Operative vaginal delivery

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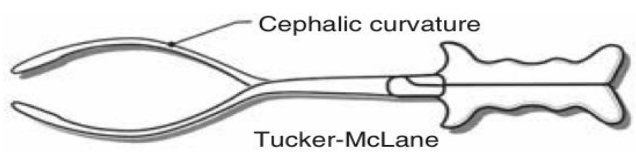
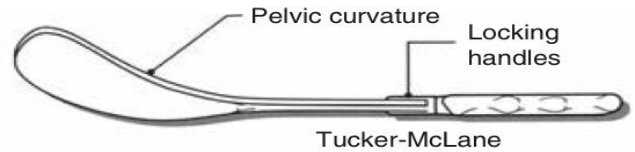
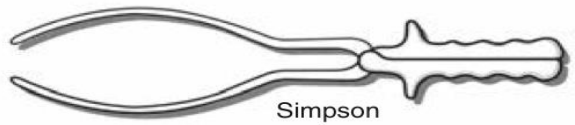
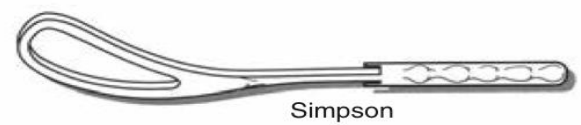
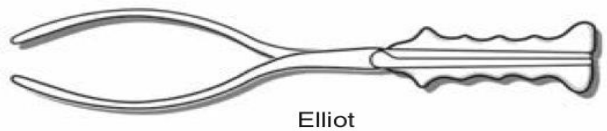
① Classial forceps



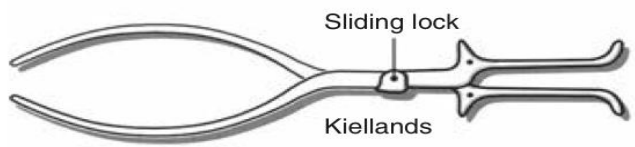


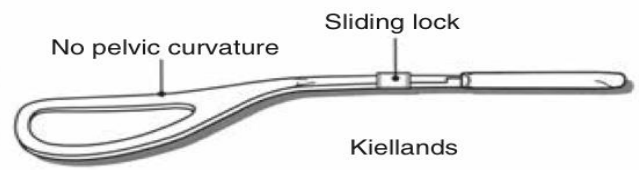




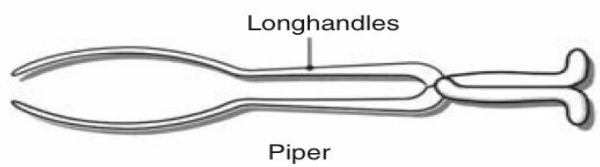


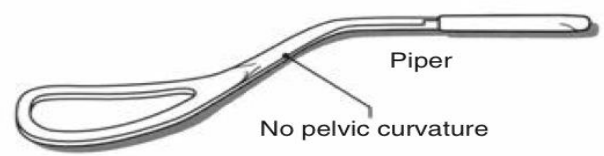
② Rotational forceps





③ Forceps for delivery of aftercoming head of the breech





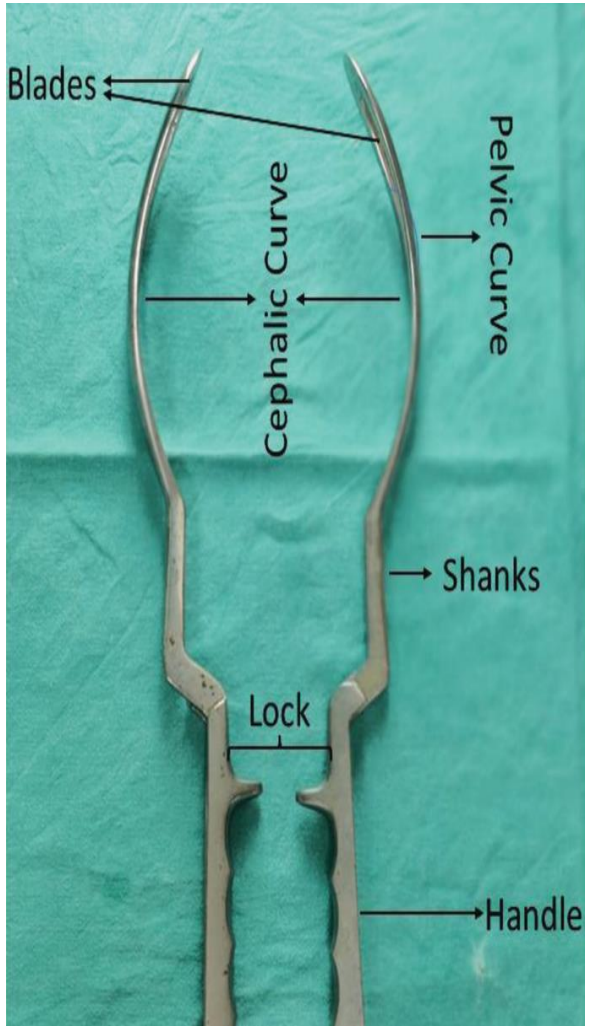
Types of Forceps

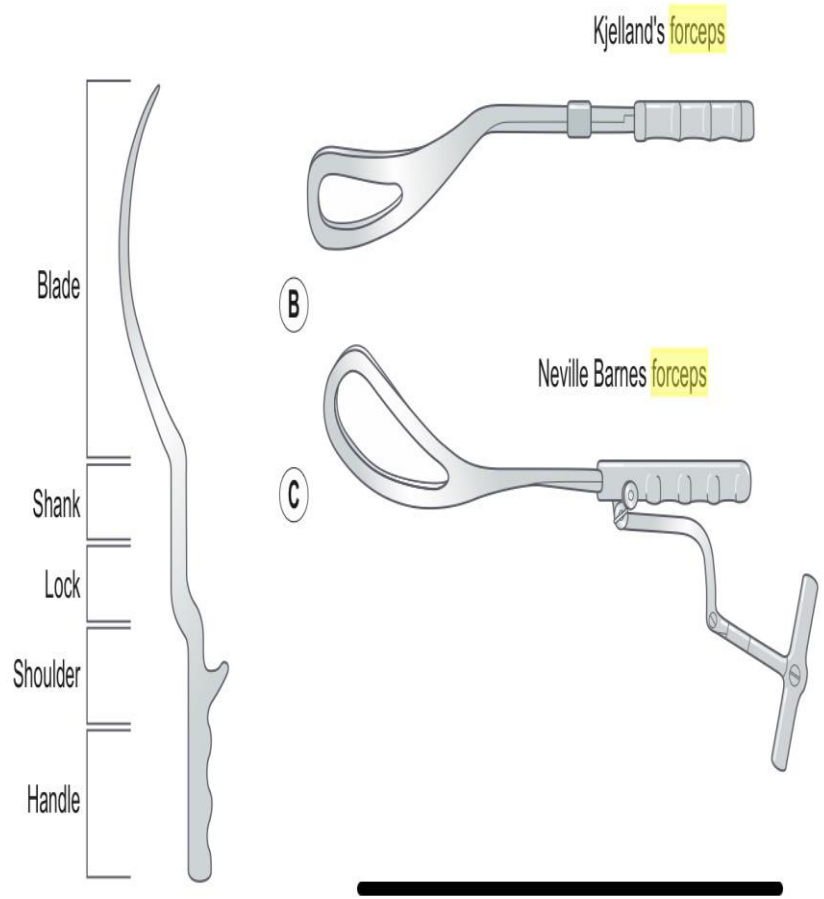
Wrigleys
(Low cavity outlet forceps)

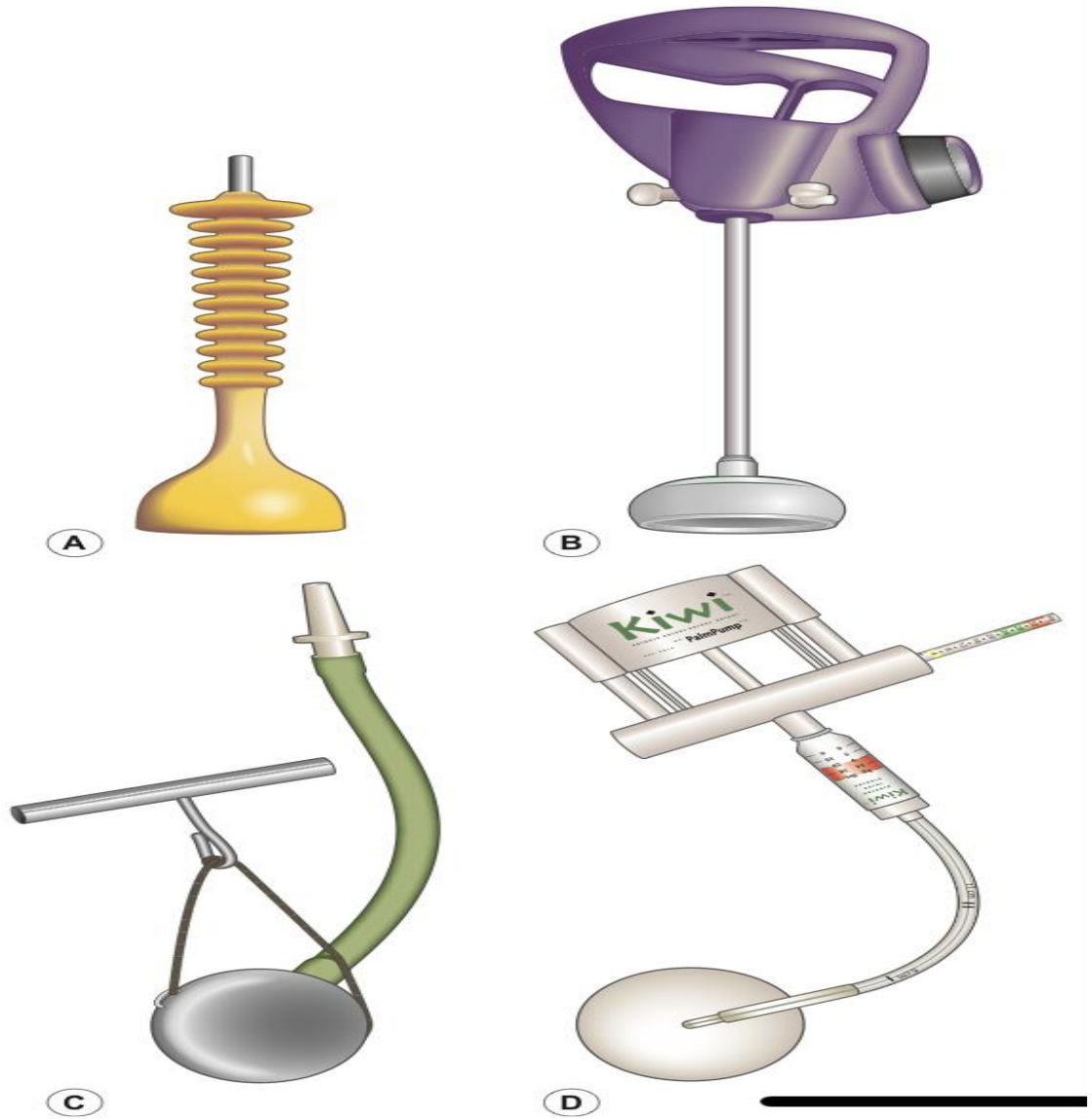
Simpson's
(Mid cavity non rotational forceps)

Neville Barnes
(Mid cavity non rotational forceps)

Keillands
(Mid cavity **rotational** forceps)


Blades
Pelvic Curve
Cephalic Curve
Shanks
Lock
Handle


Kjelland's forceps
Blade
Shank
Lock
Shoulder
Handle
B
Neville Barnes forceps
C


A
B
C
D
Kiwi
PalmPump

Types of Ventouse

Malmstrom cup

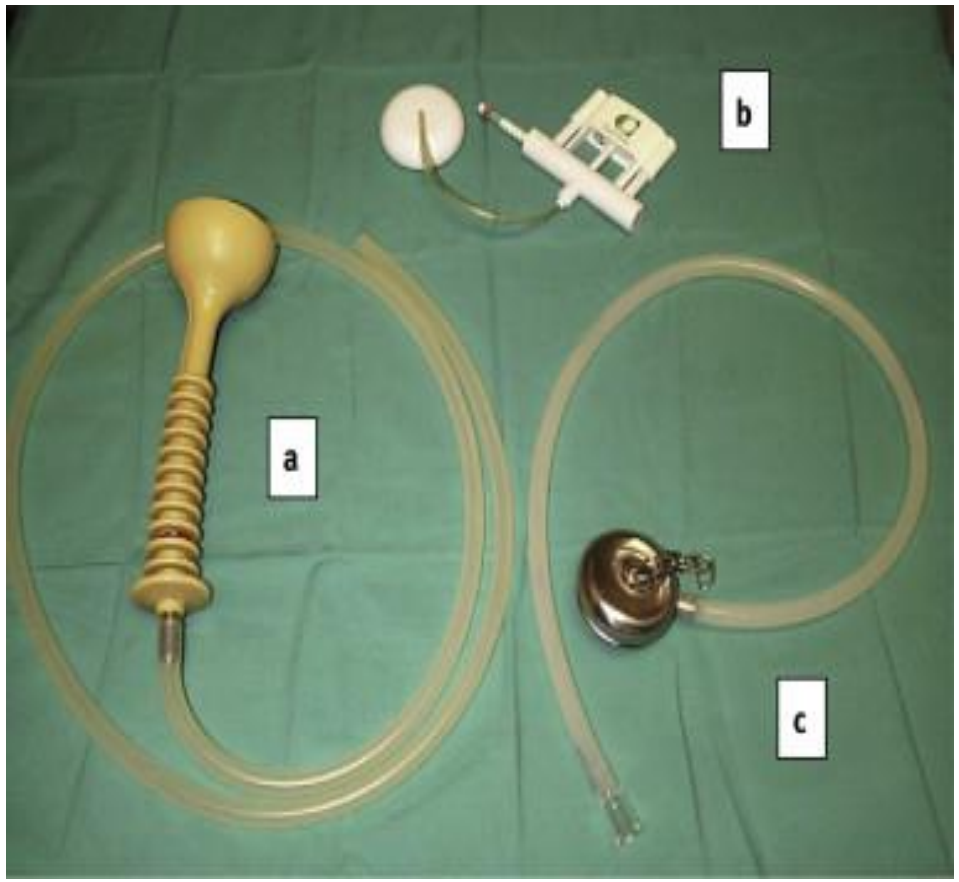
Silastic cups (soft)

OP Kiwi cup

Standard Kiwi cup

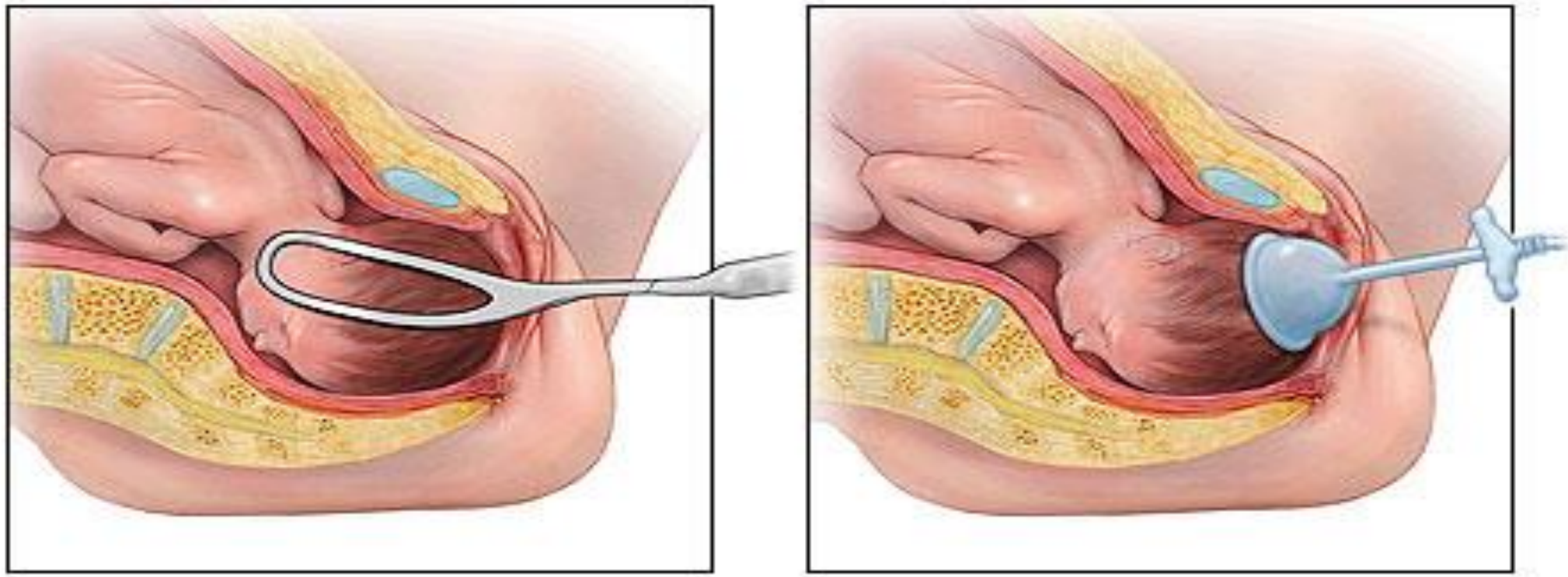
↳ Higher failure but Less neonatal scalp trauma


MINI - SUCTION MACHINE
VACUUM METER
SUCTION CONTROL


a
b
c

Forceps

Vacuum extraction



Indications

1. Expedited delivery where **fetal compromise** is suspected in second stage of labour (pathological CTG), abnormal fetal blood sample.
2. **Maternal fatigue**/exhaustion.
3. **Safer delivery** in cases where **maternal pushing is not advisable** –such as cerebral aneurysm, proliferative retinopathy or cardiac disease class III or IV, myasthenia gravis.
4. Inadequate progress in second stage(**delayed second stage)**
5. Forceps can be used when indicated for the after coming head in breach delivering.

Table 1. Classification for assisted vaginal birth[28]

Outlet	+ 3	Fetal scalp visible without separating the labia Fetal skull has reached the perineum Rotation does not exceed 45°
Low	+ 2	Fetal skull is at station + 2 cm, but not on the perineum Two subdivisions: 1. Non-rotational ≤ 45° 2. Rotational > 45°
Mid	0 + 1	Fetal head is no more than one-fifth palpable per abdomen Leading point of the skull is at station 0 or + 1 cm Two subdivisions: 1. Non-rotational ≤ 45° 2. Rotational > 45°

Risks or complications

- Short-term and long-term morbidity of pelvic floor injury.
- Neonatal intracranial and subgaleal haemorrhage.
- Neurodevelopmental problems for children.
- CS in the second stage of labour is an alternative approach but also carries significant morbidity and implications for future births.

Serious Risks

- **Maternal:**

1. Third- and fourth-degree perineal tear: > 1–4/100 with vacuum-assisted delivery. > 8–12/100 with forceps delivery.
2. Extensive or significant vaginal/vulval tear: > 1 in 10 with vacuum. > 1 in 5 with forceps.

- **Fetal:**

1. Subgaleal haematoma 3–6/1000.
2. Intracranial haemorrhage 5–15/10000.
3. Facial nerve palsy (rare).

Frequent risks (maternal)

- PPH 1–4 in 10
- Vaginal tear/abrasion (very common).
- Anal sphincter dysfunction/voiding dysfunction.

Frequent risks (fetal)

- **Forceps marks** on face (very common).
- **Chignon**/cup marking on the scalp (practically all cases of vacuum-assisted delivery) (very common).
- **Cephalhaematoma** 1–12/100.
- Facial or scalp **lacerations** 1 in 10.
- Neonatal **jaundice** /hyperbilirubinaemia 5–15/100.
- **Retinal haemorrhage** 17–38/100.

Innocuous scalp markings

Chignon/ Caput

Residual ring/ bruise 18 hours later

Fetal scalp findings that are not *clinically* significant

Small laceration

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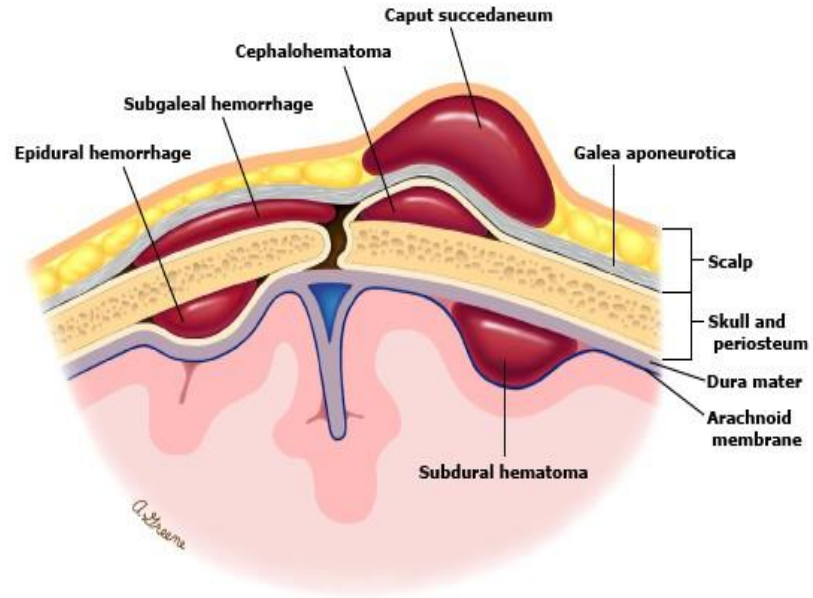


Strategies that can reduce (OVD)

- **Continuous support** during labour.
- **Use of upright or lateral positions in the second stage** of labour compared with supine or lithotomy positions.
- Avoiding **epidural analgesia** – epidural analgesia compared with non-epidural methods is associated with an increased incidence of OVD but provides better pain relief than non-epidural analgesia.
- This **is less likely with newer analgesic techniques.**
- Administering epidural analgesia in the latent phase of labour compared to the active phase of labour **does not increase the risk** of assisted vaginal birth
- **Delayed pushing for 1 to 2 hours** or until woman has a strong urge to push, in primiparous women with an epidural **can reduce the need for rotational and mid cavity deliveries.**

Contraindications

- Operators should be aware that there is a **higher risk of subgaleal haemorrhage and scalp** trauma **with vacuum** extraction compared with forceps at **preterm gestational ages.**
- **Vacuum** birth should be **avoided below 32** weeks of gestation and should be used with **caution between 32+0 and 36+0** weeks of gestation.
- because of the susceptibility of the preterm infant to cephalohaematoma, intracranial haemorrhage, subgaleal haemorrhage, and neonatal jaundice.
- **Do not use vacuum** extractors with a **face** , **breech** presentation.
- **Suspected fetal bleeding disorders or a predisposition to fracture** are **relative contraindications** to assisted vaginal birth.

Prerequisites(Abdominal and vaginal examination)

- Head is **≤ 1/5th** palpable per abdomen.(engagements)
- **Vertex** presentation.
- **Cervix is fully dilated** and the **membranes ruptured.**
- **Exact position of the head** can be determined.
- No signs of CPD so ssessment of caput and moulding. (Irreducible moulding may **indicate cephalo–pelvic disproportion.)**
- Pelvis is adequate.

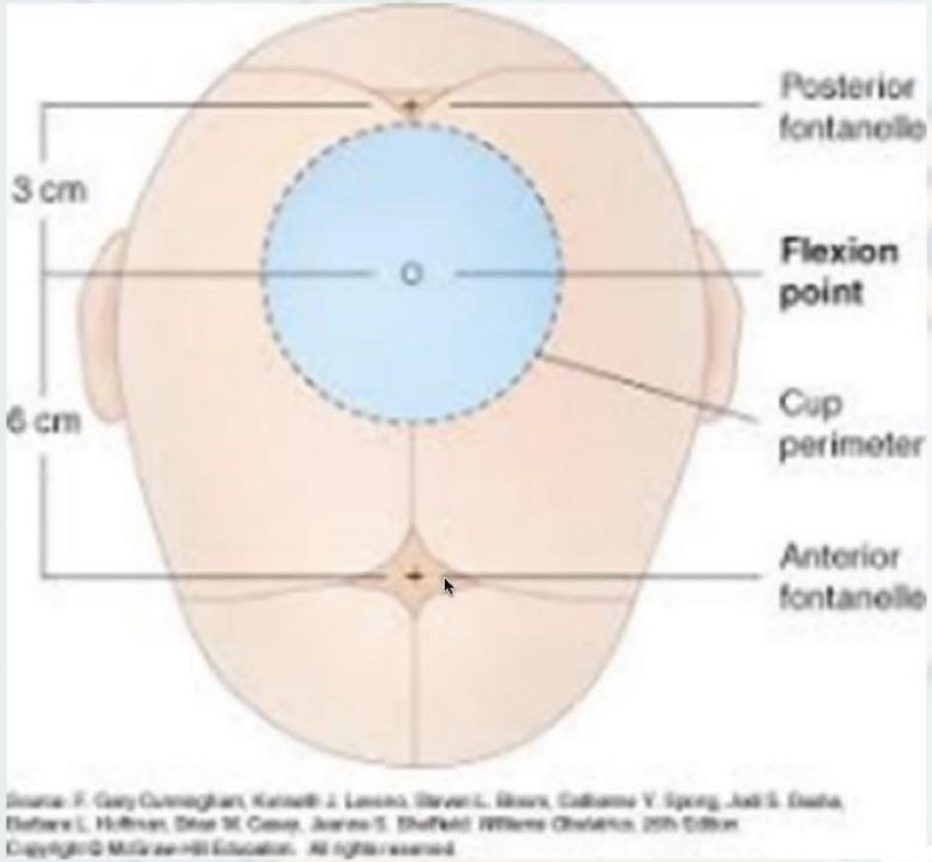
Prerequisites (Preparation of mother)

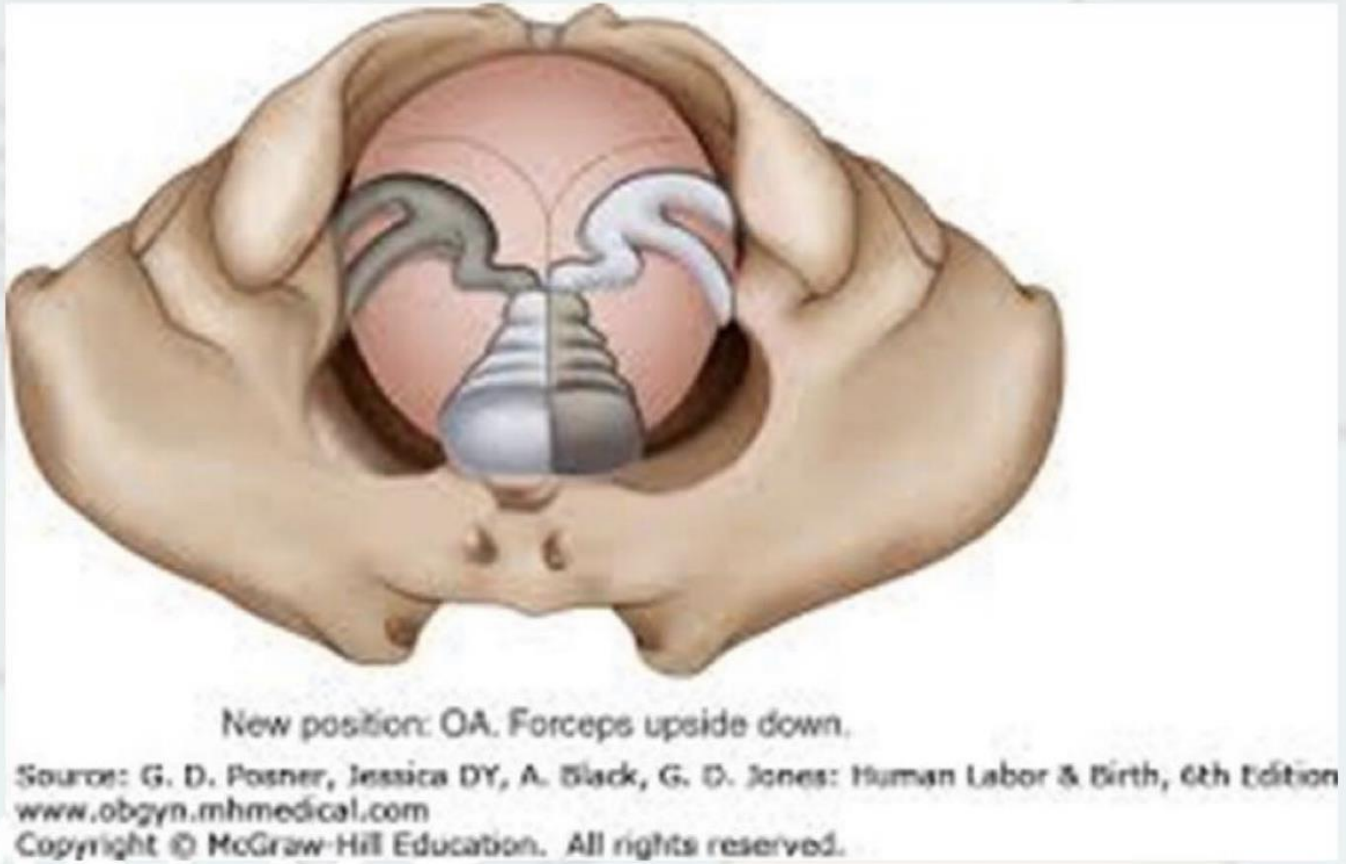
- Clear explanation and informed consent.
- Appropriate analgesia is in place for mid-cavity rotational deliveries. This will usually be a regional block. A pudendal block may be appropriate, particularly in urgent delivery.
- Empty maternal bladder.
- Remove in-dwelling catheter.

Prerequisites (Preparation of staff)

- Operator must have the knowledge, experience, and skill necessary.
- Adequate facilities (appropriate equipment, bed, lighting).
- Back-up plan in place in case of failure to deliver.
- When conducting mid-cavity deliveries, theatre staff should be available to allow a CS to be performed without delay (< 30 minutes).
- Anticipation of complications that may arise (e.g., shoulder dystocia, PPH).
- Personnel present that are trained in neonatal resuscitation.

- Aseptic techniques.
- Lithotomy position .
- Gentle traction in between contractions.
- Stop the procedure if 2 pop offs or 3 pulls without progress or imminent delivery.





New position: OA. Forceps upside down.

Source: G. D. Posner, Jessica DY, A. Black, G. D. Jones: Human Labor & Birth, 6th Edition
www.obgyn.mhmedical.com

Position For Safety

Flexion Point

Posterior fontanel : midway between the shanks and one centimeter above the plane of the shanks.

When to abandon OVD

- Abandon **if there is no evidence of progressive descent** with moderate traction during each contraction or **where delivery is not imminent following 3 contractions of a correctly applied instrument**.
- There is **increased risk of neonatal trauma** and admission to the SCBU **following excessive pulls (> 3) and sequential use of instruments.**
- The **risk is further increased** where delivery is completed by CS following a protracted attempt at OVD.

Higher rates of failure

- Higher rates of failure are associated with:

1. Maternal BMI > 30.
2. Estimated fetal weight > 4000 g or clinically big baby.
3. Occipito-posterior position.
4. Mid-cavity delivery or when 1/5th of the head is palpable per abdomen (at mid-cavity the biparietal diameter is still above the level of the ischial spines).

Aftercare

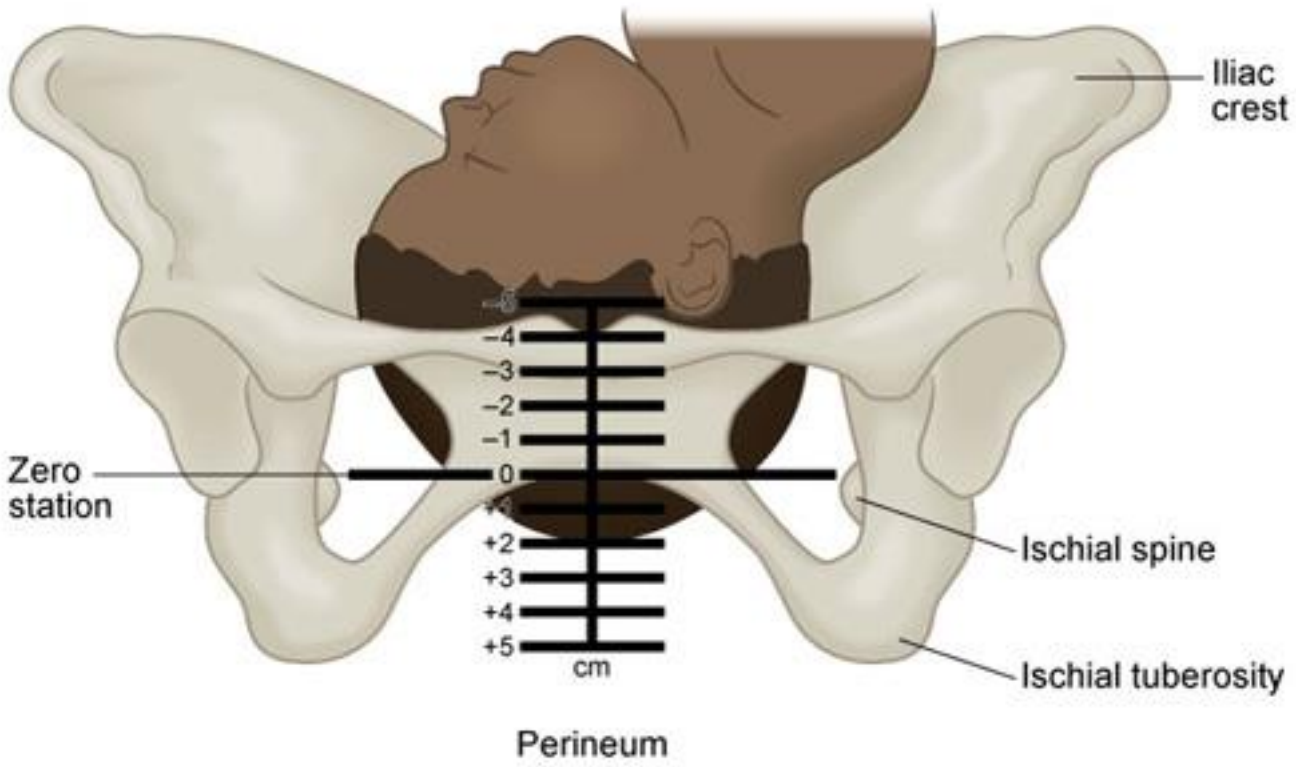
- **Analgesia** – provide regular paracetamol and diclofenac if no contraindications.
- **Antibiotics** is recommended.
- **Thromboprophylaxis** – reassess for risk factors for VTE and prescribe appropriate thromboprophylaxis. (Mid-cavity delivery, prolonged labour, and immobility are risk factors for VTE).
- **Care of the bladder** – monitor the timing and volume of the first void urine, monitor for retention
- **Offer physiotherapy** to prevent urinary incontinence.
- **Reduce psychological morbidity** for the mother – OVD can be associated with fear of subsequent childbirth and in a severe form may manifest as a post-traumatic stress-type syndrome termed **tocophobia**.

Aftercare ……

- Encourage women to aim for a spontaneous vaginal delivery in a subsequent pregnancy as there is a high probability of success.
- The likelihood of achieving a spontaneous vaginal delivery is approximately 80% even for women who have required more complex OVD in theatre.
- Discuss at the earliest opportunity as there is evidence to suggest that women decide on the future mode of delivery soon after delivery.

- Note that vacuum extraction compared with forceps is:
- more likely to fail (OR 1.7; 95% CI 1.3–2.2)
- more likely to be associated with cephalohaematoma (OR 2.4; 95% CI 1.7–3.4)
- more likely to be associated with retinal haemorrhage (OR 2.0; 95% CI 1.3–3.0)
- more likely to be associated with maternal worries about baby (OR 2.2; 95% CI 1.2–3.9)
- less likely to be associated with significant maternal perineal and vaginal trauma (OR 0.4; 95% CI 0.3–0.5)
- no more likely to be associated with delivery by caesarean section (OR 0.6; 95% CI 0.3–1.0)
- no more likely to be associated with low 5-minute Apgar scores (OR 1.7; 95% CI 1.0–2.8)
- no more likely to be associated with the need for phototherapy (OR 1.1; 95% CI 0.7–1.8)

Determining the station of the presenting part.



- **Specific situations where forceps delivery is preferred**
- Specific situations where forceps delivery is preferred include:
- where excessive caput is present over the vertex
- prematurity (gestation less than **36** weeks)
- face presentation
- after-coming head of a breech
- maternal conditions that preclude pushing, e.g. maternal cardiac disease
- suspected coagulopathy in the fetus.
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Thank you