhances bonding, maternal satisfaction, breastfeeding, healing and recovery.

Useful viewing

- A number of videos about this approach to caesarean birth can be found here.[16]
- A video showing what happens during a caesarean from the parents perspective can be found here.[17]

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The Natural Caesarean: Overcoming the Obstacles and Riding the Waves - where next? https://vimeo.com/373107346

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[1] NHS England (2024) NHS Maternity Statistics, England, 2023-24

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[2] Smith J, Plaat F, Fisk NM. The natural caesarean: a woman-centred technique. BJOG. 2008 Jul;115(8):1037-42; discussion 1042. doi: 10.1111/j.1471-0528.2008.01777.x. PMID: 18651885; PMCID: PMC2613254. https://pmc.ncbi.nlm.nih.gov/articles/PMC2613254

[3] Hobbs, A.J., Mannion, C.A., McDonald, S.W. *et al.* The impact of caesarean section on breastfeeding initiation, duration and difficulties in the first four months postpartum. *BMC Pregnancy Childbirth* **16**, 90 (2016). https://doi.org/10.1186/s12884-016-0876-1

[4] Editor's note: 4/8 breathing is a way of lowering stress hormones in the body, which automatically improves physiological functioning. The person breathes in through the nose for a count of 4, feeling their belly swell as they do this - and then they breathe out slowly through gently pursed lips for a count of 8. Some people like to hold the breath for a count of 4 before the slower deeper exhale.(4/4/8). Others suggest a short pause at the end of the exhalation before the next inhalation. The numbers don't actually matter as long as the 'round' is slow and rhythmic with the out breath longer than the in breath. I imagine breathing in up the 4 steps of a child's slide - taking a momentary pause - then slowly breathing down the

slide finding it gets longer and longer as the relaxation effect kicks in.

[5] NICE (updated 2024) Caesarean birth. Guideling NG192, 1.4.32 www.nice.org.uk/guidance/ng192/chapter/recommendations

[6] Maryam Yeganegi, Reza Bahrami, Sepideh Azizi, Zahra Marzbanrad, Nazanin Hajizadeh, Seyed Reza Mirjalili, Maryam Saeida-Ardekani, Mohamad Hosein Lookzadeh, Kamran Alijanpour, Maryam Aghasipour, Mohammad Golshan-Tafti, Mahmood Noorishadkam, Hossein Neamatzadeh. (2024) Caesarean section and respiratory system disorders in newborns. European Journal of Obstetrics & Gynecology and Reproductive Biology: X,

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[8] RCOG (2015) Clamping of the Umbilical Cord and Placental Transfusion. www.rcog.org.uk/media/ahppgoek/sip-14.pdf

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[10] Baby Center (2024) Benefits of skin-to-skin contact with your newborn www.babycenter.com/baby/newborn-baby/benefits-of-skin-to-skin-contact-with-your-newborn_20005036

[11] Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2016 Nov 25;11(11):CD003519. doi: 10.1002/14651858.CD003519.pub4. PMID: 27885658; PMCID: PMC6464366. https://pubmed.ncbi.nlm.nih.gov/27885658

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https://pmc.ncbi.nlm.nih.gov/articles/PMC3246837

[13] Editor's footnote: Bio-oil is the brand name of a particular brand of skin care oil intended for use on stretch marks and scars. AIMS does not endorse particular products, but for anyone interested, here is information about Bio-oil from the manufacturer: www.bio-oil.com/gb/en/products/SCON/information

[14] Mousavi Vahed SH, Afiat M, Dadgar S. Peppermint drop effect on ileus following cesarean section. J Family Med Prim Care. 2022 Apr;11(4):1435-1442. doi: 10.4103/jfmpc.jfmpc_1366_21. Epub 2022 Mar 18. PMID: 35516656; PMCID: PMC9067208.

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[16] Natural caesarean films: https://jentlechildbirth.com/videos

[17] Labour Pains (no date) Caesarean birth advice and information.www.labourpains.org/caesarean-birth/caesarean-birth-advice-and-information