Instrumental vaginal birth

Clinical Guideline Presentation v3

45 minutes

Towards CPD Hours

References:

Queensland Clinical Guideline: Instrumental vaginal birth is the primary reference for this package.

Recommended citation:

Queensland Clinical Guidelines. Instrumental vaginal birth clinical guideline education presentation E24.49-1-V3-R29. Queensland Health. 2024.

Disclaimer:

This presentation is an implementation tool and should be used in conjunction with the published guideline. This information does not supersede or replace the guideline. Consult the guideline for further information and references.

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Objectives

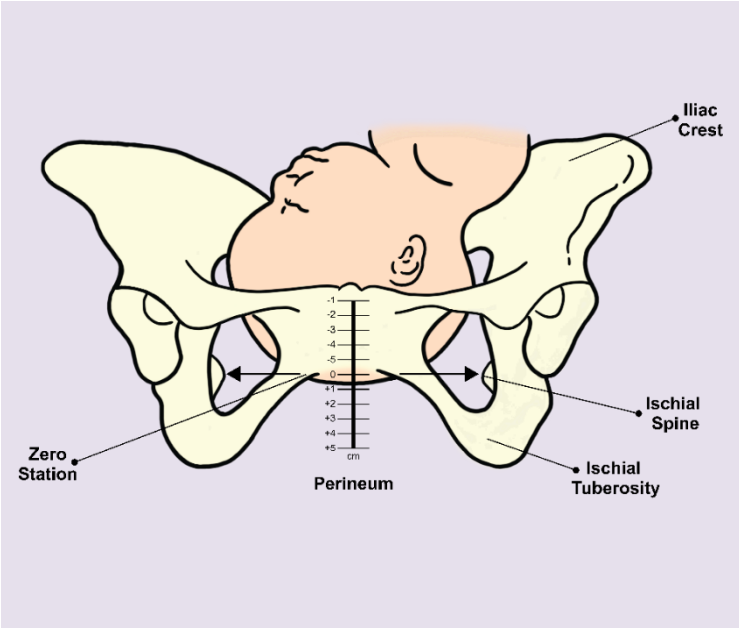
- Identify when instrumental vaginal birth may be indicated
- Identify risks and benefits of vacuum compared to forceps
- Identify best practice management before, during and after instrumental birth

Classification

How are instrumental births classified?

Instrumental vaginal births are classified according to the station of the vertex and the degree of rotation of the sagittal suture from the midline

Classification	Fetal head	Leading point of skull
Mid cavity	No more than 1/5th above symphysis pubis	At or below spines and above station +2
Low cavity	Not palpable	At or below station +2 and above pelvic floor
Outlet	Has reached pelvic floor	Visible without separating the labia



Indications

What are the indications for an instrumental vaginal birth?

- Women with a live, cephalic fetus in second stage labour where:
  - There is inadequate progress in active second stage in the presence of adequate uterine activity
  - Maternal effort is contraindicated (e.g. cardiac conditions, hypertensive crisis)
- Fetal compromise is suspected

Other indications

Instrumental vaginal birth may also be appropriate in other circumstances (e.g. after-coming head in a breech birth, deceased fetus)

Contraindications

- Head is above the ischial spines or 2/5th or more palpable
- Position of vertex not determined
- Fetal bone demineralising or bleeding conditions

Risk factors

Amina is in active second stage with her second baby. She has been pushing for 35 minutes. There has been no significant fetal descent during this time.

What factors are associated with unsuccessful instrumental vaginal birth?

- Estimated fetal weight over 4000 g or a clinically ‘big baby’
- Occipito-posterior (OP) position at application of instrument
- Higher station at the time of application (compared to outlet)
- Longer duration in second stage
- Higher body mass index (BMI)

Evidence alert!

There is limited and low-level evidence to differentiate risk factors for instrumental birth from factors that influence failure of the attempt

Setting

If difficulty is anticipated, perform in operating theatre to facilitate access to immediate caesarean section birth

Forceps versus vacuum

After further assessment a vacuum assisted birth is recommended to Amina.

What can you tell Amina about the outcomes of forceps v vacuum?

With vacuum decreased risk of:

- Perineal trauma (3rd/4th degree tears, vaginal trauma, levator avulsion)
- Bladder and bowel incontinence

With vacuum increased risk of:

- Failure of attempt
- Subgaleal haemorrhage in baby

Maternal outcomes–no difference in:
blood loss, pain on day four, vulval trauma, caesarean section, episiotomy or perineal tear requiring suturing with or without pudendal analgesia

Neonatal outcomes–no difference in:
Apgar score at 5 minutes, intubation, mean umbilical artery pH, scalp injury, facial injury, jaundice, intracranial injury, cephalohematoma, retinal haemorrhage, admission to neonatal intensive care unit

Principles of safe birth

Amina's partner asks you if the staff member performing the vacuum is competent because they look very young. You reassure Amina and her partner.

What factors would give you confidence to reassure Amina?

- The clinician performing the instrumental birth (or the clinician's supervisor in attendance) has the knowledge, experience and skill to:
  - Safely perform the procedure
  - Manage complications that may arise

Communication for safety

- Provide clear explanation to woman and support people
- Inform other members of the health care team
- Organise a clinician trained in neonatal resuscitation to be present for the birth
- Use standard documentation to record indications, assessments and details of the procedure

Pre-intervention care

Amina consents to the use of vacuum. She asks what will happen next

What will you discuss with Amina?

- Need to empty bladder
- Performance of an abdominal and vaginal assessment
- Adequate analgesia
- If episiotomy is recommended
- Maternal and fetal observations

Procedural considerations

- Apply steady traction only during a contraction and with maternal effort
- Minimise shearing forces on scalp
- Ensure no maternal tissue trapped under cup

Pre-requisites

Following an abdominal and vaginal assessment, the accoucheur is uncertain about the position and station of the fetal head.

Why is it important to know this?

- Confirm appropriateness of procedure
- Essential for correct placement of the instrument

What can you do in this circumstance?

- Seek expert advice from a more experienced practitioner
- A transperineal or transabdominal ultrasound may assist in determining station and position

Confirm all of the following:

- Vertex presentation
- Head is 1/5th or less palpable
- Estimated fetal weight
- Pelvis considered adequate for vaginal birth
- Cervix fully dilated and membranes ruptured
- Assessment of caput and moulding
- Head position

Vacuum birth

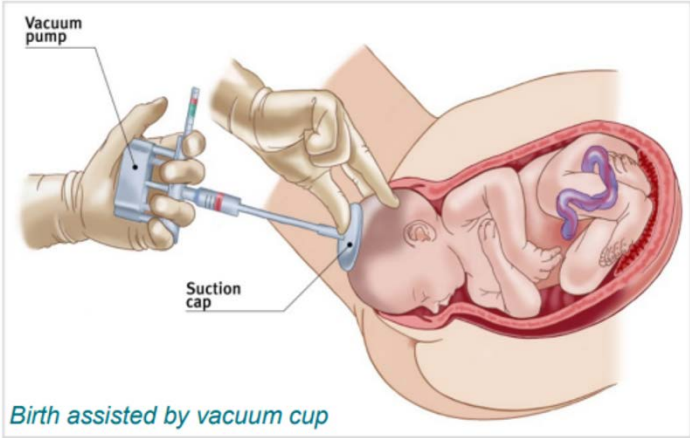
After three contractions, the head has descended and the full diameter of the cup is visible at the perineum. Amina and baby are both doing well.

As the head is not delivered should you try forceps now?

- No, progressive descent has occurred. The head should be delivered within three more pulls
- Sequential instrumentation is associated with increased maternal and neonatal morbidity

With a correctly applied vacuum cup consider discontinuation:

- After two detachments
- If full diameter of the cup is not visible at the perineum with three contractions



Birth assisted by vacuum cup

Forceps birth

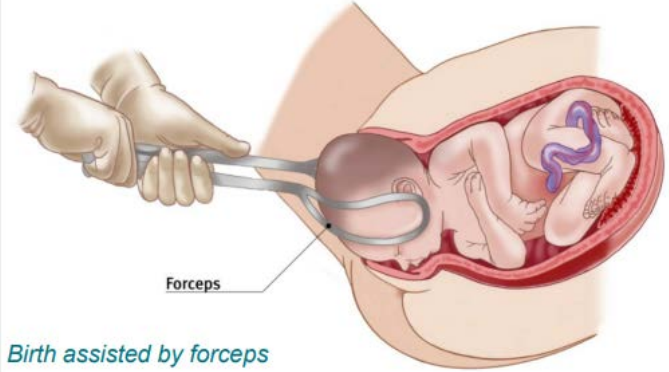
What are the considerations if Amina was having a forceps birth?

With a forceps birth consider discontinuation if:

- Blades not easily applied, handles do not approximate or rotation not easily achieved (without undue force)
- Descent is inadequate or birth not imminent after three pulls

What should be done if unsuccessful forceps birth?

- Balance the risks of sequential instrumentation with risks of second stage caesarean section (CS)
- Maintain low threshold for CS after unsuccessful forceps



Birth assisted by forceps

Post-intervention care

Amina gives birth to a healthy baby girl and is transferred to the postnatal ward. You assess her care needs. She says her birth experience wasn't what she wanted, and she feels quite traumatised.

Provide psychological care

- Offer an opportunity to discuss:
  - Indications for instrumental birth
  - Management of complications
  - Implications for future births
- Talk about feelings that may be experience in the coming days
- Advise referral is available for psychological support

Postnatal care

Observations—maternal postnatal

Urinary retention—monitor as increased risk

Antibiotics—consider prophylaxis

Perineal care—perform comprehensive assessment; discuss perineal hygiene, recovery, healing

Analgesia—offer regular NSAID/ paracetamol

VTE—risk assess and consider prophylactic measures

Care of baby

- At birth collect paired cord blood gas and blood for full blood count
- Administer vitamin K prophylaxis
- Observe for signs of subgaleal haemorrhage (SGH)
  - Use Newborn Early Warning Tool (NEWT)
- Avoid covering baby's head—observe for changing shape, appearance or size
- Urgent medical/nurse practitioner review if poor feeding, pallor or other concerns

Risk factors for SGH

- Vacuum birth
- Duration of vacuum application
- Number of dislodgements
- Duration of second stage of labour
- Station of fetal head
- Caput succedaneum
- Presence of meconium in the liquor