

# OBSTETRICS AND GYNECOLOGY

## ( Tutorial 3 ) Instrumental Delivery and Cesarean Section

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**Doctor's note**   **Team's note**   Not important   **Important**   =

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# Objectives:

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# INSTRUMENTAL DELIVERY

## POTENTIAL INDICATION (WHEN DO WE NEED TO USE INSTRUMENT FOR DELIVERY)

### Maternal

Failure to advance in 2nd stage

- failure of maternal effort
- epidural analgesia
- mal-position of fetal head

maternal condition (prolonged effort may harm the mother)

- cardiac disease
- respiratory disease
- sever pre-eclampsia

### Fetal

fetal distress in the 2nd stage -  
**commonest indication**

prolapse of the cord in the 2nd stage - **best to do Cesarean section**

## WHAT CRITERIA MUST BE MET

- 1- A legitimate **indication must be present (must be longitudinal lie)**
- 2- The presentation must be suitable
  - A. Vertex
  - B. Face (M-A) **mento-anterior**
  - C. After coming head - **in breech presentation**
- 3- There must be **no Cephalo-Pelvic Disproportion** "baby's head bigger than the pelvis > C/S"
- 4- Moulding of the head must not be excessive
- 5- The head must be **engaged**  
If >1/5 is palpable ?
- 6- The position of the head must be known
- 7- The cervix must be fully dilated **if not dilated might cause laceration**
- 8- Analgesia must be adequate
- 9- The bladder must be empty **to provide more room for delivery**
- 10- The uterus must be contracted
- 11- The operator's experience

**The same conditions apply to the proper use of the ventouse except that the position of the head doesn't matter when using the ventouse**

## ANALGESIA FOR INSTRUMENTAL DELIVERY

- Perineal infiltration Alone → suitable for episiotomy and low outlet forceps or the ventouse
- Pudendal nerve block → Useful for mid cavity forceps
- Epidural anaesthesia → Ideal for rotational forceps-  
*BUT*
- General anaesthesia May be needed for rotational forceps

## TYPES OF FORCEPS

There are different ways to classify the types of forceps, for example ..

A) We can classify it based on its specific type to

1. Kiellands
2. Simpson's or Neville Barnes
3. Wrigley's (outlet)

whatever in grey is not important

B) We can also classify it based on its ability to rotate

1. Non-rotational
2. Rotational

C) Another classification is

1. High Forceps
2. Mid Forceps
3. Low-Outlet forceps

High ,no longer acceptable in modern Obstetrical practice

**THE MOST IMPORTANT THING TO KNOW IS THAT SIMPSON'S IS THE MOST COMMONLY USED, FOLLOWED BY WRIGLEY'S WHICH IS BASICALLY THE SAME BUT SMALLER**



Wrigley's

Simpson's

## FORCEPS BASICALLY

- Curved blades to fit around the head
- Fenestrated to *facilitate application without compression*  
+ it *Makes blade lighter*
- Cephalic curve to encompass the fetal head
- Handle to apply traction, to exert strong pull

## SOME FORCEPS HAVE

- Pelvic curve in the handle → to allow for the curve of the pelvis – to adopt to pelvic curve
- Straight shank → to allow for rotation maneuvers
- Sliding lock → to allow for an asymmetrically aligned head , correct lateral flexion asynclitism
- Minimal pelvic curve → to minimize maternal injury
- Short handle → no much pull

## TRAIL OF FORCEPS/ VENTOUSE (VACUUM)

- ◆ Justifiable when it is likely but not entirely certain, that vaginal delivery by forceps/ventouse will be successful. Otherwise patient should be delivered by caesarean section (CS),
- ◆ It should be carried out in theater, fully prepared because you might need to shift to cesarean section at anytime if the fetus got stuck or something.
- ◆ Vaginal delivery is feasible even if the cervix not fully dilated.
- ◆ The following points are guide to its use.
  - ★ The patient's expulsive efforts are used to assist delivery.
  - ★ The fetal head must be at least just below the ischial spines (engaged)
  - ★ The largest possible of the four cups should be used.
  - ★ If delivery is not imminent after pulling on the ventouse during the 3 contractions, 15 minute, the attempt must cease and the patient should be delivered by C/S

## CONTRAINDICATIONS FOR VENTOUSE/FORCEPS

1. Cephalo pelvic disproportion (CPD)
2. Malpresentation "face"
3. Very immature fetus
4. Big Baby

## THE USE OF VENTOUSE

### Ventouse

Pressure used -0.8 kg / cm<sup>2</sup>

Traction to fetal head at right angle to line of the curve of the pelvis

Nowadays the type of ventouse we use is Called "KIWI"

## COMPLICATIONS

Ventouse	Forceps
<p><b><u>Maternal</u></b></p> <ul style="list-style-type: none"> <li>- Cervical damage</li> <li>- Vaginal wall damage</li> </ul> <p>(you have to go around the ventose by your finger to make sure that it is not attach to the vagina )</p> <ul style="list-style-type: none"> <li>- Postpartum haemorrhage (PPH)</li> </ul>	<p><b><u>Maternal</u></b></p> <ul style="list-style-type: none"> <li>- Vaginal wall damage</li> <li>- Perineal tear</li> <li>- Retention of urine</li> <li>-PPH</li> </ul>
<p><b><u>Fetal</u></b></p> <ul style="list-style-type: none"> <li>- <b><u>Chignon:</u></b></li> </ul> <p>temporary swelling left on an infant's head after a ventouse suction cap has been used, It is not a sign of serious injury and may take as little as two hours or as long as two weeks to disappear. (wikipedia)</p> <ul style="list-style-type: none"> <li>- Skull abrasion</li> <li>- Cephalhaematoma</li> </ul>	<p><b><u>Fetal</u></b></p> <ul style="list-style-type: none"> <li>- Bruising of head</li> <li>- intracranial bleeding</li> <li>- Cephalhaematoma</li> <li>- Facial nerve palsy / skull fracture</li> </ul>

<https://www.youtube.com/watch?v=zgTLzpUTwck>

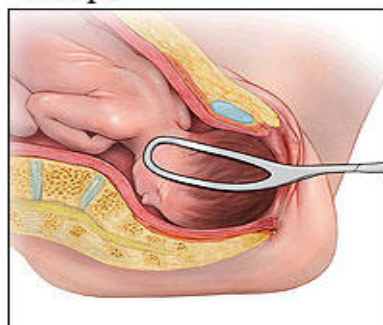
<https://www.youtube.com/watch?v=TgAcci9rJhw>

## Notes From Hacker and Moore's Essentials of Obstetrics and Gynecology

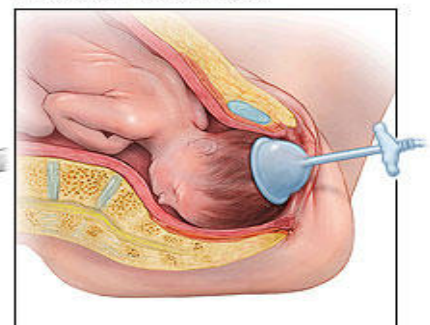
- Forceps are instruments designed to provide traction and rotation of the fetal head when the expulsive efforts of the mother are insufficient to accomplish safe delivery of the fetus
- Indications for forceps use
  - 1) prolonged second stage
  - 2) suspicion of immediate or impending fetal compromise
  - 3) to stabilize the after coming head during a breech delivery
  - 4) to shorten the second stage of labor for maternal benefit
- if progress of the fetal head is not obtained with appropriate traction, the procedure should be abandoned (failed forceps) in favor of a cesarean delivery.
- Vacuum extractor is an instrument that uses a suction cup that is applied to the fetal head
- The indications for vacuum delivery are the same as for forceps delivery
- The vacuum extractor is **contraindicated in preterm delivery** because the preterm fetal head and scalp are more prone to injury from the suction cup
- Vacuum must never be used or delivery of fetuses presenting by the face or breech
- In general, forceps deliveries cause higher rates of maternal injury, and



Forceps



Vacuum extraction





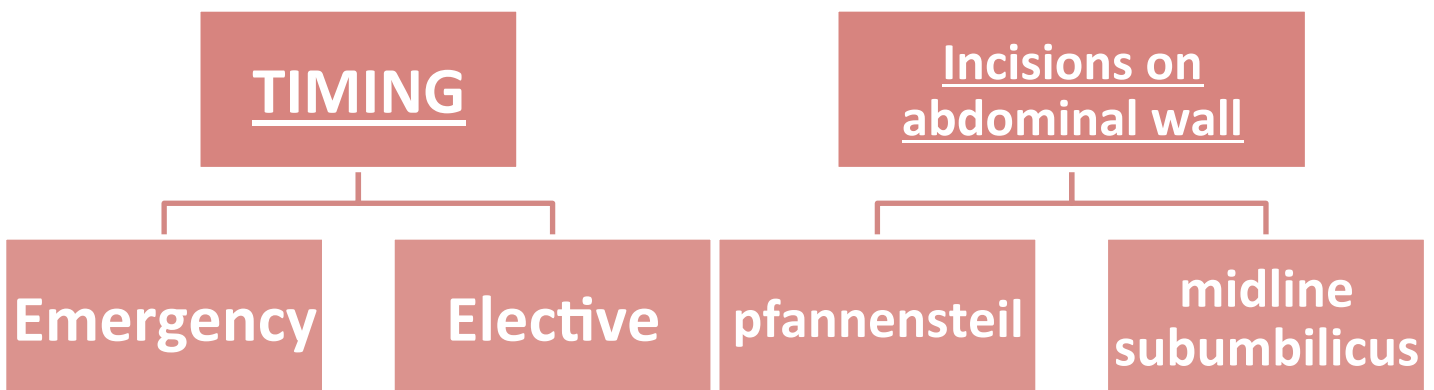
# CESAREAN SECTION

- ◆ Must not be carried out without good reason.
  - ◆ Indicated for fetal / maternal reasons when delivery must be effected rapidly and when vaginal delivery is not possible.
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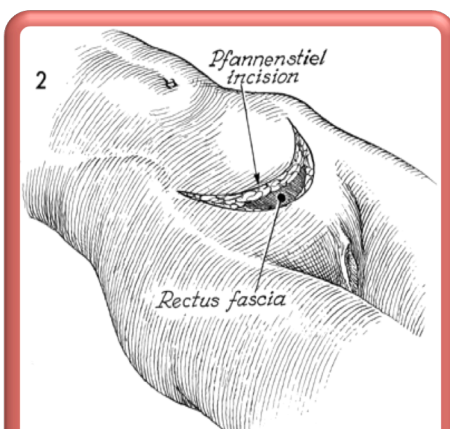
## TYPES OF CESAREAN

- ◆ Delivery of fetus through abdominal route.
  - ◆ Lower segment caesarean section (LSCS).
  - ◆ Classical C/S.
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Cesarean sections are classified according to Timing and



Incisions on abdominal wall:



**pfannensteil**



**Midline subumbilicus**

## Indications:

- ✦ Few are absolute.
- ✦ Majority are relative.

## ELECTIVE CESAREAN

Indications of elective cesarean delivery are calcified into maternal and fetal indications:

### Maternal

- **Placenta praevia.**
- **Tumours in the pelvis.**
- **Previous 2 or more caesarean section (CS).**
- **Previous classical CS.**

### Fetal

- **Breech. (premature breech and term breech)**
- **Transverse.**
- **Twins.**

## EMERGENCY CESAREAN

Indications of emergency cesarean delivery are:

- Failure of progress – first stage of labour.
- **Fetal distress** – first stage /2nd stage of labour.
- **Intrapartum haemorrhage severe cases of abruptio placenta.**
- Transverse lie in labour.
- Prolapse cord in first stage.
- Mal presentation: (mentoposterior).
- **Failed of forceps.**

## COMPLICATION

- **Anesthetic complication – pulmonary aspiration**
- **Complication related to the procedure:**
  - **Injury to other organs.**
  - **Hemorrhage.**
  - **Thrombosis – pulmonary embolism.**
  - **Deep vein thrombosis.**
  - **Paralytic ileus/ burst abdomen.**
  - **Sepsis.**
  - **Wound hematoma.**

## Delivery in subsequent pregnancy

- Cephalic
- Breech
- Transverse
- Rupture uterus
- Reason for the primary Cs

## Anaesthesia & Caesarean Section

- General.
- Maternal Death.
  - \* Mendelson's Syndrome: is chemical pneumonitis caused by aspiration during anaesthesia, especially during pregnancy.
  - \* Amniotic fluid.
  - \* Haemorrhage.

To reduce cesarean delivery rates: external cephalic version (ECV) ECV converts a malpresenting fetus to the vertex position to avoid a cesarean delivery for breech presentation. Using external manipulation, the fetus is gently guided to the vertex presentation.

## Notes From Hacker and Moore's Essentials of Obstetrics and Gynecology

- The maternal mortality with cesarean delivery is increased compared with vaginal delivery, owing to increased postpartum infection, hemorrhage, and thromboembolism.

- Four indications account for 90% of marked increase in cesarean delivery:

1/ Dystocia.

2/ Repeat cesarean delivery.

3/ Breech presentation.

4/ Fetal distress.

- Cesarean delivery are classified by uterine incision:

1/ Low transverse delivery (LTCD):

Uterine incision is made transversely in the lower uterine segment.

- The advantages of this is to decrease the rate of rupture of the scar, reduced risk for bleeding, peritonitis and bowel adhesions.

2/classic cesarean delivery:

Low Vertical cesarean delivery (LVCD)

It's carries a 4% to 7% risk for uterine rupture.

## Summery

- **indication for instrumental delivery include : failure to advance in 2nd stage due to (failure of maternal effort , analgesia , malposition )maternal chronic disease or sever pre-eclampsia, fetal distress & cord prolapse**
- **the most commonly used instrument is simpson's forceps**
- **The vacuum extractor is contraindicated in preterm delivery**
- Maternal Indications of elective cesarean delivery are : 1- Placenta praevia. 2- Previous 2 or more caesarean section (CS).
- Fetal indications of elective cesarean delivery are: 1- Breech presentation. 2-Transverse.
- Complications of cesarean delivery are :
  - 1- Anesthetic complication
  - 2- pulmonary aspiration
  - 3- Complication related to the procedure:
    - **Injury to other organs.**
    - **Hemorrhage.**
    - **Thrombosis – pulmonary embolism.**
    - **Deep vein thrombosis.**
    - Paralytic ileus/ burst abdomen.
    - Sepsis.
    - Wound hematoma.

## **MCQ's :**

**1- We cannot proceed to instrumental delivery in which one of the following cases :**

- A. unknown position of the head**
- B. The cervix is fully dilated**
- C. adequate Analgesia**
- D. The bladder is empty**

**2- WHICH ONE OF THE FOLLOWING IS THE MOST COMMON INDICATION FOR INSTRUMENTAL DELIVERY :**

- A. transverse lie**
- B. breach presentation**
- C. preterm delivery**
- D. fetal distress in 2nd stage of labor**

**3- One of the following is an indication for emergency cesarean:**

- A. twins**
- B. previous C/S**
- C. vertex presentation**
- D. fetal distress**

**4- A 25-year-old G1P0 patient at 41 weeks presents to labor and delivery complaining of gross rupture of membranes and painful uterine contractions every 2 to 3 min. On digital exam, her cervix is C/3 with fetal feet palpable through the cervix. The fetus's estimated weight is about 6 lb, and the fetal heart rate tracing is reactive. 214. What is the best method to achieve delivery?**

- A. Deliver the fetus vaginally by breech extraction**
- B. Deliver the baby vaginally after external cephalic version**
- C. Perform an emergent cesarean section**
- D. Perform an internal podalic version**

Answer :

1-A 2-D 3-D 4-C

Explanation for question 4: The patient described here has a fetus in the double footling breech presentation. In cases of frank breech presentations, the lower extremities are flexed at the hips and extended at the knees so that the feet lie in close proximity to the head and the fetal buttocks is the presenting part. With a complete breech presentation, one or both knees are flexed. In the case of an incomplete breech presentation, single footling, one hip is not flexed and one foot or knee is lowermost in the birth canal. Because of the risk of a prolapsed cord, it is generally recommended that fetuses with footling breech presentations undergo delivery by cesarean section. External cephalic version is a procedure whereby the presentation of the fetus is changed from breech to cephalic by manipulating the fetus externally through the abdominal wall. It is not indicated in this patient because the membranes are ruptured and the risk of cord prolapse is great. In addition, this procedure generally requires that the uterus be soft and relaxed, which is not the case with this patient in labor. Internal podalic version is a procedure used in the delivery of a second twin. It involves turning the fetus by inserting a hand into the uterus, grabbing both feet, and delivering the fetus by breech extraction.

*For mistakes or feedback*

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