Clinical Guideline

ASSISTED VAGINAL BIRTH
(FORCEPS AND VACUUM EXTRACTION)

SETTING Central Delivery Suite, St Michael's Hospital

FOR STAFF Medical, Nursing and Midwifery staff

PATIENTS Patients who require assisted vaginal birth

GUIDANCE

Can the assisted vaginal birth be avoided?

When asked to review a mother with view to performing an assisted vaginal delivery (AVB), always assess if the measures to avoid AVB have been taken. These include:

- Ensure the bladder is empty
- Ensure the contractions are 4-5 in 10.
    - If the contractions are irregular or mild in a nulliparous woman, consider Oxytocin infusion.
    - In case of fetal distress, check for hyperstimulation. Stop Oxytocin in case of hypersimulation and follow measures for intrauterine resuscitation as described in [redacted]
- Encourage good maternal effort. This can be achieved by change in maternal position and focussed encouragement. Women should only be positioned in lithotomy position when considering an AVB. If in lithotomy for more than the duration of AVB, use a pillow or a wedge to prevent aorto-caval compression.
- If delivery of the head is arrested by the perineum, consider an episiotomy

When considering AVB for failure to progress in the absence of fetal distress, be aware that active second stage can be two hours in a nulliparous woman and one hour in a multiparous woman.

- If an epidural has been sited:
    - Consider one to two hours for passive descent of the fetal head
    - Lying down lateral position rather than upright position in second stage
    - Do not stop epidural top ups in second stage

Passive second stage is likely to be beneficial in the following:

- Nulliparous women,
- A high presenting part (above or at the ischial spines)
- Fetal malposition (occipito posterior or occipito transverse).

A passive second stage should not be encouraged if there is:

- Suspicion of obstructed labour (excessive moulding and caput with a high vertex)
- Concerns regarding fetal wellbeing.

A clinical assessment should be made after one hour of active stage to assess for malposition and to implement the above measures to improve the chances of spontaneous birth.

Indications

Fetal	Suspected fetal compromise (abnormal CTG, Abnormal FBS, thick meconium)
Maternal	Medical indications to avoid Valsalva (e.g. cardiac disease Class III or IV*, hypertensive crises, cerebral vascular disease, particularly uncorrected cerebral vascular malformations, myasthenia gravis, spinal cord injury)
Inadequate progress	• Nulliparous women - lack of continuing progress for 2 hours in active second stage (+1 hour of passive stage) • Multiparous women - lack of continuing progress for 1 hour in active second stage (+1 hour of passive stage) • Maternal fatigue/exhaustion

Indication for the procedure should be documented in the operation notes and maternity notes. Assessments should include-

- Degree of urgency
- Clinical findings on abdominal and vaginal examination,
- Choice of instrument
- Anticipated degree of difficulty and location (delivery room or operating theatre)
- The need for additional analgesia or anaesthesia
- Woman's preferences

Communicate the above to the midwifery, neonatal team ± anaesthetic and theatre teams

Contraindications

Absolute – vacuum extraction before 32 weeks

Relative – Suspected fetal bleeding disorders, Fetal predisposition to fracture, maternal blood borne viral infections

Cautious use of vacuum extraction between 32 and 36 weeks

Classification

Outlet	• Fetal scalp visible without separating the labia • Fetal skull has reached the perineum • Sagittal suture is in the antero-posterior diameter or right or left occiput anterior or posterior position (rotation does not exceed 45°)
Low	• Leading point of the skull (not caput) is at station plus 2 cm or more and not on the perineum • Two subdivisions (a) Non rotation- rotation of 45° or less (b) Rotational- rotation more than 45°
Mid	• Fetal head is no more than 1/5 palpable per abdomen • Leading point of the skull is at station 0 or +1 • Two subdivisions (a) Non rotation- rotation of 45° or less (b) Rotational- rotation more than 45°

Who can perform the procedure?

The operator must have the knowledge, experience and skills necessary to use the instruments and manage complications that may arise. Obstetric trainees should receive training in operative vaginal delivery, and competency should be confirmed before conducting unsupervised deliveries. Obstetricians should work within their competency.

The obstetrician should have competency assessment for both forceps and vacuum extraction if performing the procedure under indirect supervision. If the competence has not been confirmed for mid cavity deliveries, the procedure should not be undertaken independently. If the trainee has been deemed competent before joining the department, the evidence in the form of OSATS, log books, educational supervisor reports should be available to patient safety team if requested.

Trainees on rotation to the unit should meet with their educational supervisor or labour ward lead consultants to review their competencies and training needs.

Informed consent

By the very nature of the procedure, consent often needs to be obtained when a woman is exhausted or in pain or under the influence of opiates or Entonox. Try and discuss in between contractions. Give information as early as possible, if operative delivery likely. Verbal consent is appropriate for deliveries in the room but written consent is needed for trials in theatre. Informed consent is documented on the operation note.

The consent should be documented in the operative delivery record sheet

Assessment and preparation for operative vaginal delivery

Full abdominal and vaginal examination	• Head is ≤1/5 palpable per abdomen Vertex presentation • Cervix is fully dilated and the membranes ruptured • Exact position of the head should be determined so proper placement of the instrument can be achieved. Use ultrasound assessment of the fetal head position if uncertain following clinical examination.
Preparation of mother	• Informed consent must be obtained, and clear explanation given • Appropriate analgesia is in place, for mid-cavity rotational deliveries this will usually be a regional block. A pudendal block may be appropriate, particularly in the context of urgent delivery. • Maternal bladder has been emptied recently • In-dwelling catheter should be removed or balloon deflated • Aseptic techniques
Preparation of staff	• Operator must have the knowledge, experience and skill necessary to use the instruments • Adequate facilities and back-up personnel are available • Back-up plan in place in case of failure to deliver • Anticipation of complications that may arise (e.g. shoulder dystocia, PPH) • Follow Standard Operating Procedure for Swabs, Instruments, and Sharps
Neonatal team	Personnel present that are trained in neonatal resuscitation. A neonatologist or Neonatal nurse practitioner should be present for all instrumental deliveries with the exception of ventouse or low cavity forceps in the absence of fetal distress.

Timing of delivery

When the decision is made for an operative birth, the urgency should be defined clearly. The urgency can be classified using categories used for grading caesarean section.

A category 1 delivery should be completed within 30 minutes and a category 2 delivery within 75 minutes.

The urgency category and the time of decision and delivery should be recorded in the operative delivery record.

Ensuring effective analgesia

Operative birth is a procedure that should be undertaken with effective anaesthesia, usually a spinal or epidural block, especially for mid cavity or rotational deliveries. Testing effective anaesthesia is either by level of block or comfort of mother on vaginal examination.

If a woman declines regional anaesthesia, a pudendal block combined with local anaesthetic to the perineum can be used during instrumental birth.

Where there is concern about fetal compromise, either tested effective anaesthesia or, if time does not allow this, a pudendal block combined with local anaesthetic to the perineum can be used during instrumental birth.

Where the procedure should take place

Consider trial in theatre using clinical discretion if:

- Mid cavity or rotational delivery
- Other risk factors for failure of instrumental delivery such as
- Maternal BMI greater than 35
- Clinically big baby or estimated fetal weight >4000gms.

When performing a trial in theatre, the theatre should be set for emergency caesarean section.

Anaesthesia should be adequate to allow an immediate caesarean section should the need arise.

Blood should be sent for group and save.

In line with Covid-19 guidelines, women who are at risk of needing a general anaesthetic should be transferred to Theatre 5 if a trial of instrumental birth in theatre is indicated.

When should a second instrument be used

- If the first instrument was used to achieve rotation, the second instrument can be used for traction and delivery
- If there has been significant descent with the first instrument. This is commonly seen when the vacuum extractor leads to head descent but the cup comes off when head low in pelvis.
- A second instrument may be deemed appropriate in other circumstances if a more senior obstetrician attends and makes a formal assessment
- Be aware of increased risk of OASI with sequential instrument use

When the procedure should be abandoned

Operative vaginal delivery should be abandoned when-

- Suboptimal positioning of the instrument
- No evidence of progressive descent with each pull or where delivery is not imminent

following three pulls of a correctly applied instrument by an experienced operator.
- Two pop offs of vacuum extractor
- If there is minimal descent with first two pulls

Be aware of increased risk of impacted fetal head following a failed assisted birth. Manually push the head up in the pelvis before performing the caesarean section.

Number of pulls

As long as there is descent with each pull, in majority of cases, fetal head should be brought down to pelvic floor with three pulls and a further three gentle pulls can be used to ease the head out of the perineum.

Care of the perineum

- Maintain good communication with the delivering woman. An episiotomy must be discussed with the woman when preparing for an assisted birth
- Ensure the perineum is well supported during delivery
- Episiotomy should be performed for all nulliparous women and strongly considered for all multiparous women undergoing a forceps birth.
- Episiotomy at a 60^{o} angle from perinuem
- Conduct a perineal examination, including PR examination post-operative delivery, to ensure third degree tears are detected and sutured appropriately.

Record Keeping

- Complete the written or electronic
- Instrumental delivery record sheet including the indication for delivery.
- Complete an incident form if there is an adverse outcome or following failed instrumental delivery leading to caesarean section

Antibiotic prophylaxis

A single dose of IV antibiotic should be administered after birth (at birth – up to six hours after birth) as it significantly reduces the likelihood of maternal infection.

- Coamxiclav for women with no known Penicillin allergy
- Cefuroxime and metronidazole for women with penicllin allergy **but not Type I allergy**
- Teicoplanin/metronidazole/gentamicin for women with Type I penicillin allergy

Analgesia and Thromboprophylaxis

- Assess women for risk factors for venous thromboembolism and give thromboprophylaxis if necessary.
- Give Diclofenac 100mg suppository pr (unless contra-indicated).
- Prescribe regular analgesia

Mother and Baby

- 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.
- Paired cord gases should be taken and documented
- Ensure prolonged skin to skin contact is re-initiated if the baby required to be taken to the resuscitaire
- The woman should be reviewed and debriefed by the operator or appropriately qualified health profession prior to hospital discharge. Her chance of an operative vaginal delivery in her next labour will be less than 1 in 5.

Care of the bladder

- An indwelling catheter for at least 12 hours is essential for women who have a spinal anaesthetic or epidural top up for trial in theatre.
- Monitor the timing and volume of first void urine. Consider checking post void residual if retention is suspected.
- Explain the risk of urinary retention and importance of bladder emptying.
- Offer physiotherapy to prevent urinary incontinence.
  Principles of bladder care are detailed in the bladder care in postnatal guideline referenced below

Version 1

Author [redacted] and [redacted]

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REFERENCES Assisted vaginal birth. RCOG Guideline no 26. 2020

RELATED DOCUMENTS [redacted]

AUTHORISING BODY CDS Working Group

SAFETY Nil

QUERIES Contact [redacted] on bleep [redacted]