بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ
OPERATIVE VAGINAL DELIVERY

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3.1% of all deliveries in 2017 were operative vaginal forceps: 0.5% vacuum: 2.6%

The decision

- **traction** exercised for the purpose of drawing the head through the genital tract
- In a systematic review of randomized trials, **failed delivery** occurred in approximately **9 percent of forceps deliveries** and **14 percent of vacuum deliveries**
OP-D IS ONGOING DECISION COMPLETE LABOR IS INDICATED (NOT ABSOLUTELY) AND OPERATIVE VAGINAL DELIVERY CAN BE SAFELY AND READILY ACCOMPLISHED; OTHERWISE, CESAREAN DELIVERY IS THE BETTER OPTION IN OPERATIVE ROOM.

INDICATIONS

- **Maternal** medical disorder: shorten the second stage
- **Fetal** compromise: vaginal delivery can be safely and readily accomplished; otherwise, C/S
- Prolonged second stage of labor

CONTRAINDICATIONS

- Fetal demineralizing disease
- Fetal bleeding diathesis
- Unengaged head
- Unknown fetal position-brow face position
- Suspected fetal-pelvic disproportion
- Extreme fetal prematurity
- Relative contraindications to use of vacuum, but not forceps, gestational age <34 or prior scalp sampling
Residency programs should have readily available skilled operators to teach these procedures by simulation as well as through actual cases.
PREREQUISITES

- The option of performing an immediate cesarean delivery is available
- Cervix is fully dilated
- Membranes are ruptured
- Head is engaged: yes engaged
- Fetal presentation, position, station, and any asynclitism are known, and extent of molding is estimated
- The maternal bladder is empty?
- Neonatalogist consult
- Fetal size is neither too large nor too small: 4000/2000gr-34w
• Use of a checklist
• Informed consent
• Anesthesia
• Episiotomy; MEDIOLATERAL-antibiotics
• Neonatallogist consult
• **Intrapartum Ultrasound**: may reduce morbidity of improperly placed instruments at the time of an operative vaginal delivery

• Multiple studies comparing ultrasound with digital vaginal examination of head position have shown digital examination is **incorrect in approximately 20 to 40 percent** of cases, regardless of the experience of the person performing the examination, whereas ultrasound is incorrect in only 1 to 2 percent of cases
Intrapartum Ultrasound: Fetal Intracranial Structures, H. C & Angle of Progression

cerebellum

midline falX
CHOICE OF INSTRUMENT
VACUUM VERSUS FORCEPS
The choice of instrument is determined by the clinician's expertise with the various forceps and vacuum devices, availability of the instrument, level of maternal anesthesia, vacuum extraction versus forceps.

- vacuum extraction:
- easier to apply and require less maternal anesthesia than forceps

- Forceps extraction:
  - If a difficult extraction is anticipated, we choose forceps
  - significantly higher success rate, are unlikely to detach from the head during a difficult extraction
  - can be used on premature fetuses or to actively rotate the fetal
NEONATAL COMPLICATIONS

Vacuum-assisted deliveries
- fetal scalp abrasions and lacerations
- cephalohematoma
- retinal hemorrhage
- and brachial plexus injury
- Cephalohematoma

Forceps-assisted deliveries
- skin markings
- ocular trauma
- intracranial hemorrhage, subgaleal
- Facial (nerve injuries) palsies
- skull fracture
Figure 1. Thierry’s spatulas. Note there is no lock between right and left blades.
MATERNAL COMPLICATIONS:

- lower genital tract laceration, vulvar and vaginal hematomas
- Urinary dysfunction
- anal sphincter injury
- Occiput posterior position is a risk factor for maternal trauma and failure during operative vaginal delivery particularly third-/fourth-degree perineal lacerations
Principles During Traction

- Traction should be synchronous with uterine contraction
- Direction of pull should follow curve of Carus
- Traction should be at right angle to the cup
• Determine the flexion point
• Place the cup
• Apply suction — Suction pressure is measured in various units: 0.8 kg/cm² of atmospheric pressure = 600 mmHg = 23.6 inches of Hg = 11.6 lb/in².
• Episiotomy
• Rotations
• DURATION
CHOICE OF VACUUM CUP

- **Soft cup**: appropriate for most deliveries
- **Rigid plastic cup**: less likely to detach
- Kiwi vacuum device

Kiwi Cup
1. Locate Flexion Point, Calculate Cup Insertion Distance
   Refer to reverse side for more information.

2. Hold & Insert the Cup
   Best Practice: Insert with groove at 12 o’clock

3. Maneuver Cup Toward and Over Flexion Point

4. Create Vacuum and Exclude Maternal Tissue
   Best Practice: 600mmHg

5. Using Finger Tip Traction and Finger/Thumb Technique, Pull Along Axis of the Pelvis