Instrumental vaginal birth
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
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:

- Mid cavity
- Low cavity
- Outlet
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 of a breech, 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’
- OP position at application of instrument
- Higher station at the time of application (compared to outlet)
- Longer duration in second stage
- Higher 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.
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)
- Incontinence/flatus

With vacuum increased risk of:
- Failure of attempt
- Subgaleal haemorrhage in baby

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

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

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 indicated
- 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, you are uncertain about the position and station of the fetal head.

Why is it important to know this?
• 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

Queensland Clinical Guidelines: Instrumental vaginal birth
Procedure

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
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.

What do you discuss with Amina?

• Offer an opportunity to discuss:
  ◦ Indications for her instrumental birth
  ◦ Management of complications
  ◦ Implications for future births
• Talk with Amina about feelings she may experience in the coming days
• Advise referral is available for psychological support

Postnatal care:

Urinary retention: increased risk with instrumental birth
Perineal care: perform comprehensive assessment; discuss perineal hygiene, recovery, healing
Analgesia: offer regular NSAID
VTE: risk assess and consider prophylactic measures
Maternal observations
Baby care: monitor for subgaleal haemorrhage