



Vaginal Operative Delivery

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PRENATAL PANEL

Operative Vaginal Delivery

Delivery in which the operator uses **forceps**, a **vacuum**, or other devices to extract the fetus from the vagina, with or without the assistance of maternal pushing

Risks:

- **Fetus** :Intracranial bleeding following vacuum extractor
- **Mother**: Pelvic floor injury following forceps

INDICATIONS

- **Fetal**

- **Maternal (Medical):**

- Maternal exhaustion and an inability to push

- Maternal medical indications, such as maternal cardiac

- **Inadequate Progress:** ● Prolonged second stage of labor

PRENATAL PANEL

Contraindications:

- Extreme fetal prematurity
- Fetal demineralizing disease
- Fetal bleeding diathesis
- Unengaged head
- Unknown fetal position
- Brow or face presentation
- Suspected fetal-pelvic disproportion

Relative Contraindications

- Gestational age ≤ 34 weeks
- Prior scalp sampling

Choice of vacuum cup

All vacuum extraction devices consist of a soft or rigid plastic **cup**, a **vacuum pump** to provide suction between the cup and fetal scalp, and a **traction system**

A soft vacuum cup is appropriate for most deliveries

Rigid cups may be preferable for occiput posterior, occiput transverse, and difficult occiput anterior deliveries because they are less likely to detach

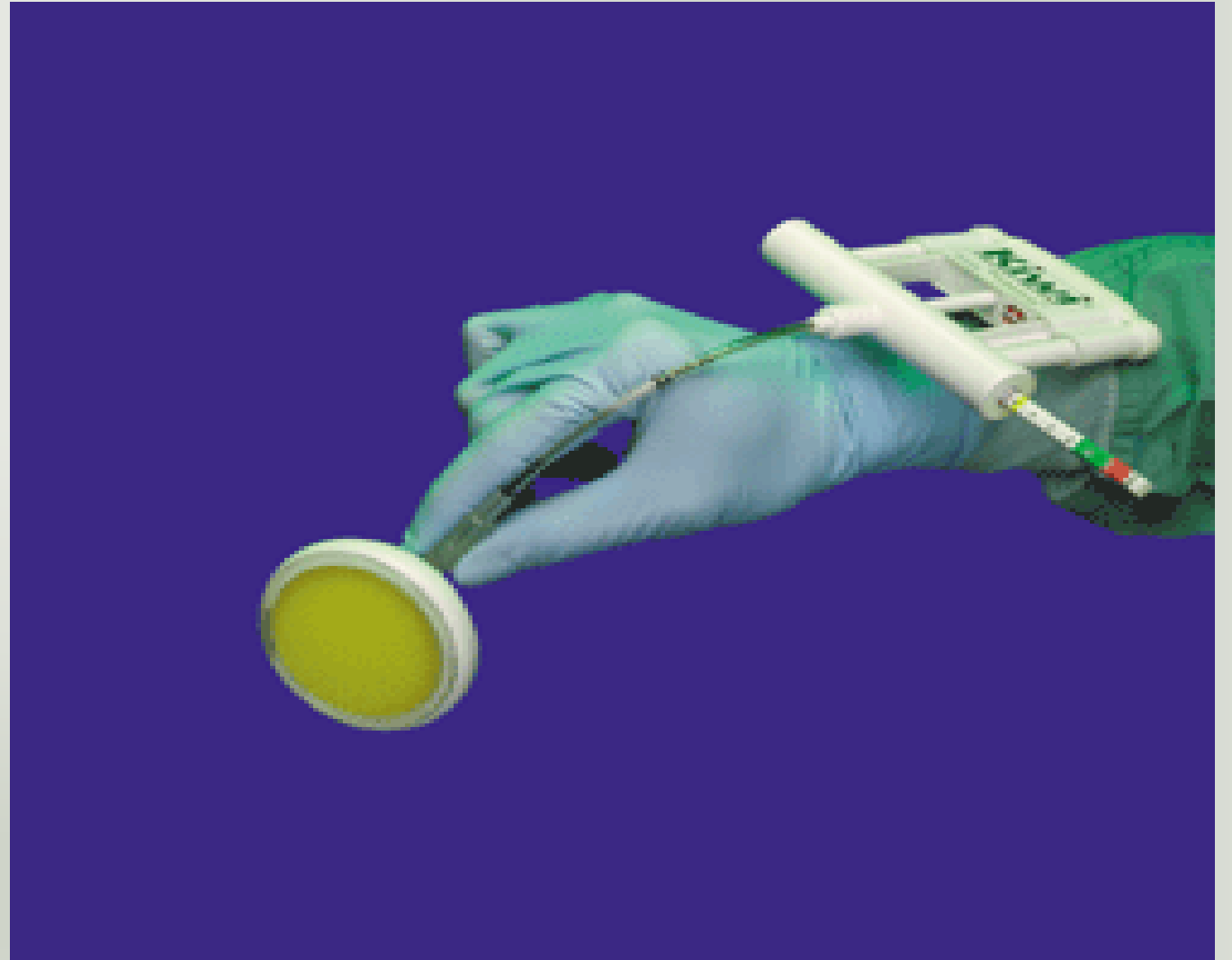
Bell versus Mushroom shape

Vacuum delivery suction cups



A: mushroom; B: bell.

Vacuum
Extractors
KIWI



Vacuum
Extractors
Plastic Cups

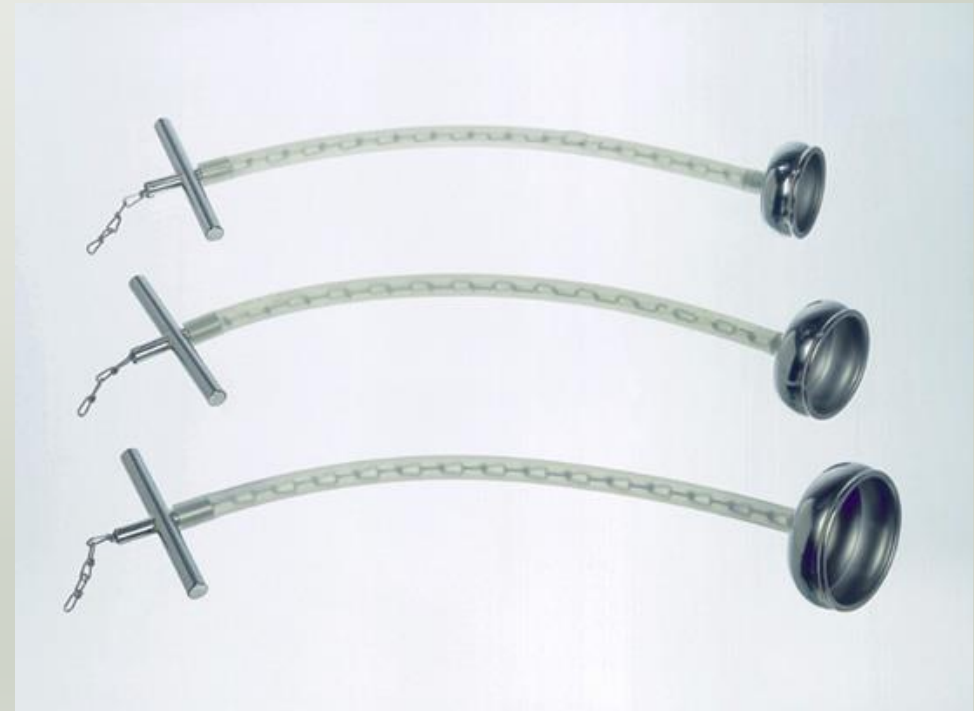


Vacuum
Extractors
BIRD Cup



Vacuum Extractors

MALMSTRÖM CUP



Vacuum
Extractor
Machine



Ancillary procedures

Prerequisites

- Cervix is fully dilated
- Membranes are ruptured
- Head is engaged
- Fetal presentation, position, station, and any asynclitism are known, and extent of molding is estimated
- Fetal size is neither too large nor too small
- Clinical pelvimetry suggests an adequate pelvis relative to estimated fetal size
- The patient consents to the procedure
- The option of performing an immediate cesarean delivery is available if complications arise
- The patient has adequate anesthesia for the planned procedure.
- The maternal bladder is empty

Anesthesia

❖ Maternal anesthesia should be satisfactory

Neuraxial anesthesia provides more effective analgesia than **pudendal block**

Pudendal block may be adequate for vacuum extraction because

Ultrasonography

Determine fetal position and station and assess its chances of success as well as its risks

- ❖ We always perform an ultrasound examination when we are uncertain of the head position

Digital examination is incorrect in approximately 20-40 percent , whereas ultrasound is incorrect in only 1-2 percent of cases

Antibiotics

Prophylactic antibiotics are not routinely administered

❖ Good standards of hygiene and **aseptic techniques** are recommended

Episiotomy

- ❖ Do not routinely perform an episiotomy
- ❖ Episiotomy increases, rather than decreases, the risk of perineal trauma

Mediolateral or lateral episiotomy is preferable as it protects against anal sphincter injury , although initial postpartum discomfort is greater than with a midline incision

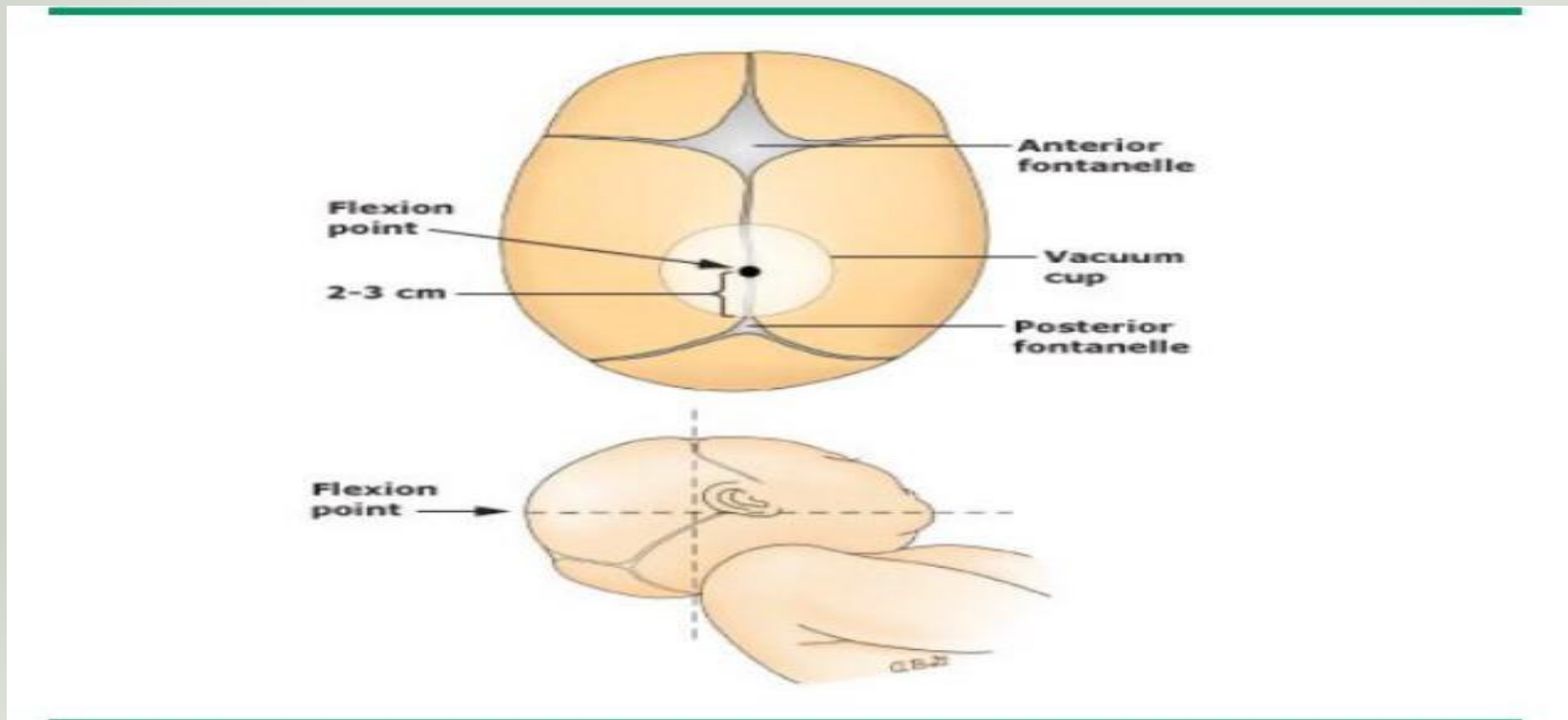
Know 'when'...



- ...when to use it.
- ...when **NOT** to use it.
- ...when to QUIT!

Determine the flexion point

In the midline, over the sagittal suture, approximately 6 cm from the anterior fontanelle and 3 cm from the posterior fontanelle



Flexion Point

The center of the vacuum cup should be directly over the flexion point

Diameter between 50 and 70 mm and the edges of the cup should be approximately 3 cm from the anterior fontanelle and at the edge of the posterior fontanelle.

Correct Placement of Cup

- Maximize traction
- Minimize cup detachment
- Flexes but averts twisting of fetal head
- Delivers the smallest head diameter

Placement cup more anterior  cervical spine extension

Placement of the cup asymmetrical  Asynclitism

Place the cup

The center of the cup over the flexion point and symmetrically across the sagittal suture

Entire cup must then be digitally inspected and the cup does not cover either fontanelle


Raised Vacuum pressure to 100 to 150 mmHg to maintain the cup's position

Suction Pressure

Suction pressure : 0.8 kg/cm² of atmospheric pressure = 600 mmHg

Vacuum suction pressures of 500 to 600 mmHg have been recommended, although pressures in excess of 450 mmHg are rarely necessary (green zone)

lower suction pressures  Cup "pop-offs,"

pressures beyond 600 mmHg  Fetal scalp trauma and cerebral, cranial and scalp hemorrhage.



Suction Pressure

❖ Rapid application of negative pressure is recommended

Although a slow, stepwise increase in vacuum pressure over 8 to 10 minutes was initially practiced, randomized trials have demonstrated that rapid application of negative pressure over 1 to 2 minutes reduced the duration of the procedure without compromising effectiveness or safety

Methods of Traction

Constant, smooth traction in the axis of pelvis

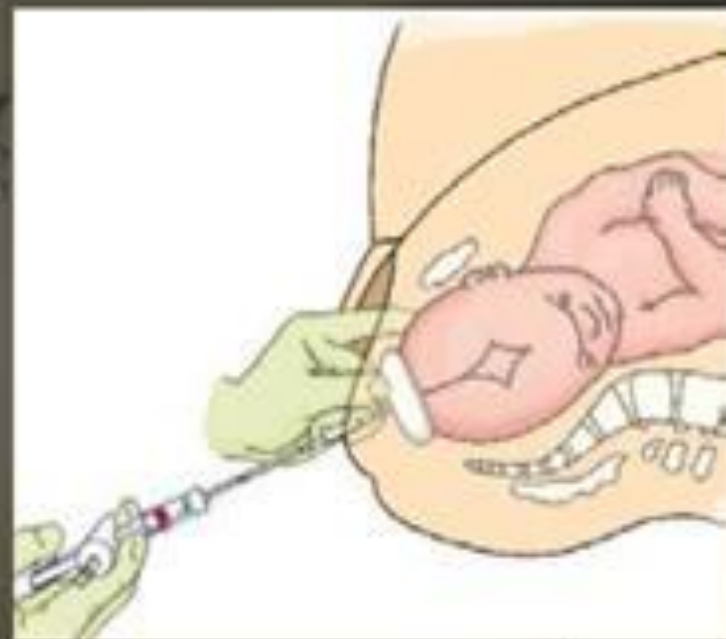
- With maternal explosive efforts

What is considered a pull?

- Pulls=contractions (not maternal efforts)

Avoid rotating or side to side movement

Importance of the *“Non-Pulling Hand”*



Thumb: Counter-Pressure, reducing pop-offs
Finger: Monitors descent, not scalp movement

Exert Traction

- ❖ Initially, the angle of traction is downward (toward the floor). The axis of traction is then extended upwards to a 45 degree angle to the floor as the head emerges from the pelvis and crowns.
- ❖ The handle should never be actively twisted to rotate the head. This dangerous maneuver can cause "cookie cutter" injuries to the fetal scalp
- ❖ Between contractions, suction pressure can be fully maintained or reduced to <200 mmHg; it is well established that fetal morbidity is similar for both regimen.

Axis Traction



Upward traction should be delayed until the BP diameter has reached the level of the pubic arch

When to abandon the vaccum extraction?

The maximum time to safely complete a vacuum-assisted delivery and the number of acceptable "pop-offs" are unknown

- Difficult to apply the instrument
- Descent does not easily proceed with traction
- Delivery not occurred within 15 - 20 minutes or after 3 pulls

the optimum threshold for abandoning the procedure

Increasing duration of operative vaginal delivery time was more strongly associated with adverse neonatal outcomes than the number of forceps pulls or vacuum cup pop-offs, but the optimum threshold for abandoning the procedure was not identified

Durations greater than 12 minutes had the strongest association with both adverse neonatal outcomes and failed operative deliveries.

❖ We believe it is prudent to abandon the procedure if good instrument placement and adequate traction are followed by no descent with three attempts

Failed OPV

- ❖ Failed vacuum extraction was sometimes followed by a successful trial of forceps, but the converse rarely occurs
- ❖ Failed forceps was more likely to lead to cesarean delivery than failed vacuum

Second attempt with a different instrument:

❖ **should not be performed routinely**

In the rare situation of potential or immediate fetal compromise when a vacuum attempt by a less experienced provider has failed and a more experienced provider believes that delivery can be safely achieved with forceps more quickly than with cesarean delivery

ACOG recommends against routinely performing sequential attempts at operative vaginal delivery using different instruments due to the greater potential for maternal and/or fetal injury

Higher rates of neonatal morbidity have been observed when cesarean delivery was performed after a failed operative vaginal delivery than when performed during labor without such attempts

Neonatal morbidity after intrapartum cesarean delivery, with or without a trial of operative vaginal delivery

Morbidity	Cesarean delivery after attempts at operative vaginal birth*	Cesarean delivery with no attempts at operative vaginal birth*
Subdural or cerebral hemorrhage	25.7	6.8
Facial nerve injury	12.8	2.8
Convulsions	68.8	19.9
CNS depression	17.1	9.4
Mechanical ventilation	156.1	101.7

Maternal and newborn examination

The lower genital tract, peritoneum, and anus/rectum should be examined after delivery for lacerations

Remember to perform this examination in women who undergo cesarean delivery after a failed attempt at operative delivery

The neonatal care provider should be informed that vacuum or forceps were used to assist delivery. Since most serious complications, such as a subgaleal hematoma, occur within hours of delivery

Care of the bladder after delivery

All women should have monitoring, such as a fluid balance chart, for at least 24 hours, to detect postpartum urinary retention. A post-void residual should be measured if retention is suspected.

Women who have had spinal or epidural anaesthesia that has been topped up for a trial of labour may be at increased risk of retention and should be offered an indwelling catheter, to be kept in place for at least 12 hours following delivery to prevent asymptomatic bladder overfilling.

How should we advise women for future deliveries?

Women **should be encouraged** 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 operative vaginal deliveries in theatre.

تعداد کشش
تعدادکنتر اکشن
تعداد شکست
میزان پیشرفت با هر بار کشش
اپیزیوتومی
لسریشن
میزان خونریزی بعداز زایمان
زمان زایمان
وزن نوزاد
آپگار دقیقه اول
آپگار دقیقه پنجم
آپگار دقیقه دهم
زمان چک ABG
PH شریان نافی
BE شریان نافی
نوزاد نزد مادر است
بستری در NICU
مرگ

تاریخ
ساعت
اندیکاسیون انجام وکیوم
سن بارداری (بالای ۳۴ هفته)
عدم وجود بیماری خونریزی دهنده در جنین
دیلاتاسیون
استیشن
پوزیشن
مثانه خالی
وزن تقریبی جنین
تفسیر نوار قلب جنین
توضیحات شفاهی به مادر
نوع کاپ
زمان کاربرد وکیوم
بیشترین فشار بکاربرده شده
وکیوم بین کنتر اکشن ها کم میشود یا نه



THANKS FOR YOUR ATTENTION