ASSISTED VAGINAL DELIVERY

DONE BY :

Salsabeel Dahamsheh

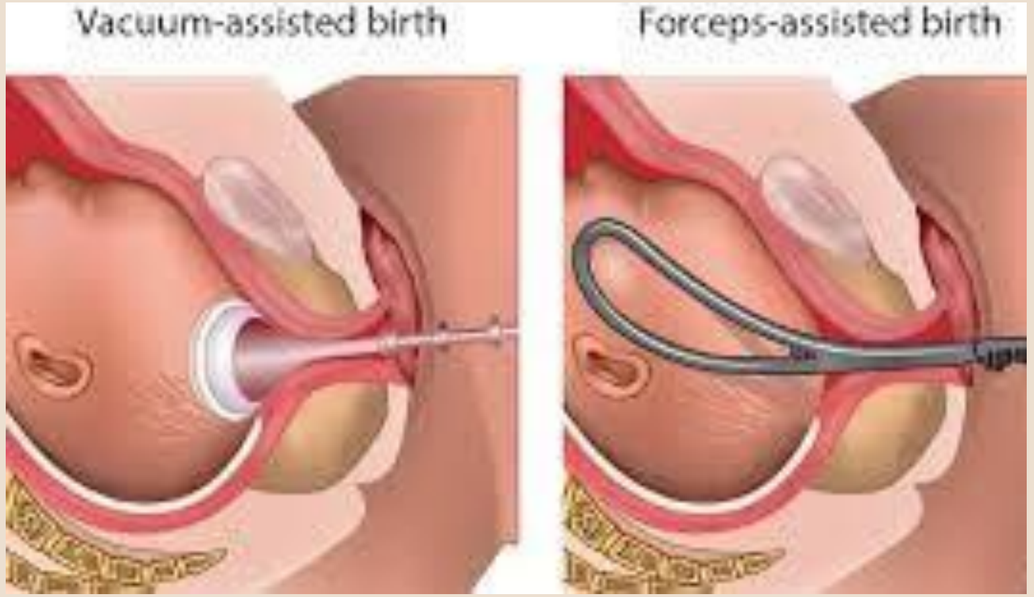
Mohamad Shehade

Hamza Taha

ASSISTED VAGINAL DELIVERY

instrumental delivery refers to a vaginal birth with the use of any type of forceps or vacuum extractor (ventouse).

The Terms instrumental delivery, operative vaginal delivery (OVD) are used interchangeably



SAFETY CRITERIA FOR ASSISTE VAGINAL DELIVERY

After full abdominal and vaginal examination

- **Head engagement is 1/5 or 0/5 in role of fife (stations 0/+1/+2/+3) .**
- **Fully dilated cervix .**
- **Membrane ruptured .**
- **Exact position of the head must be determined to place the instrument correctly.**
- **Caput or molding are no than moderate.**
- **Pelvis is deemed adequate .**
- **Adequate analgesia and empty bladder ensured.**

INDICATIONS

The indications for OVD can be divided into fetal or maternal, although in many cases these factors coexist.

Fetal :

Suspected fetal compromise :

- **CTG pathological.**
- **abnormal pH or lactate on fetal blood sampling.**
- **thick meconium.**

INDICATIONS

Maternal:

-Primiparous-failure to progress for 3hr in second stage with regional anesthesia and 2hr without anesthesia

-Multiparours-2hr with and 1hr without anesthesia

-Maternal exhaustion/vomiting/distress

-Medical indications to avoid prolonged pushing or valsalva (e.g.cardiac disease, hypertensive crisis, cerebral vascular disease,particularly uncorrected cerebral vascular malformations, myasthenia gravis, spinal cord injury)

Combined :

Fetal and maternal indications for assisted vaginal delivery often coexist. The threshold to intervene may be lower where severalfactors coexist

CHOICE OF INSTRUMENT

The choice of instrument should be based on a combination of indication, experience and training.

The aim should be to complete the delivery successfully with the lowest possible morbidity and, where appropriate, the preferences of the mother should be taken into account.

FORCEPS

- **Forceps are instruments designed to aid in the delivery of the fetus by applying traction to the fetal head which consist of 2 mirror image metal instruments that are maneuvered to cradle the fetal head and are articulated, after which traction is applied to effect delivery.**

- **Many different types of forceps have been described and developed.**

FORCEPS PARTS

Forceps have 4 major components, as follows:

- **Blades:**

The blades grasp the fetus. Each blade has a curve to fit around the fetal head. The blades are oval or elliptical and can be fenestrated (with a hole in the middle) or solid. Many blades are also curved in a plane 90° from the cephalic curve to fit the maternal pelvis (pelvic curve).

- **Shanks:**

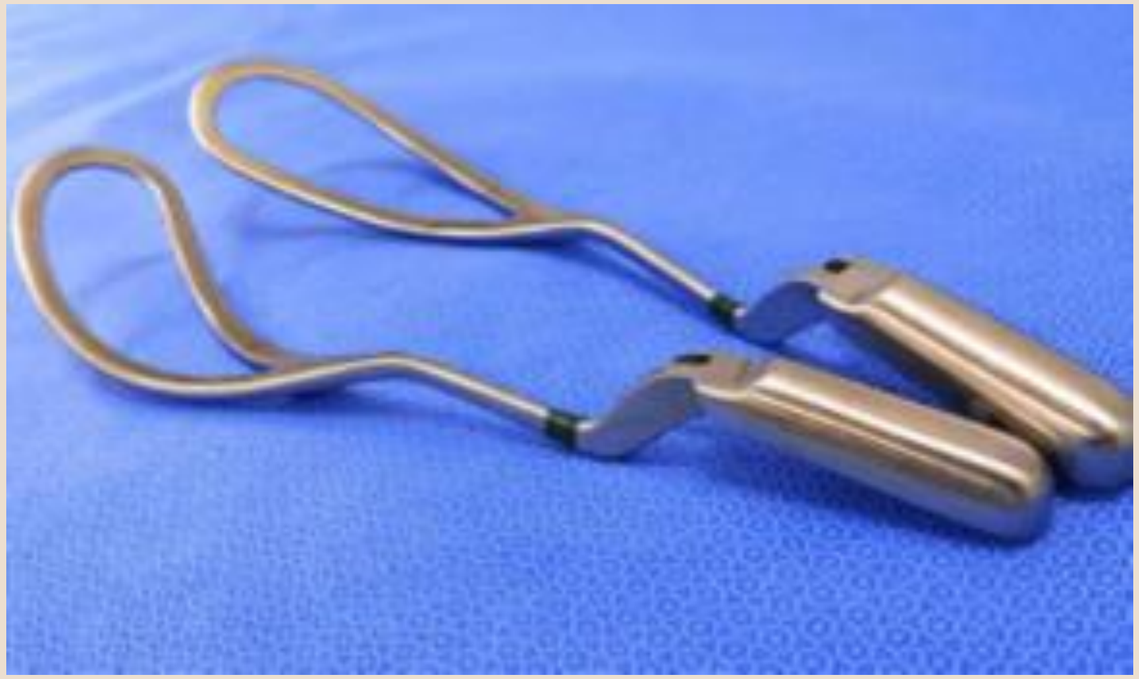
The shanks connect the blades to the handles and provide the length of the device.

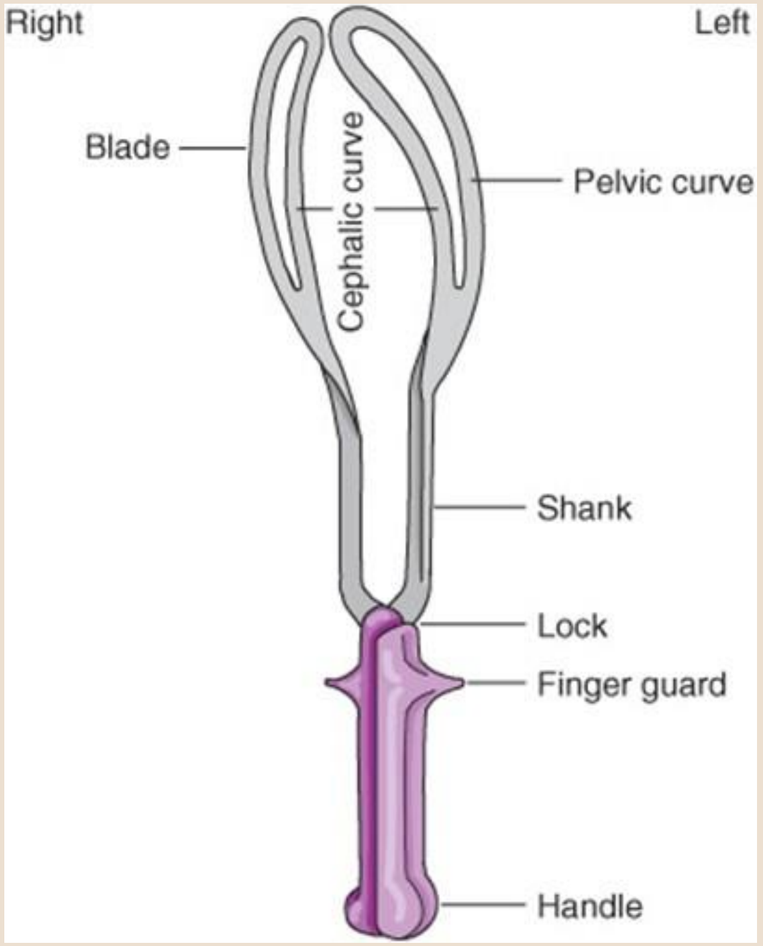
- **Lock:**

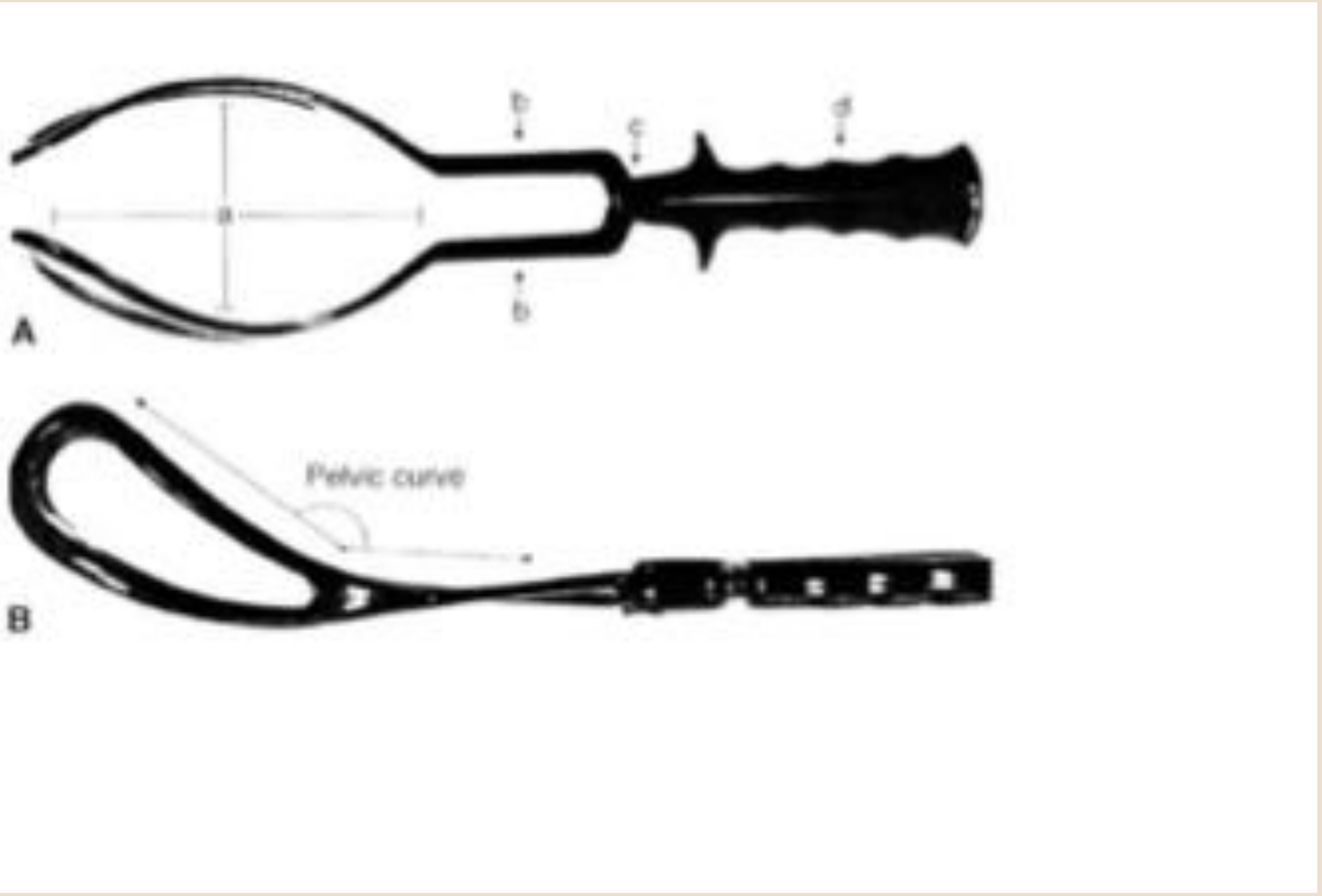
The lock is the articulation between the shanks. Many different types have been designed.

- **Handles:**

The handles are where the operator holds the device and applies traction to the fetal head




Right
Left
Blade
Cephalic curve
Pelvic curve
Shank
Lock
Finger guard
Handle


A
B
Pelvic curve

CLASSIFICATION OF FORCEPS

Non-rotational forceps:

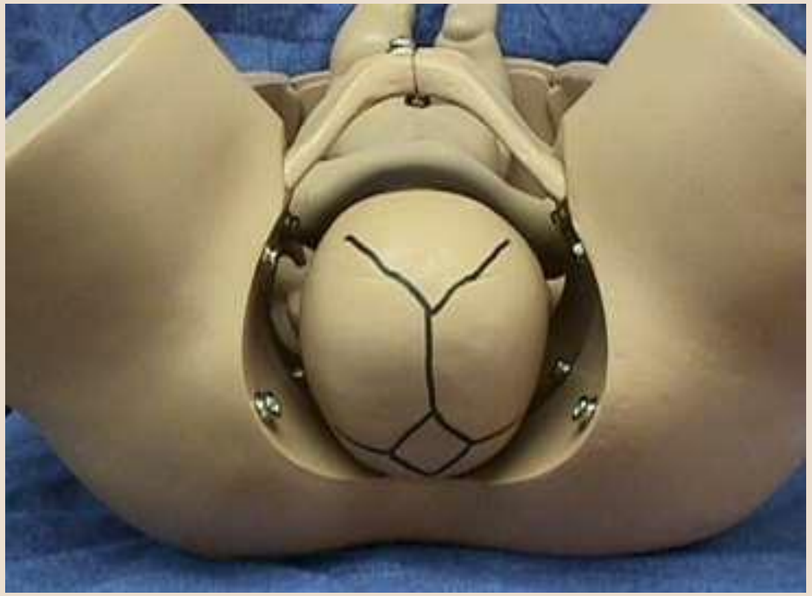
are used when the head is OA with no more than 45º deviation to the left or right (LOA, ROA).

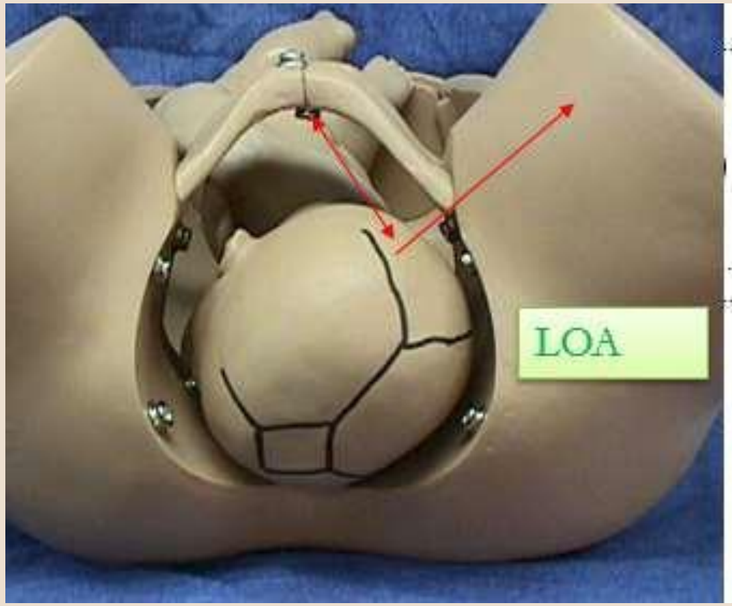
Ex: Simpson forceps, Elliot forceps, Wrigley's Forceps

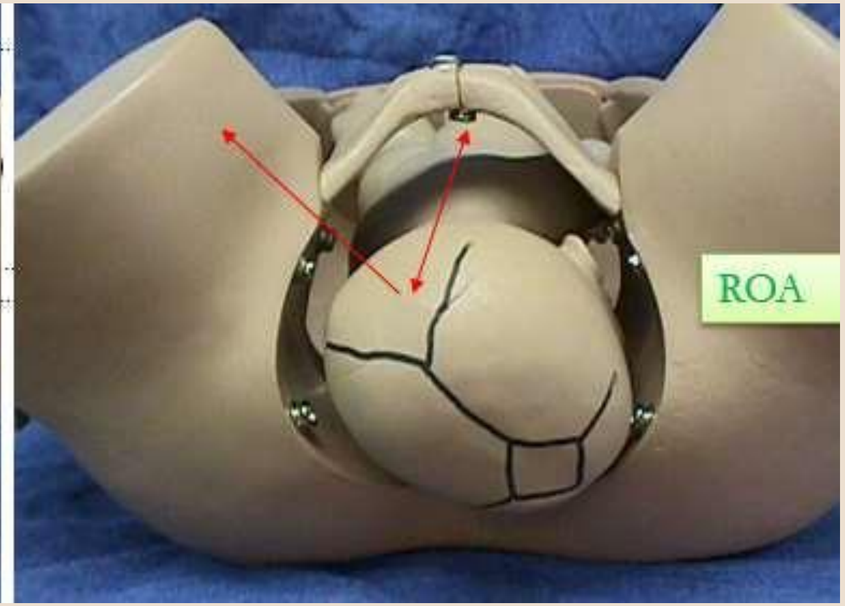
Rotational forceps:

when the head is positioned more than 45º from the vertical, rotation must be accomplished before traction.

Ex: Kielland forceps, piper forceps.

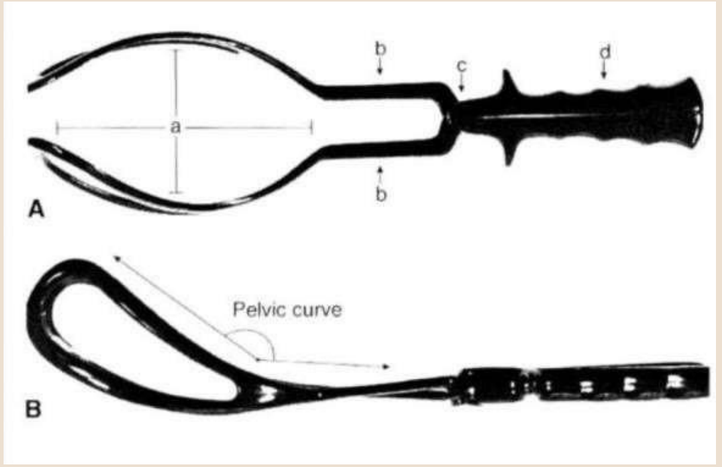



LOA


ROA

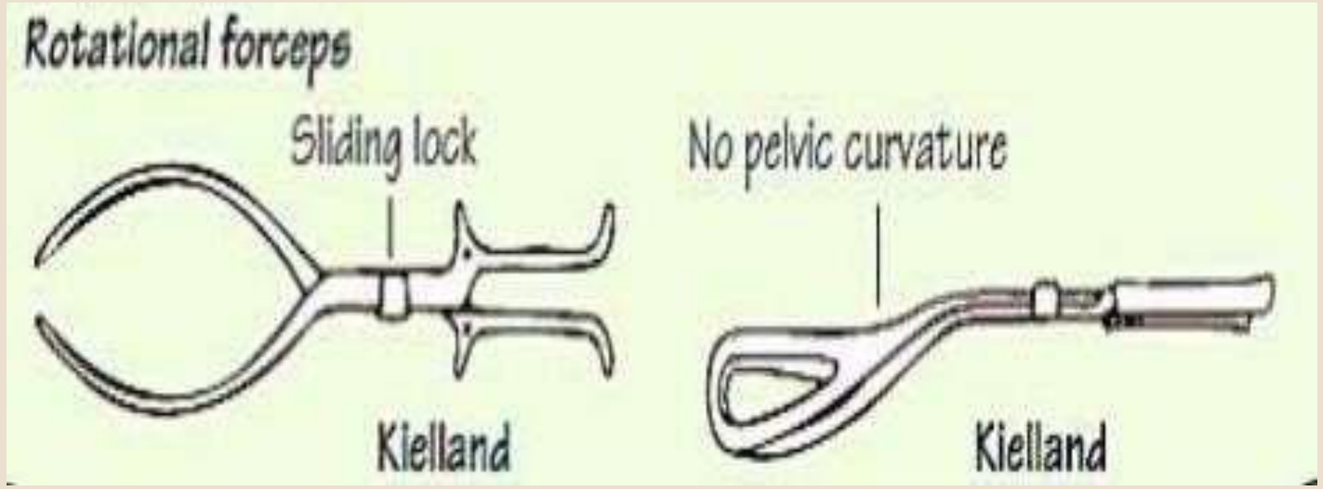
SIMPSON FORCEPS:

- Which have a pelvic curvature, a cephalic curvature, and locking handles
- Was commonly used.
- Used for aid in delivery a baby in an ideal occiput anterior position.



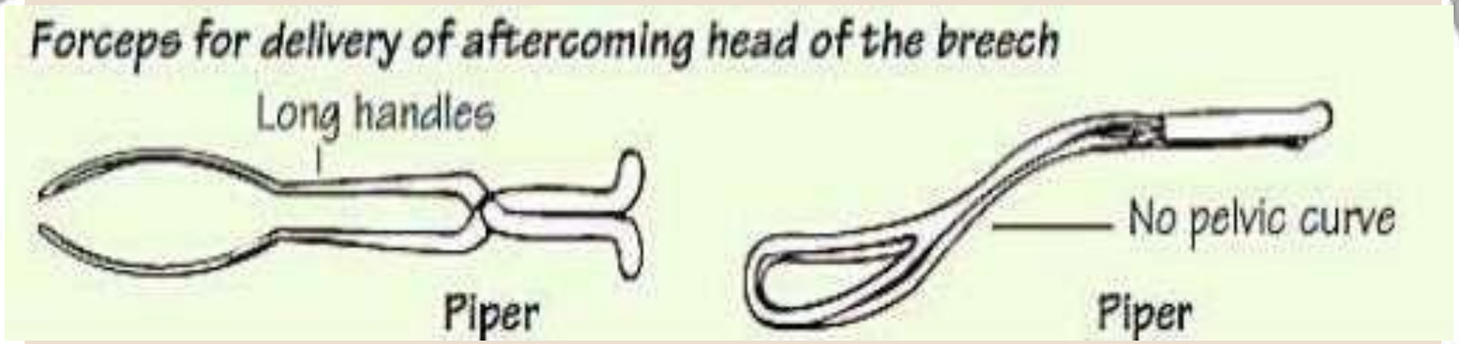
KIELLAND'S FORCEPS:

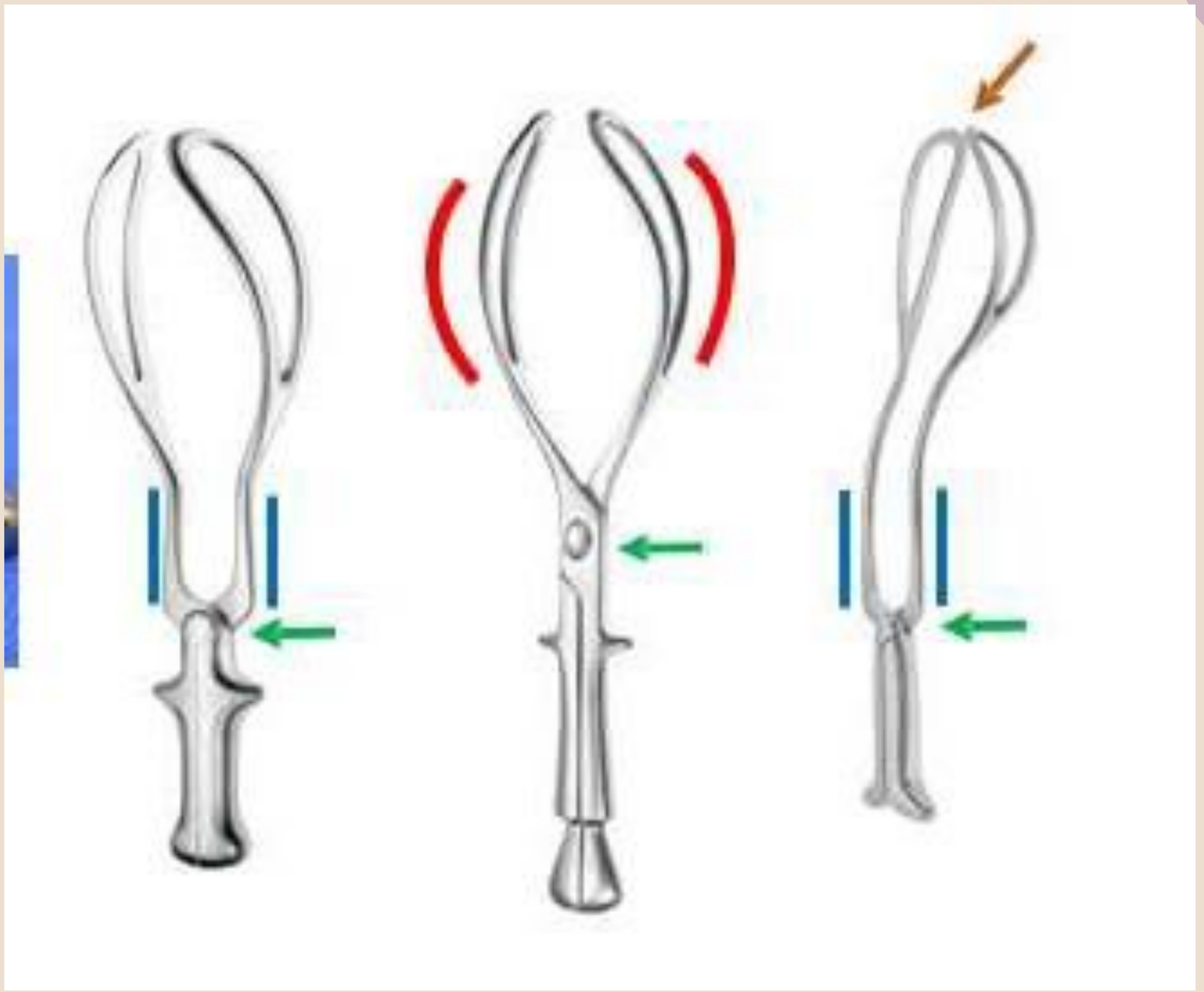
- Sliding lock, minimal pelvic curvature.
- Used for rotation and extraction of the head which is arrested in the deep transverse or occipito-posterior position.
- Not used nowadays.



PIPER FORCEPS:

- Allows for application to the after coming head in breech deliveries.
- No pelvic curve Long shanks to contain the body





FUNCTION

1)**Traction**: the most important function.
2)**Rotation of head:** (Kielland's forceps) never done now .
3)**Protective cage**: When applied on a premature baby it protects from the pressure of the birth canal, and when applied on the after-coming head it reduces the sudden decompression effect.

TECHNIQUE OF FORCEPS VAGINAL DELIVERY:

- Application technique for occiput anterior position.

- After proper anesthesia is achieved and an empty bladder ensured, thefetal position is checked again.

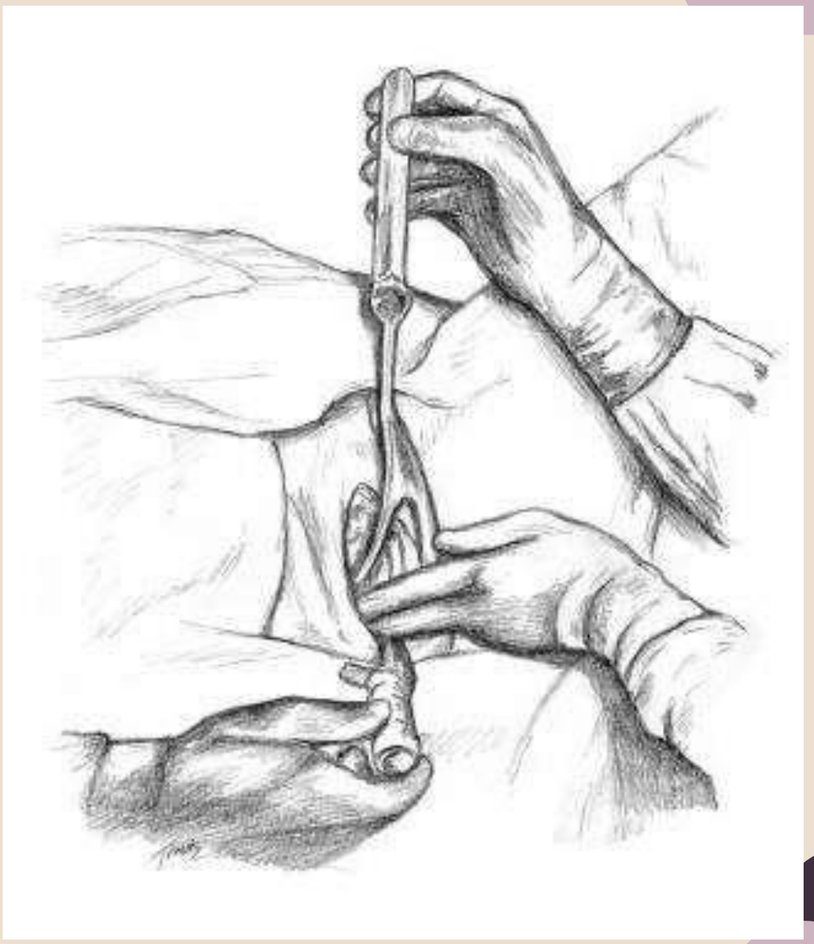
- The presence of the sagittal suture in the anteroposterior diameter of the pelvic outlet is confirmed.

- **The left handle of the Simpson forceps is held in the left hand.**

- **The blade is introduced into the left side of the pelvis between the fetal head and fingers of the operator's right hand.**

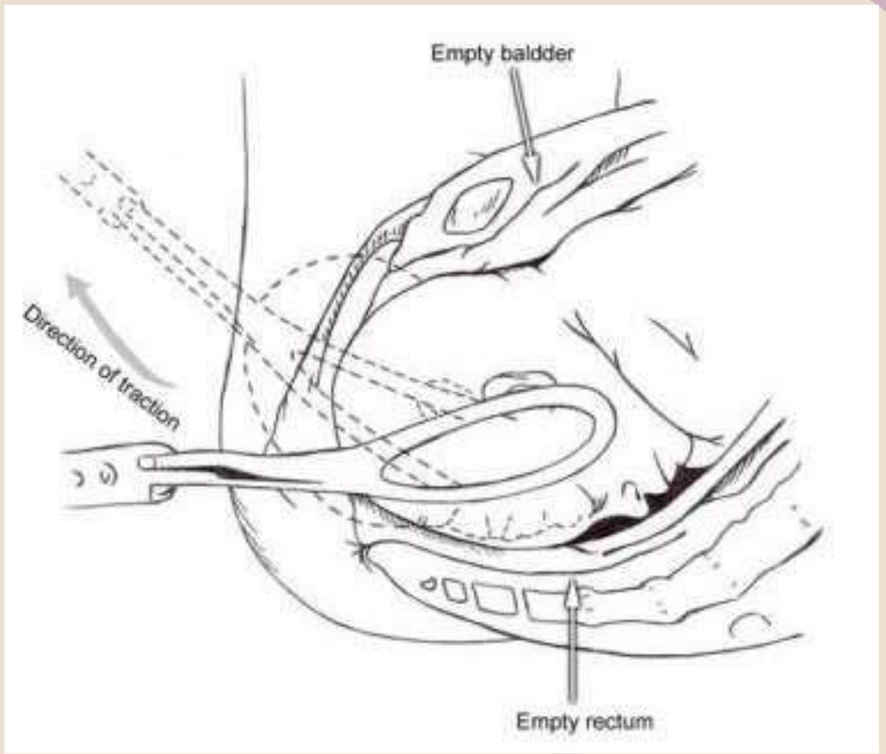
- **Continued insertion of left blade.**

- **Next, the right blade is introduced into the right side of the pelvis in the same fashion.**

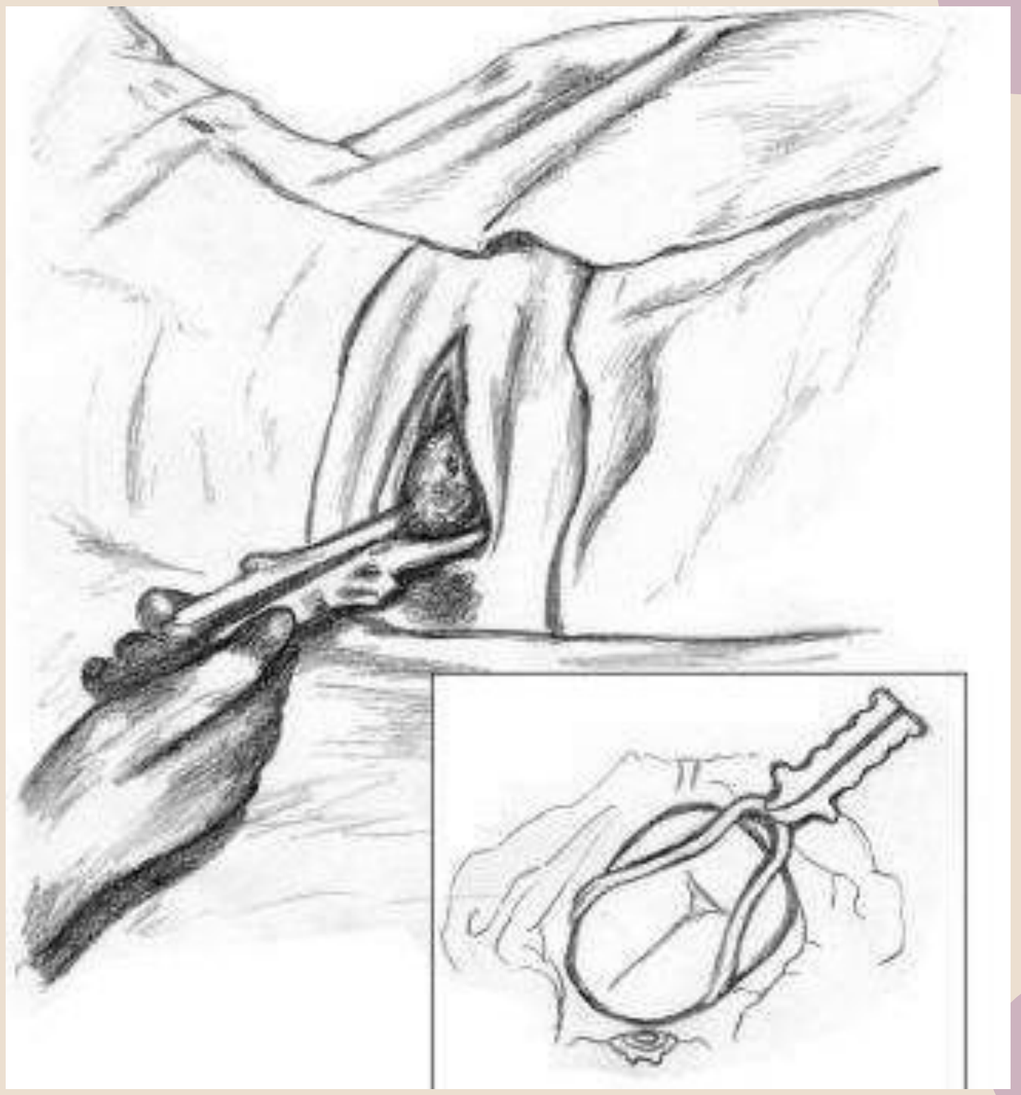


- **In a proper cephalic application, the long axis of the blades corresponds to the occipitomental diameter.**

- **With the ends of the blades lying over the posterior cheeks the blades should lie symmetrically on either side of the head.**



- **The forceps should lock easily with minimal force and stand parallel to the plane of the floor, depending on fetal station.**



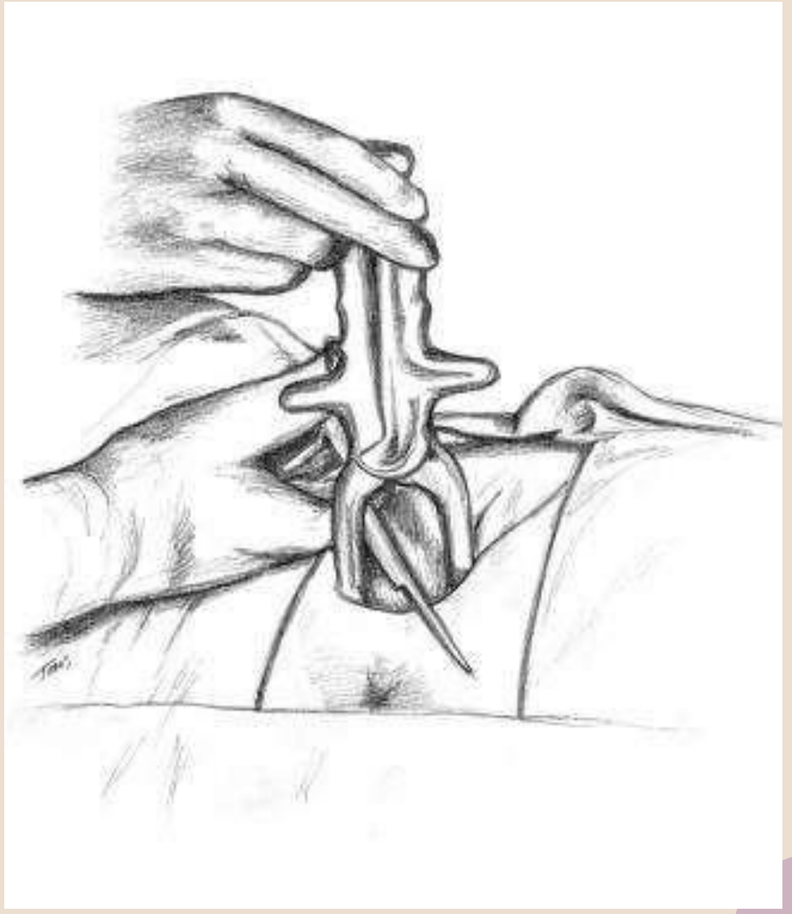
- Traction should be applied intermittently coordinated with uterine contractions

- and maternal expulsive efforts. The axis of traction changes during the delivery

- and is guided along the J shaped curve of the pelvis

- **Then, elevated to an almost vertical direction as the fetal head extends.**

- **Episiotomy when indicated.**
- **Left medial episiotomy is shown here.**



- As the fetal head crowns,the forceps blades are disarticulated and removed and the remainder of the delivery proceeds as for a spontaneous vaginal delivery.

COMPLICATIONS

Mostly due to faulty technique rather than the instrument.

Maternal

1)Injury :

- **Extension of the episiotomy involving anus & rectum or vaginal vault.**
- **Vaginal lacerations and cervical tear if cervix was not fully dilated.**

2)Post partum haemorrhage: Due to trauma or Atonic uterus.

3)Shock: due to blood loss, dehydration or prolonged labour.

CONT..

4)**Urinary incontinence** has been reported in up to 24 %of women within 6 months of a forceps delivery.

5)**Decrease in pelvic muscle strength,** as a result increase in fecal incontinence and in a general index of pelvic floor disorders (incontinence of urine and feces and pelvic organ prolapse).

CONT ..

Fetal complications:

1)Asphyxia

2)Trauma:

-Intracranial haemorrhage.

-Cephalic haematoma.

-Facial /Brachial palsy.

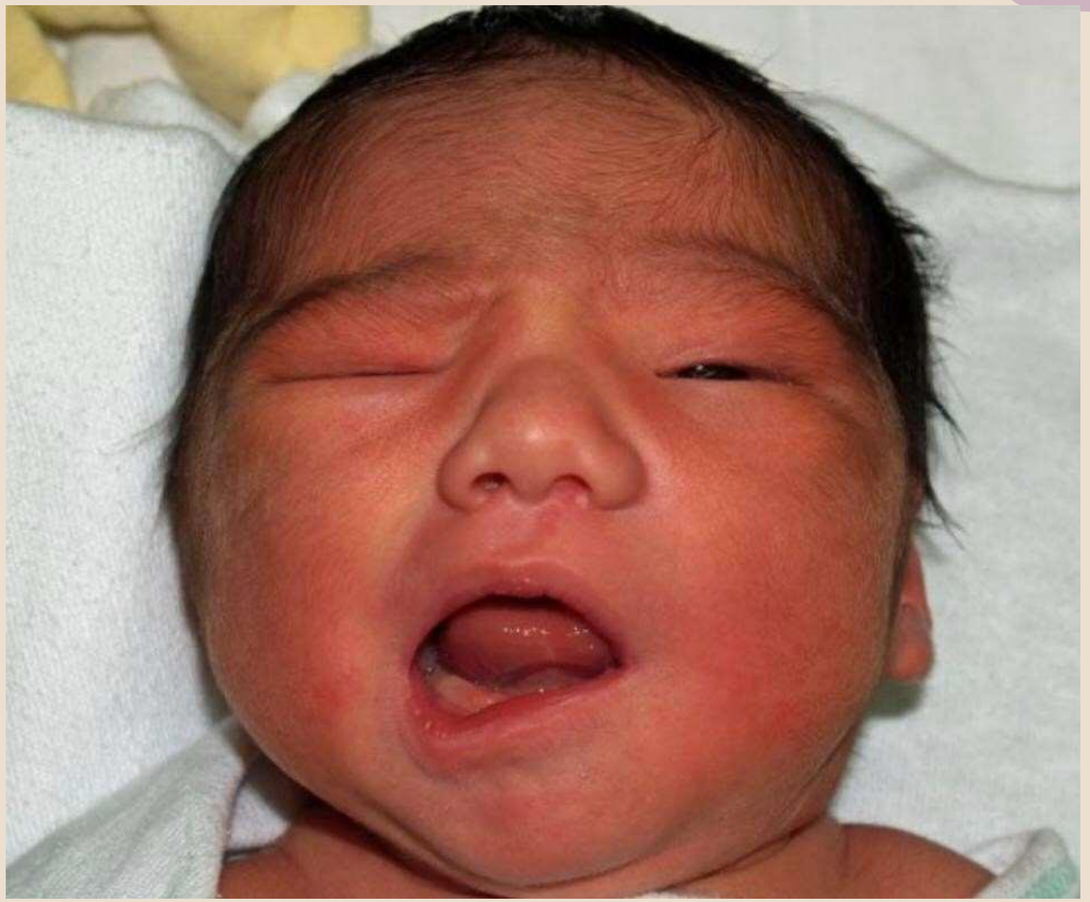
-Injury to the soft tissues of face & forehead.

-Skull fractures.

3)Cerebral palsy, mental retardation, and behavioral problems.

4)The risk for serious morbidity is 1.5 % and the risk of fetal or neonatal death is 0.05 %.


I love
Mummy
© Samantha Brick



CONTRAINDICATIONS

1) Any contraindication to vaginal delivery
2) Inability to obtain adequate verbal consent
3) A cervix that is not fully dilated or retracted
4) Inability to determine the presentation and fetal head position
5) Inadequate pelvic size
6) Confirmed cephalopelvic disproportion

RELATIVE CONTRAINDICATION

1) Unsuccessful trial of vacuum extraction
2) Absence of adequate anesthesia or analgesia
3) Inadequate facilities and support staff
4) An insufficiently experienced operator

VACUUM

Definition ：

Traction of fetal head by creating negative pressure through a suction cup (rigid or soft)applied to the head.

OVERVIEW

1)used in the second stage of labour if it has not progressed adequately.

2)cannot be used when the baby is in the breech PRESENTATION or for premature births .

3)Its generally safe, but it can occasionally have negative effects on the mother or the child.

rigid Vs. Soft cup

- **Soft Cups (polyethylene or silastic):**
are associated with less scalp injuries and appropriate for occipitoanterior position .

- **Rigid cups (Metal or Plastic) :**
are more suitable for occipitoposterior ,transverse , and difficult occipitoanterior position where the infant is larger.

- **There is higher rate of failure with soft cups .**

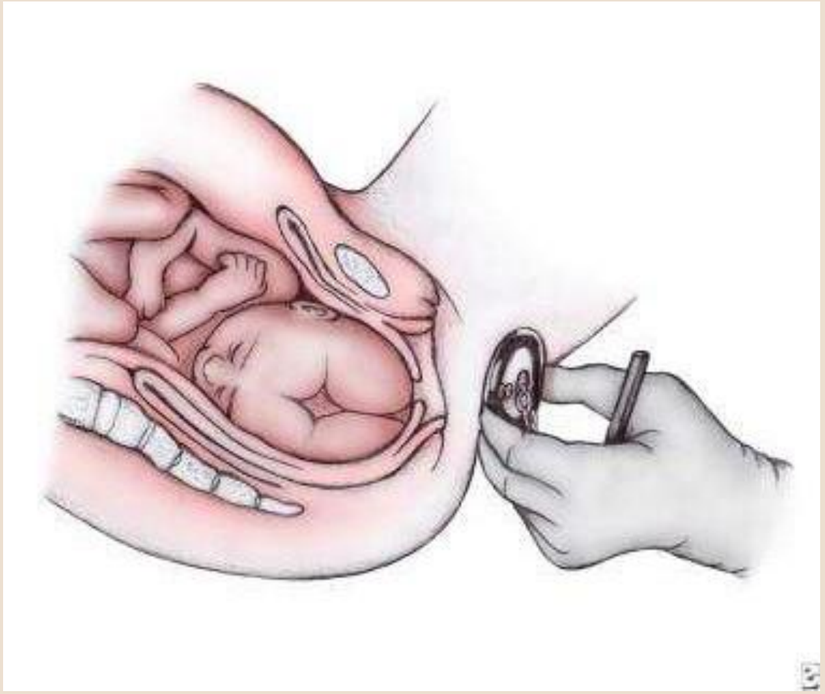
Safety criteria for vacuum vaginal delivery

(After full abdominal and vaginal examination

- Head engagement is 1/5 or 0/5 in role of fife (stations 0/+1/=2+3)
- Fully dilated cervix
- Membrane ruptured
- Exact position of the head must be determined to place the instrument correctly
- Cannot use in breech and preterm babies.
- Caput or molding are no than moderate.
- Pelvis is deemed adequate.

VACUUM EXTRACTION TECHNIQUE

The doctor holds the vacuum cup in front of the perineum in the same angle and position expected once the extractor has correctly been applied to the fetal head.

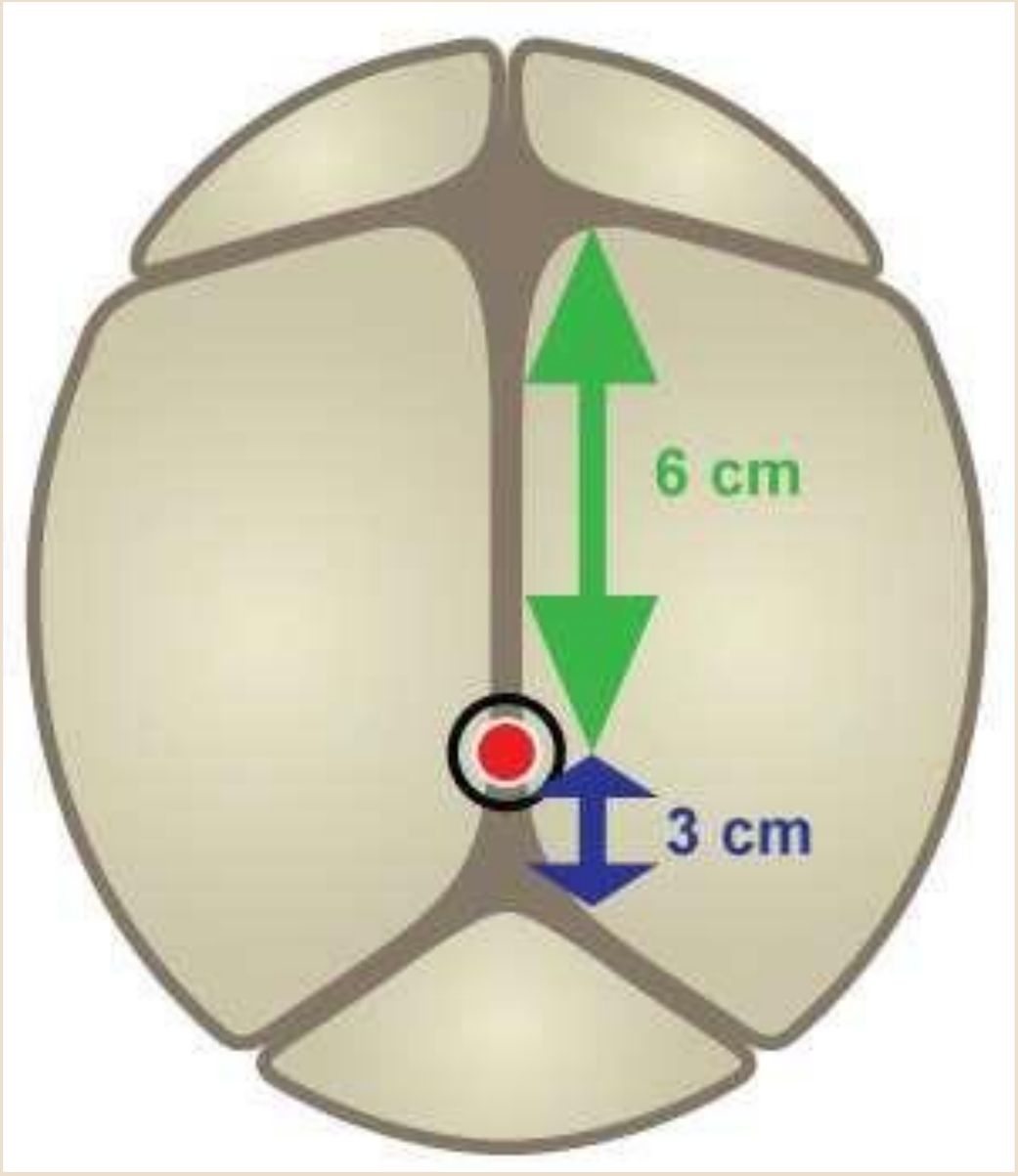


- **Insertion : the labia are gently spread, and the device is slipped into the vagina and then positioned against the fetal head.**

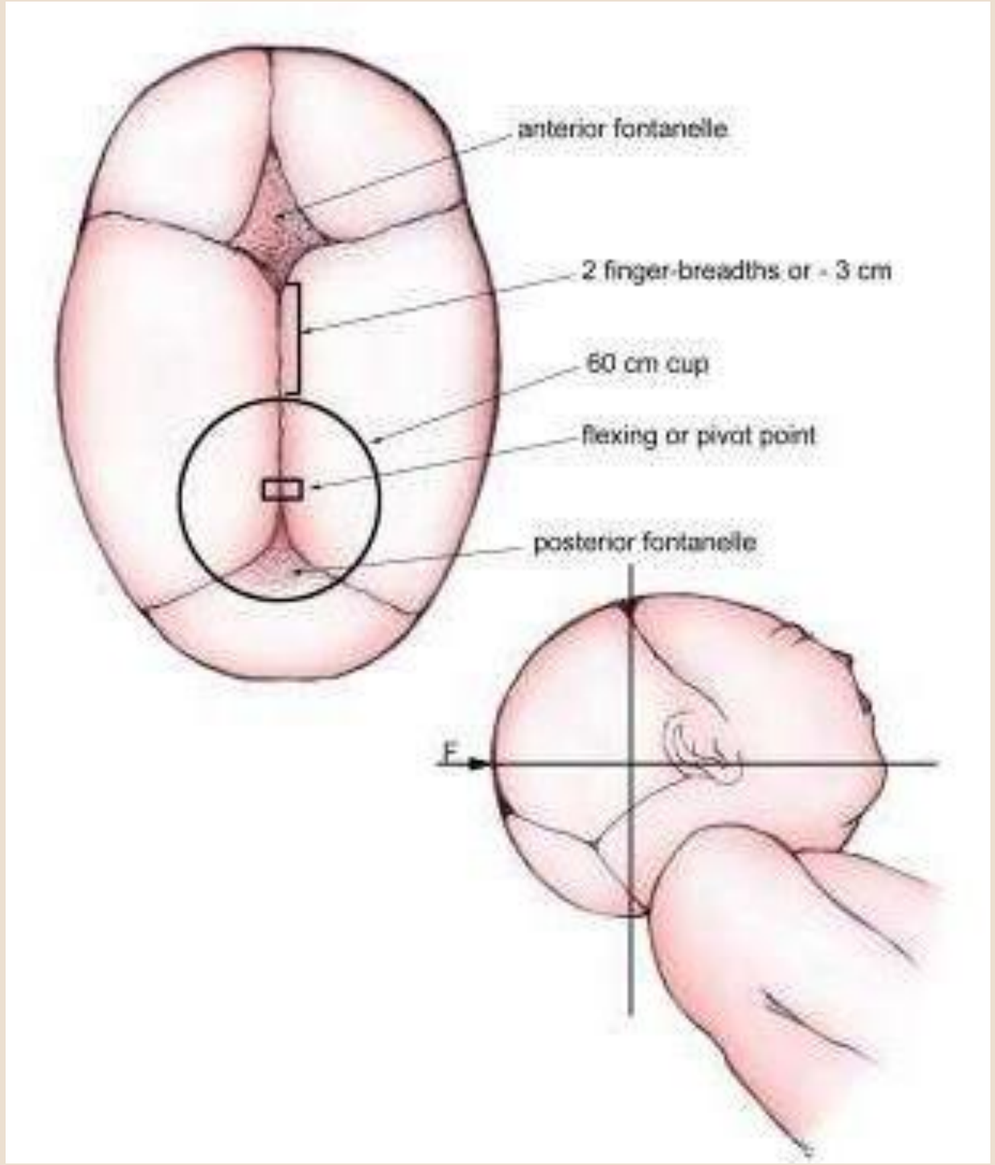
- **Correct application : the vector of traction is directed through the cranial FLEXION point**

- **Flexion of fetal head must be maintained to provide the smallest diameter to the maternal pelvis by the correct application .**

(the FLEXION POINT is a point over the sagittal suture of the fetal skull,located approximately 6 cm posterior to the center of the anterior fontanel or 3 cm anterior to the posterior fontanel.)


6 cm
3 cm

Correct application



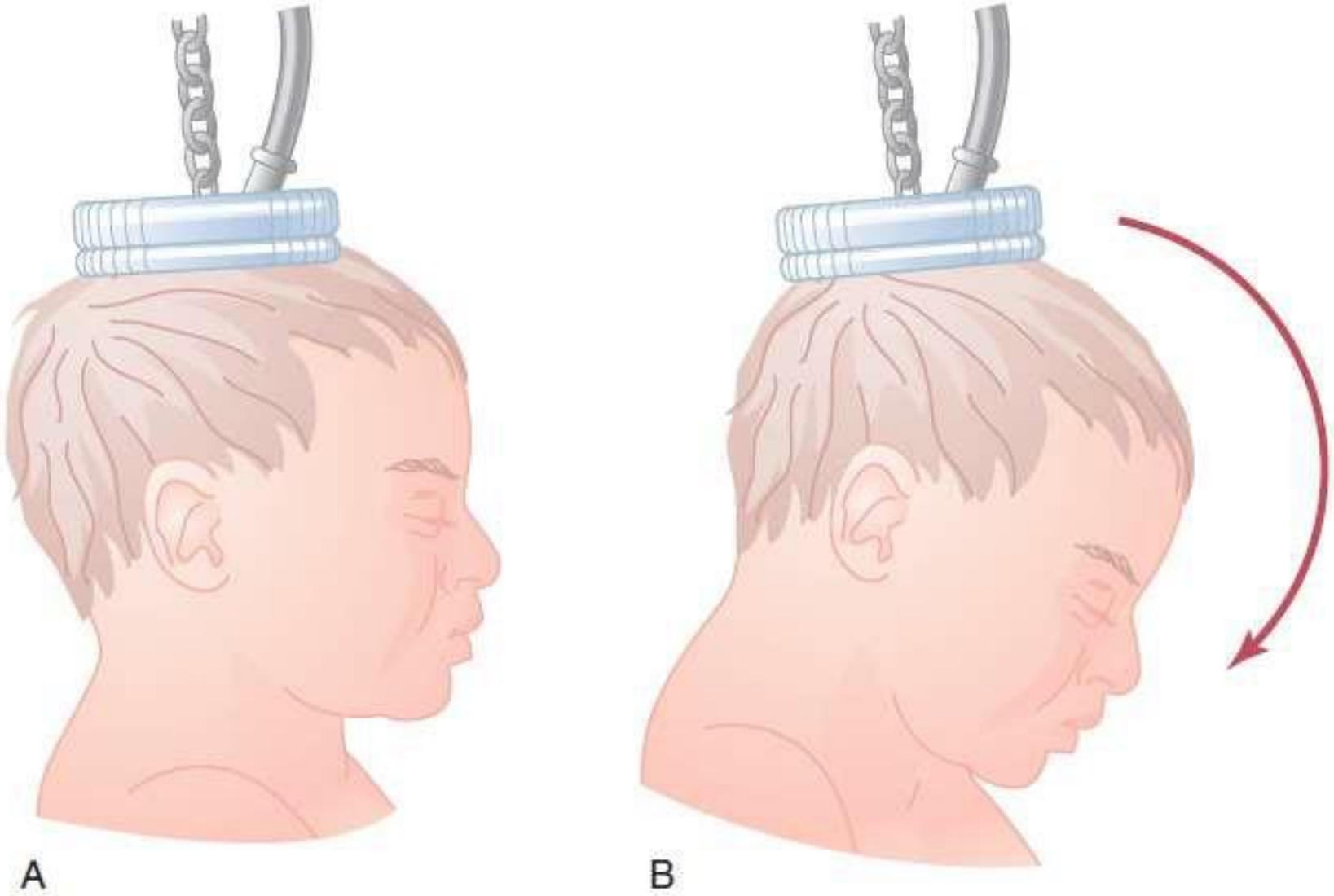
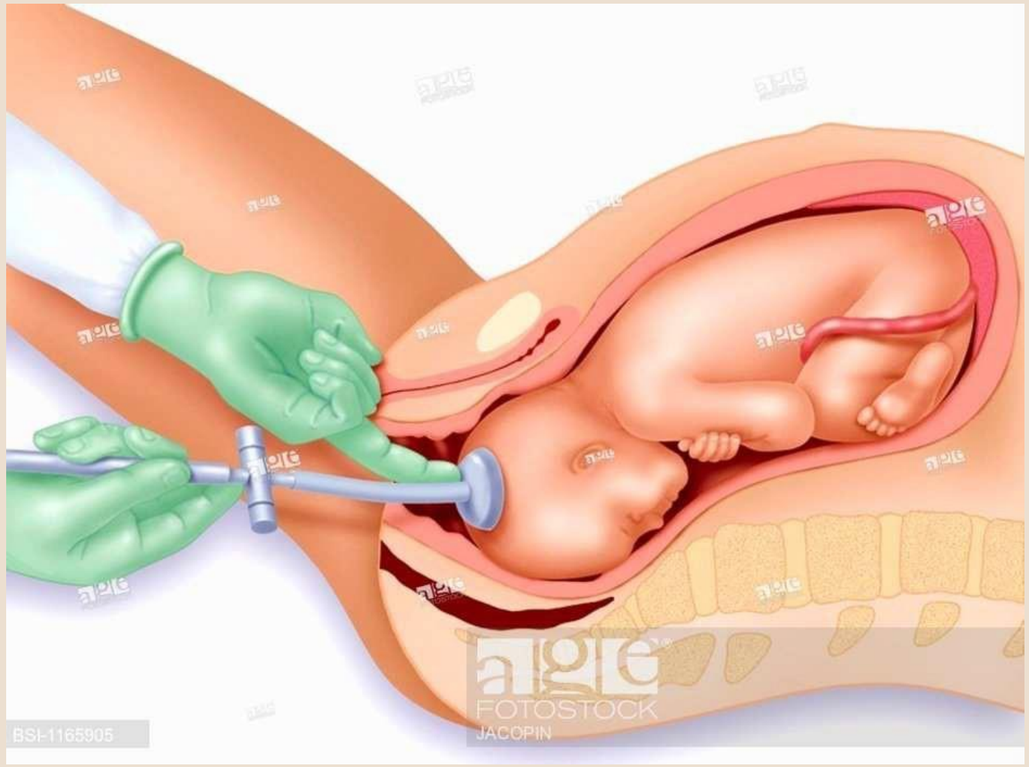


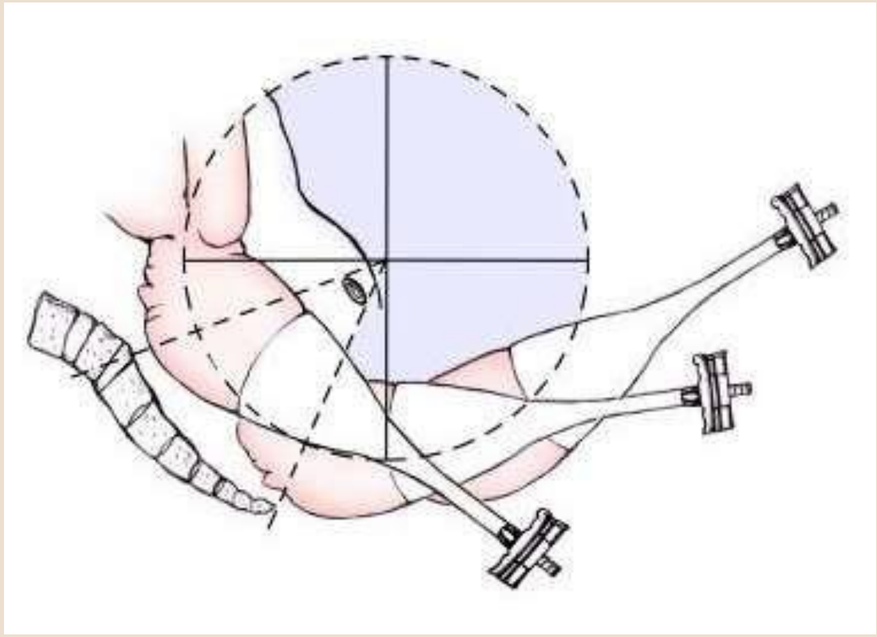
FIGURE 17-6 Application of the vacuum extractor. **A**, Incorrect application, which deflexes the fetal head, thereby increasing the presenting diameter. **B**, Correct application over the posterior fontanel, which flexes the fetal head when traction is applied.

360° check should be performed to ensure that the pelvic tissue of the mother (cervix or vagina) or umbilical cord is not trapped in the vacuum cup



TRACTION

Once the doctor has verified cup placement, full vacuum is applied (450 600 mm Hg) with onset of contraction and the traction pulls along the axis of the pelvis , handle perpendicular to the cup , paralleling the uterine contractions with the aid of maternal pushing effort .



- **Maximum time from application to delivery should ideally be less than 15-20 minutes .**

Applying rotational force to rotate the head of the fetus is contraindicated because it can lead to detachment of the cup, cephalohematoma of the fetus, and scalp laceration .

“ Pop off
>>Detachment of the suction cup from the fetal head during traction

- **IF two pop offs ” occur , the procedure should be discontinued in favor of CS .**

BIRTH INJURY

- fetal death or severe fetal injury from vacuum extraction (VE) is low, ranging from 0.1 3 cases per 1,000 exextraction procedures.

- The most common injuries are to the fetal scalp.

INJURIES

- **Cephalo hematomas : collection of blood between fetal scalp and skull**

- **Caput succedaneum.**

- **Subgaleal hemorrhages : bleeding in the potential space between the skull periosteum and the scalp galea aponeurosis .**

- **Intracranial hemorrhage , Scalp Lacerations**

-radiographic or ultrasonic studies of the CNS performed on newborns who were delivered by instrumental assistance ,help to discover injuries more frequently than clinical examination

CAPUT SUCCEDANEUM

A swelling at the top of the head after a ventouse delivery , in most cases nothing but oedema of the scalp skin and shortly disappear.

MATERNAL INJURY

- Vacuum extraction has a low rate of maternal injury in comparison with forceps operations or cesarean delivery .

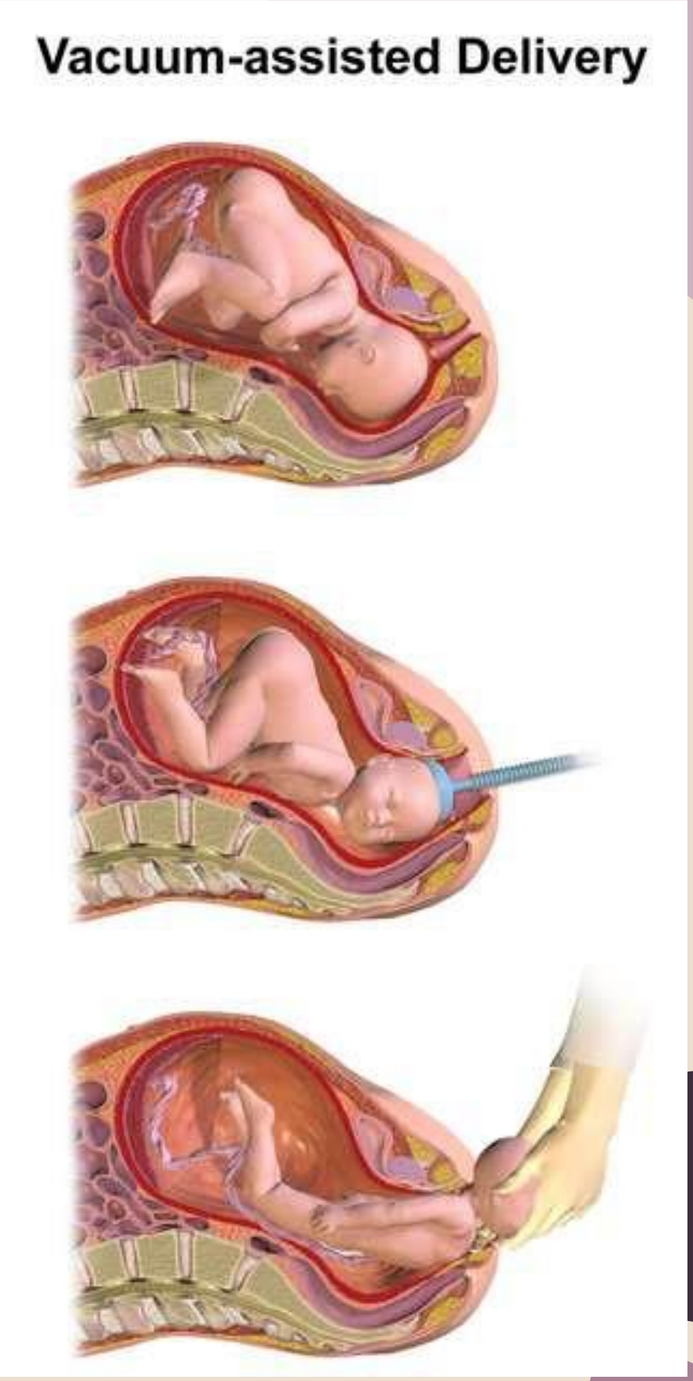
such as urinary incontinence, fecal incontinence, pelvic organ prolapse, and occasionally fistula formation.

Advantages

1) less training
2) no risk of excessive traction
3) less injury to mother

Disadvantages

1)cannot used for preterm , face or breech presentation
2) need more complex equipments
3) more trauma for baby



THANK YOU