OB/GYN

MEDICINE
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Operative Deliveries & C-section

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References: 436 doctor's slides and notes , Kaplan

Color code: Notes | Important | Extra | Kaplan

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Objectives:

1. Identify the incidence of operative delivery.
2. Mention the indications for operative deliveries including the pre-requisites to be fulfilled before applying forceps or ventouse.
3. Identify the rate of caesarean deliveries, their mortality and fetal and maternal morbidity.
4. Discuss the types of cesarean deliveries and their complications.
5. Indicate when a trial of normal labor may be offered after caesarean section delivery.
6. Describe the measures to reduce Caesarean section rates.
7. Describe common measures for the prevention of infections, deep vein thrombosis and other complications of operative delivery.
8. List the key components of postoperative care.

When we have obstructed or too long labor we have to use vaginal instrument or take the patient to the OR and perform a cesarean section.

Operative Vaginal Deliveries

Definition

- It is the delivery of the fetus using an *instrument* through the vaginal route. (a non-natural "non-spontaneous vaginal" form of delivery).
- Incidence of operative vaginal deliveries is 3.5 %.
- Instrumental delivery has to be done in the operating room, because you may need an emergency C-section if you fail, that's why we call it operative vaginal delivery.

Instruments used in operative vaginal delivery

1. **Forceps**: provide traction and rotation of the fetal head
    - Sometimes we use the forceps to get the baby out of a cesarean incision.
2. **Vacuum** (ventouse extractor): a suction cup that is applied to the fetal head and allow it to follow the normal extension > internal rotation as it comes underneath the pubic bone.
    - The *vacuum extractor* is **contraindicated in preterm delivery bc the head and scalp are more prone to injury.**

Indications of operative delivery (including the instrumental and CS)

Maternal	Fetal
• Prolonged or arrested 2nd stage labor (full dilatation of the cervix until the baby is out, when the mother start pushing, so you can't decide to use an instrument in the 1st stage of labor) (the biggest indication) for maternal benefit (pushing can be hazardous to the patient), especially in Maternal cardiac disease or pulmonary disease. • Poor maternal effort (exhaustion). • Patients with retinal detachment or post op for similar ocular conditions.	• Prolonged 2nd stage due to posterior occiput fetal presentation " it's harder to push out." • Fetal distress • Prematurity (use Forceps only to protect the baby's head because the pressure of the vacuum may lead to intracranial hemorrhage due to the weak head of the premature baby). • Certain malpositions e.g. occipitoposterior. To make the head of the baby perfectly suitable yo get out of the vagina.

Prerequisite for forceps and ventouse

Must be checked[1]	Conditions to be fulfilled
• Cervix has to be ***fully dilated***. If you did it with the cervix not fully dilated, you may end up pulling the cervix with you!!! • Membranes ruptured. If the cervix is fully dilated but the membranes are not ruptured yet you have to rupture it yourself to access the fetal head. • Head has to be engaged (0 station) the biparietal diameter has to be below the mother's ischial spine. Because here where you can make sure that the delay in delivery is not that because mother's pelvis is too small for the baby's head and the head can pass through it. • Head position known: Forceps can also be used to stabilize the coming head in breech presentation. • Vertex (cephalic) presentation. ○ Ventouse can only be applied on the head[2].	• Adequate analgesia. But sometimes you don't have time. • Experienced operator. • Empty bladder (to prevent damage to that structure and to provide more room to facilitate delivery). • Adequate episiotomy. to make things easier and prevent lacerations and tears.

Complications of Instrumental Delivery

Maternal	Fetal
• Genital tract lacerations (Cervix, vagina) "due to entrapment using ventouse". • Hemorrhage. • Extensions of episiotomy in difficult deliveries and big babies. • Sphincter lacerations. 3rd or 4th (into the rectum) degree of injury[3] which will lead to Fecal and flatus incontinence. (more with the forceps) and if happen you have to repair it at the same time. • Injury to the rectal mucosa.	• Skull fractures. • Cephalohematoma > ↑ICP because the forceps is too tight on the baby's head. • Caput succedaneum[4] Caused only by the vacuum due to suction of fetal head. • Facial Palsy. Due to compression on the facial nerves (sometimes it recovers sometimes it doesn't depending on the severity). • Scalp laceration Neonatal jaundice arises from scalp bleeding. • Intracranial hemorrhage & subgaleal hematoma. • Infant death.

[1] Mandatory clinical assessment to determine the level of the presenting part, an estimate of the fetal size, and the adequacy of the maternal pelvis.
[2] The vacuum extractor is suitable for all vertex presentations, but unlike forceps, it must never be used for delivery of fetuses presenting by the face or breech. But we have to apply the forceps on the head and not on the feet or buttocks (application on an after coming head).
[3] Third degree: a laceration involving the anal sphincter
[4] Edema above the skull.

TRIAL OF INSTRUMENTAL DELIVERY

- Should be performed in O.R. with anesthetist present + pediatrician to resuscitate.
  Unless if there is acute bradycardia and the head is almost out then you may do it Labour room
- All teams ready to proceed to C.S. in case failed instrumental delivery

C-section

- Rate » 25%.
- Maternal mortality: 5 – 6 / 100,000 C/S.
- Perinatal mortality: 3/1000 in USA & 7/1000 in the U.K.

Classification

1. **Elective C/S:** Planned and timed.
2. **Emergency C/S:** Unplanned during labor or before the onset of labor. The delivery was meant to be vaginally but something went wrong.

Indications of primary CS:

1. Cephalopelvic disproportion (CPD). it means the pelvis is too small for the fetal head.
2. Fetal malpresentation.
3. Category III EFM strip.The FHR monitor pattern suggests the fetus may not be tolerating labor, but commonly this is a false-positive finding.

Different Methods of Performing different Types Of C/S

SKIN INCISION	UTERINE INCISION

• Low transverse
• Midline.
	• Upper Segment (**Classical**): made in the **contractile** fundus of the uterus and is less commonly performed[5].
	  ○ transverse.
	  ○ vertical.
	  ○ disadvantages: the risk of bleeding and adhesions because the upper segment is near to the bowels and rupture rate is higher in the next pregnancy.
	• Lower segment (best and ideally used): through the **noncontractile** portion of the uterus,
	  ○ Transverse[6] incision of choice. Why? Less bleeding, less risk
	  ○ vertical

[5] Although it easier bc there is no need for bladder dissection, it is not common due to the Risk of uterine rupture both before labor as well as in subsequent labor which is so significant (5%)

[6] the uterine incision is made transversely in the lower uterine segment after a bladder flap (separation of the **bladder** from the lower uterine segment by sharply incising the vesico-uterine peritoneum or serosa and using blunt and/or sharp dissection to develop this potential space which facilitates placement of a retractor) is established.

So put in mind that if you see a scar on the mother's bikini it doesn't mean the uterus was opened the same.

Caesarean Section complications

COMPLICATIONS OF UPPER SEGMENT	COMPLICATIONS OF LOWER SEGMENT	COMMON POST OP COMPLICATION

• Bleeding ↑↑.
• Organ injury:
  ○ Bowel.
  ○ Bladder.
  ○ Ureter.
• Adhesions formation.
• **Rupture scar in future pregnancy higher than lower segment scar.**
• More difficult to repair
	• Haemorrhage.
	• Organ injury:
	  ○ Bladder
	  ○ Bowel.
	  ○ Ureter.
	• Adhesions **specially bladder**.
	• Ruptured scar.
	• Abnormal placentation in future pregnancy, either Low lying placenta, previa or Accreta, increta, and percreta.
	• Extension of incision:
	  ○ Lateral to the uterine artery causing bleeding & Downwards.
		• **Atelectasia.**
		• **Infections:**
		  ○ Endometritis.
		  ○ Wound.
		  ○ UTI.
		  ○ Pneumonia.
		• **DVT & PE.** And there is a protocol to prevent it.

Measures to reduce C.S. RATE

1. **Proper antenatal care for early detection and management of conditions that lead to ↑ C.S. rate e.g.:**

- Controlling macrosomia (large baby) in diabetes.
- Early detection of HTN to prevent preeclampsia.
- Post term if you keep the baby to the 41 and 42 weeks they will become big and hard to deliver vaginally.

2. **Vaginal birth after Cesarean (VBAC)** is a trial of labor that is offered after:

- **Non recurrent** (can be prevented in next delivery) indications e.g. fetal distress, cord prolapse, placental abruption, and breech presentation. Recurrent = small pelvis.
- Pelvic adequacy is confirmed by proper clinical *radiological* methods as needed.
- Lower Segment scar.
- Placental localization.
- Scar integrity is assured by taking proper post operation history.
- Standard of care is to offer VBAC after one previous C/S and not multiple
- Safe set up: Tertiary care center which can perform emergency C.S as needed.
- Patients approval.

POST Delivery CARE

1. Vital Signs hourly then x 4 hours.
2. I.V. fluids.
3. Analgesia.
4. Checking Fundus + Lochia[7] (The blood that comes after delivery).
5. Urine output + catheter care.
6. Wound care.
7. Prevent infections:
   - Prophylactic Ab.
   - Aseptic technique.
   - Prevention of anemia.
8. To prevent DVT:
   - TEDS[8] stocking
   - Thromboprophylaxis.
   - Early ambulation.
9. Breast care and breastfeeding.

MCQs

1- A 23 years old G1 at 38 weeks gestation presents in active labor at 6 cm dilated with ruptured membranes. On cervical Examination the fetal nose , eyes ,and lips can be palpated. The fetal heart rate tracing is 140 beats per minute with accelerations and no decelerations. The patient's pelvis is adequate. Which of the following is the most appropriate management for this patient?

A- Perform immediate cesarean section without labor.

B- Allow spontaneous labor with vaginal delivery.

C-Perform forceps rotation in the second stage of labor to convert mentum posterior to mentum anterior and to allow vaginal delivery.

D-Attempt manual conversion of the face to vertex in the second stage of labor.

2- A 25-years old G1P0 patient at 41 weeks present to labor and delivery complaining of gross rupture of membranes and painful uterine contractions every 2 to 3 minutes. On digital examination, her cervix is 3cm dilated and completely effaced with fetal feet palpable through the cervix. The estimated weight of the fetus is about 6 lb. and the fetal heart rate tracing is reacve. Which of the following is the best method to achieve delivery?

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[7] **lochia** is the vaginal discharge after giving birth (puerperium) containing blood, mucus, and uterine tissue. **Lochia** discharge typically continues for 4 to 6 weeks after childbirth, which is known as the postpartum period. What's abnormal? Picture

[8] Thromboembolism-deterrent (TED) stocking

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 some forceps -assisted vaginal delivery.

3- A 28-years old G1 at 38 weeks had a normal progression of her labor. She has an epidural and has been pushing for 2 hours. The fetal head is direct occiput anterior at +3 station. The fetal heart rate tracing is 150 beats per minute with variable decelerations. With the patient's last push the fetal heart rate had a prolonged deceleration to the 80 seconds for 3 minutes. You recommend forceps to assist the delivery owing to then on reassuring fetal heart rate tracing. Compared to the use of the vacuum extractor, forceps are associated with an increased risk of which of the following neonatal complications ?

A- Cephalohematoma B- Retinal Hemorrhage C-Jaundice D-Corneal abrasions

4- A G9P8+0 lady at 42 weeks is having a prolonged second stage of labor. The presentation is vertex occiput posterior with head at 1 cm above ischial spine and cervix is 8cm dilated. What is an absolute contraindication for vacuum delivery in this case?

A- Head station.
B- Parity.
C-Vertex occiput posterior presentation.
D-Gestational age.

5- A 41-weeks pregnant lady G2P1 with previous cesarean section due to failure to progress. She has been in the second stage of labor for 55 minutes and the fetal head is at -2 station.The fetal heart is showing bradycardia for 10 minutes deceleration. What would be the best option for management?

A- Augmentation with oxytocin.
B- Emergency cesarean section.
C-Forceps delivery.
D-Vacuum extraction.

Answers: 1- B. 2- C. 3- D. 4- A. 5- B.