Frimley Health NHS Foundation Trust

Assisted Vaginal Birth

Key Points

- Women should be informed about assisted vaginal birth in the antenatal period, especially in their first pregnancy.
- The choice of instrument depends on the skill and experience of the operator and the clinical circumstances.

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Abbreviations

NNU	Neonatal unit
LSCS	Lower segment caesarean section
BMI	Body mass index

Contents

Introduction

This guideline is based on the RCOG green top guideline no 26, updated in April 2020.[1]
Assisted vaginal birth rates have remained stable at between 10% and 15% in the UK, yielding safe and satisfactory outcomes for the majority of mothers and babies. Around 1 in 3 nulliparous women undergo assisted delivery, with lower rates in midwifery led settings. Despite this, there is a high probability of spontaneous vaginal birth in subsequent pregnancies. [1,2]

1. ANTENATAL DISCUSSION

Women should be informed about assisted vaginal birth in the antenatal period, especially in their first pregnancy. If they indicate specific restrictions or preferences, this should be explored with an obstetrician, ideally in advance of labour. Refer women to the patient information leaflet on the maternity website.

2. INDICATIONS FOR OPERATIVE VAGINAL DELIVERY[2]

The indication must be documented in the woman's notes.

Fetal	Presumed fetal compromise Fetal malposition (occipito-posterior, occipito-transverse position) After coming head of a breech
Maternal	Medical indications to avoid Valsalva Cardiac disease class III or IV (New York Heart Association classification) Hypertensive crisis Cerebral vascular disease particularly uncorrected cerebral vascular malformations Myasthenia gravis Spinal cord injury patients at risk of autonomic dysreflexia[1] Proliferative Retinopathy[1] Maternal exhaustion or distress if supportive care fails[3]
Inadequate progress[3]	Lack of continuing progress in the active second stage of labour: Nulliparous women after two hours[3] Multiparous women for one hour[3]

3. CONTRAINDICATIONS TO OPERATIVE VAGINAL DELIVERY[1,4]

Contraindications to operative vaginal delivery should be balanced against the risks to the woman and fetus of continuing the labour or the risks of caesarean section. Decisions in exceptional circumstances should be made by an experienced obstetrician, ideally in advance of labour, in collaboration with the woman.

- Prerequisites for operative vaginal delivery not met
- Fetal bleeding disorders, e.g., autoimmune thrombocytopenia (relative contraindication)
- Fetal predisposition to fracture, e.g., osteogenesis imperfecta (relative contraindication)

Specific contraindications to vacuum/ventouse delivery are:

- Face presentation
- Avoid under 32 weeks, use with caution by experienced obstetrician 32-36 weeks can be considered.
- After-coming head of a breech
- No maternal effort

4. PREREQUISITES FOR OPERATIVE VAGINAL DELIVERY[1,4,5,6]

- Abdominal and vaginal examination
- Head ≤ 1/5 palpable per abdomen
- Cervix fully dilated
- Membranes ruptured
- The vertex (bone not caput) at or below the ischial spines
- Exact position of the head has been determined. Ultrasound assessment prior to assisted delivery may improve accuracy over clinical examination.
- Pelvis feels adequate

Mother

- Explanation of the procedure and maternal and fetal risks given. An information leaflet is available.
- Informed verbal or written consent obtained and documented for labour room births.
- Written consent is required for any trials in theatre.
- Explanation of risks should be divided into maternal and fetal, serious and frequently occurring; referring to RCOG Consent Advice No. 11 Operative vaginal delivery.[2]
- Adequate analgesia, tested and effective:
    - A regional block for mid-cavity rotational deliveries
    - A pudendal block and perineal infiltration for urgent or low deliveries

- Maternal bladder recently emptied
- Indwelling catheter removed or balloon deflated

Staff

- Operator must be competent in operative vaginal delivery. Obstetricians in training who have not been assessed as independently competent should carry out operative vaginal delivery under direct supervision until independent competence is confirmed.
- Staff and equipment to manage anticipated complications:
  - Shoulder dystocia
  - Post-partum haemorrhage
  - Neonatal resuscitation
  - Failed delivery requiring LSCS (less than 30 minutes)[1]

5. CHOICE OF INSTRUMENT

The choice of instrument depends on the skill and experience of the operator and the clinical circumstances.[1,4]

Vacuum/ventouse birth compared to forceps is:

- more likely to fail delivery with the selected instrument
- more likely to be associated with cephalohaematoma
- more likely to be associated with retinal haemorrhage
- more likely to be associated with maternal worries about baby
- less likely to be associated with significant maternal perineal and vaginal trauma (OASI rate vacuum ≏ 4%, OASI rate forceps ≏10%)
- no more likely to be associated with delivery by caesarean section
- no more likely to be associated with low 5-minute Apgar scores
- no more likely to be associated with the need for phototherapy

Disposable silastic or reusable metal anterior cups are available for occipito anterior deliveries. The silastic cup is more likely to fail but associated with less maternal perineal and fetal scalp trauma.[4] Disposable Omnicups (Kiwi) or reusable metal posterior cups are available for occipito transverse, occipito posterior or deflexed deliveries, in addition to use in the occipito anterior position.

Forceps compared to vacuum/ventouse can be used:

- for a mento anterior face presentation
- for the after-coming head of a breech
- prior to 32 weeks gestation
- with large amounts of caput
- if the woman is unable to push effectively

Anderson or Neville Barnes forceps are available for occipito anterior deliveries or following manual rotation. Kielland forceps may be available for rotational deliveries if the operator is competent in their use. Any of these can be used for the after-coming head of a breech but Kielland may be preferable as they have no

pelvic curve which may aid access. Wrigley forceps are available but their use is limited in operative vaginal delivery as they are not traction forceps.

6. SEQUENTIAL USE OF INSTRUMENTS

Sequential use of instruments is associated with increased risk of trauma to the baby.[6,7,8] However, Caesarean section following failed operative vaginal delivery is associated with increased risks of major obstetric haemorrhage, prolonged hospital stay and admission of the baby to NNU. The decision to use sequential instruments should be made by balancing these risks and by an experienced operator. Neonatologists should be informed to ensure appropriate management of the baby.[1]

Clear documentation of reasons/justification for use of sequential instruments or ≥ 4 pulls is required.

7. CHOICE OF PLACE OF DELIVERY

Non-rotational low-pelvic and lift out assisted vaginal births have a low probability of failure and most procedures can be conducted safely in a birth room.

Operative vaginal deliveries with a higher risk of failure should take place as a trial in theatre to allow immediate recourse to LSCS.[9] Higher rates of failure are associated with:

- maternal BMI >30kg/m^2
- estimated fetal weight >4kg
- occipito posterior position
- where 1/5 head is palpable abdominally

These factors should be considered when deciding place of delivery. Delivery in theatre may also occur to allow spinal analgesia for a mid-cavity or rotational delivery. If a trial of operative vaginal delivery is planned an obstetrician competent in mid-cavity or rotational delivery must be present from the outset.

Operative vaginal delivery in the room should usually be achieved within 60 minutes of decision and in theatre within 90 minutes of decision although this will depend on the clinical circumstances. If a delay occurs, the reason for delay should be documented in the woman's notes. If there are concerns regarding maternal or fetal safety an 'Obstetric Emergency Call' can be put out to expedite transfer to theatre and birth.

8. PREPARATION FOR DELIVERY

- The indication for operative vaginal delivery should be reviewed and that the prerequisites met.
- Written consent should be obtained for trial of operative delivery in theatre, written or verbal consent for births in the labour room.
- The perineum should be cleaned with sterile water and aseptic technique used.
- The woman's analgesia must be adequate. If the woman has an epidural in situ it should be checked to ensure it is working effectively and if not, it should be topped up and delivery deferred until it is effective. If the delivery is urgent alternative analgesia can be used in addition. If the woman has no epidural a pudendal block and local perineal infiltration should be used.
- Initial swab and instrument counts are undertaken per "The management of swabs, needles and instruments in the Maternity unit" guideline.
- The maternal bladder should be empty or the balloon deflated if an indwelling catheter is in situ.
- The paediatrician should be asked to attend.

Vacuum/ventouse delivery[4]

- The vacuum cup should be applied over the flexion point (on the sagittal suture with the centre 2cm anterior to the posterior fontanelle).
- Placement should be checked to ensure no maternal tissue is caught in the vacuum when it is ≤0.2kg.cm^2.
- A vacuum of 0.8kg.cm^2 should be applied.
- Steady traction should be used during contractions along the pelvic axis.
- Slow delivery "controlled" by the ventouse is preferred when the presumed fetal condition allows.
- Maternal effort should be encouraged, until crowning occurs when time for the perineum to stretch is likely to reduce the incidence of OASI.
- If the cup detaches, the position of the head and the cup placement, and the descent must be reassessed. The cup can be reapplied up to twice if the delivery is likely to be successful. Senior support from an experienced operator should be sought after a single pop-off if less experienced obstetrician.
- Episiotomy is strongly recommended in first vaginal birth at 60° from the midline when the head is distending the perineum[2,4].
- Manual perineal protection must be given.

The delivery should be abandoned if:

- there is no descent with moderate traction of a correctly applied instrument by an experienced operator over 2 pulls. In this case there should either be a change of approach or discontinuation of the procedure. Anticipate that 3 pulls should bring the head to the perineum.
- the cup detaches twice
- delivery is not achieved within 12 minutes of applying the cup

Forceps delivery[4]

- The forceps should be checked to ensure they are a pair
- The forceps should be applied between contractions. The maternal tissue is guarded with one hand and each blade slid in along the pelvic curve in line with the contralateral maternal femur.
- The forceps should lock easily.
- The sagittal suture should lie in the midline, equidistant from each blade.
- The posterior fontanelle should be no more than 1 cm above the shanks.
- Steady traction should be used during contractions along the pelvic axis using Pajot's manoeuvre.
- Maternal effort should be encouraged.
- Episiotomy is strongly recommended, at 60° from the midline [2,4] as the head distends the perineum.
- Manual perineal protection must be given.
- Slow delivery "controlled" by the forceps is preferred when the presumed fetal condition allows.
- The head is born by extension, the forceps handles must be lifted after the occiput has passed under the symphysis pubis, and no further downward traction applied.

The forceps delivery should be abandoned if:

- the forceps do not slide easily into place
- the forceps do not lock easily
- when using rotational forceps rotation is not achieved easily with gentle pressure.
- there is no descent with each pull
- delivery is not imminent in 3 pulls of a correctly applied instrument by an experienced operator.
- The operator should aim to disimpact the fetal head prior to Caesarean delivery in those situations where assisted vaginal delivery is unsuccessful.

9. FOLLOWING DELIVERY

- A single dose of intravenous Co-amoxiclav (1 g amoxicillin and 200 mg clavulanic acid) should be administered as soon as possible and no more than 6h after giving birth. The ANODE trial[13] was limited to women who were not allergic to penicillin. However, the results are likely to be comparable if antibiotics with a similar spectrum of activity are used and would therefore be generalisable to women who are allergic to penicillin. Please refer to Microguide.
- Final swab and instrument counts are undertaken per "The management of swabs, needles and instruments in the Maternity unit" guideline.

- The routine use of tampons in the vagina is discouraged and if used **MUST** be included in the swab count.
- Paired cord blood samples should be taken, preferably by the attending obstetrician, and the results documented in the maternal notes.
- The perineum should be assessed and repaired according to the guideline for repair of perineal trauma.
- The bladder should be managed according to the intrapartum and postpartum bladder care guideline.
- The woman's risk of venous thromboembolism and the need for thromboprophylaxis should be reassessed.
- Effective ongoing analgesia should be prescribed.
- The procedure should be documented in the maternal medical record.
- The woman should be reviewed and debriefed following the delivery, if possible by the accoucheur, to ensure she has no outstanding questions or concerns about the indications for or the conduct of the delivery.

10. AUDITABLE STANDARDS

Maternity unit:

- rate of operative vaginal delivery.

Maternity unit and individual operator:

- percentage of women with failed operative vaginal delivery
- rate of sequential instrument use
- case notes review to audit appropriate management of women with failed operative vaginal delivery or sequential instrument use, i.e., when to use a sequential instrument and when to abandon
- percentage of women with third- and fourth-degree perineal tears
- rate of neonatal morbidity, composite trauma (subgaleal haemorrhage/brachial plexus injury/fracture/facial nerve palsy/cerebral haemorrhage), low Apgar <7 at 5 minutes and cord arterial pH <7.1
- documentation of written or verbal consent for operative vaginal delivery
- documentation of written consent for trial of operative vaginal delivery in operating theatre
- accuracy of documentation.

11. MONITORING

This guideline will be subject to annual audit. The audit midwife is responsible for coordinating the audit. Results presented to the department clinical audit meeting. Action plans will be monitored at the quarterly department clinical governance meeting.

12. COMMUNICATION

If there are communication issues (e.g., English as a second language, learning difficulties, blindness/partial sightedness, deafness) staff will take appropriate measures to ensure the patient (and her partner, if appropriate) understand the actions and rationale behind them.

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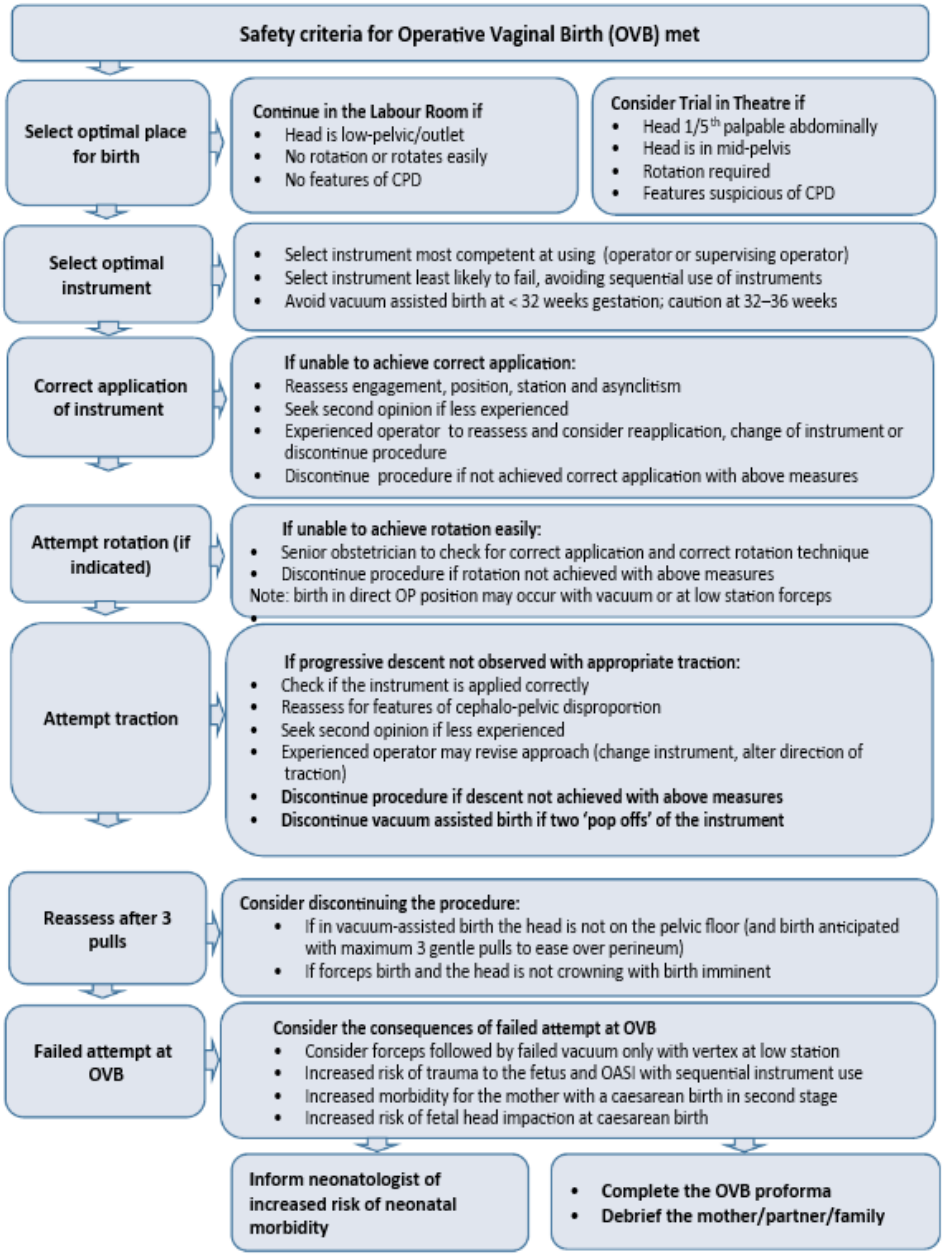
APPENDIX: DECISION MAKING FOR ASSISTED VAGINAL BIRTH



Full version control record

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This guideline has been registered with the Trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health NHS Foundation Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version History

Version	Date	Guideline Lead(s)	Status	Comment
1.0	April 2018	M. Nandar Z. Jones	Final	First cross site version
1.1	March 2020	Amendment by Miss B. Sagoo and approved by pharmacist R. Botting	Interim	Addition of first bullet point regarding IV antibiotics on page 7, under “following delivery”, approved at cross site OGCGC 5th March 2020
2.0	February 2021	Z. Jones, K. Morgan	Final	Updated and approved at OCGC

3.0	March 2024	Z. Vaid	Final	Updated and approved at Cross site obstetric clinical governance meeting 27th March 2024

Related Documents

Document Type	Document Name
Guideline	The management of swabs, instruments and needles in Maternity unit