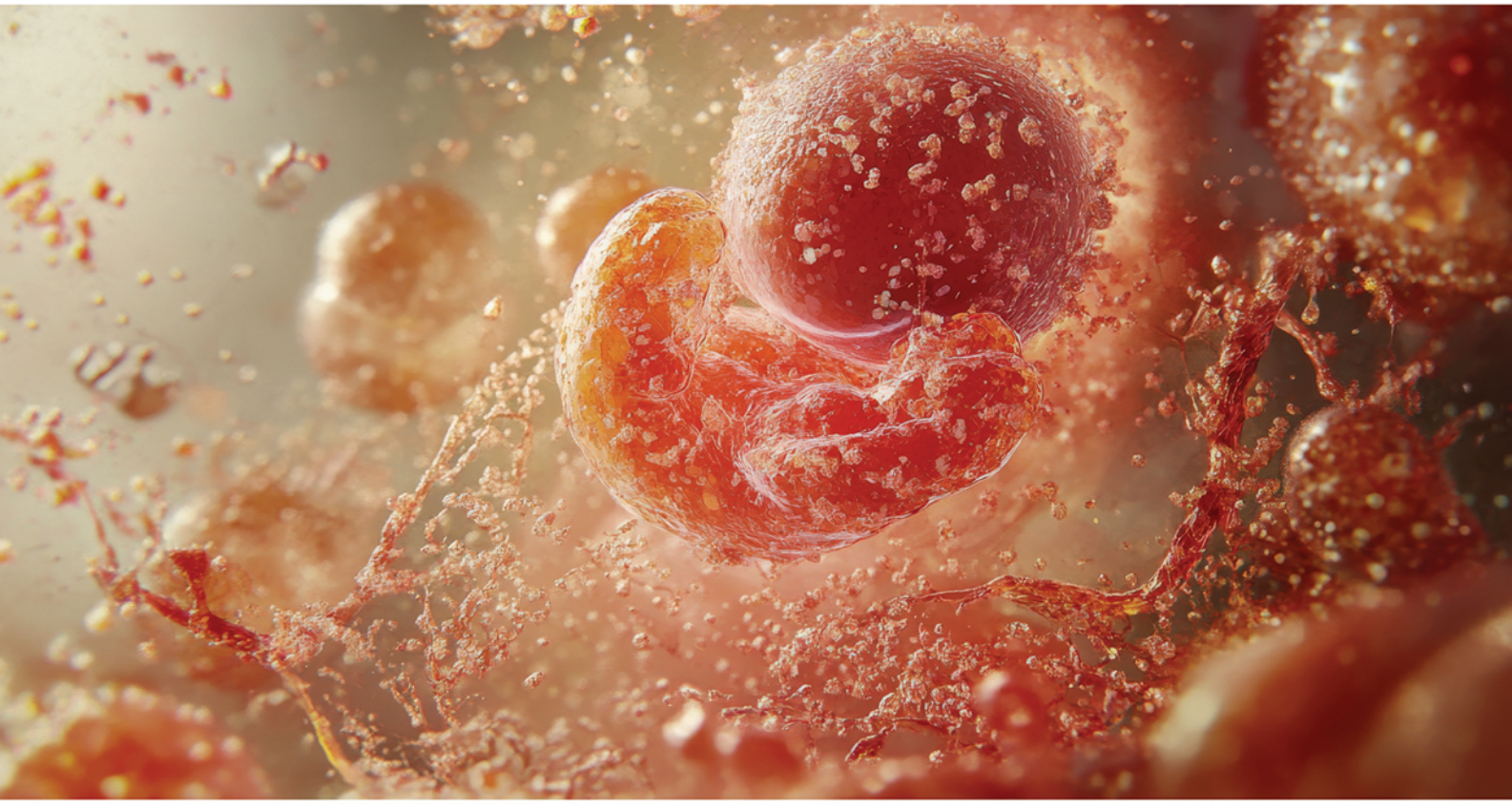
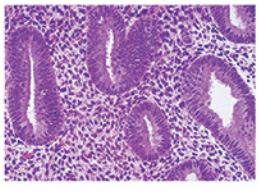
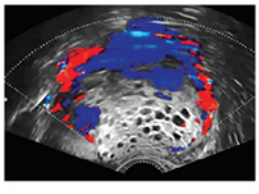
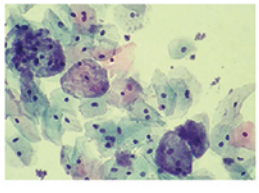
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# Image-based Questions in Obstetrics and Gynecology

## *MRCOG, NEET SS/NEET PG Aspirants and OBGYN Residents (MD & DNB)*

**Richa Saxena**

JAYPEE

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CHAPTER 2

# Labor and Delivery

## GENERAL PHYSICAL EXAMINATION

| Question | Answer | Comment |
|---|---|---|
| **Q1.** A 34-year-old primigravida patient presented to the antenatal clinic with complaints of extreme weakness at 16 weeks' gestation. On general physical examination, the appearance of conjunctiva is shown in the image below. From the following options, which nail change is most likely to be present in this case?<br><br>A. Clubbing<br>B. Pitting: Small depressions<br>C. Koilonychia: Spoon-shaped nails<br>D. Leukonychia: White spots<br>E. Horizontal ridges across the nails | **Ans: C (Koilonychia: Spoon-shaped nails)**<br>The patient in the adjacent image has pallor in the lower palpebral conjunctiva due to anemia. The nail changes likely to be present in her case could be suggestive of koilonychia **(Fig. 1)**. This is a clinical finding where the nails lose their normal convexity and become depressed or flat or acquire a slight concavity. This results in appearance of spoon-shaped nails.<br><br>**Fig. 1:** Koilonychia. | **Explanation:** Presence of spoon-shaped nails or koilonychia is usually suggestive of hypochromic anemia, especially iron deficiency anemia.<br>Reduced supply of oxyhemoglobin to the skin and mucous membranes is likely to result in their paleness, which can be detected on clinical examination. The areas in the body where pallor can be commonly observed include the lower palpebral conjunctiva, dorsal surface of tongue, palms of hand, and nail beds.<br>**Potential questions:** There could be questions showing clinical findings suggestive of common medical disorders elicited during pregnancy on head-to-toe examination. |

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| Question | Answer | Comment |
|---|---|---|
| **Q2.** A pregnant woman in her third trimester presents with swelling in both her feet and ankles, as shown in the image. Which of the following is the most likely cause of her condition?<br><br>A. Pre-eclampsia<br>B. Deep vein thrombosis (DVT)<br>C. Heart failure<br>D. Physiological edema of pregnancy<br>E. Renal disease | **Ans: D (Physiological edema of pregnancy)**<br>Physiological edema during pregnancy is a common finding, particularly in the dependent parts of the body such as feet/ankles or the sacral region. Pitting edema can be demonstrated as shown in **Figure 2**.<br><br>**Fig. 2:** Presence of pitting edema in the feet. | **Explanation:** Physiological changes in pregnancy such as increased blood volume, pressure from the growing uterus on the veins, and hormonal changes are likely to result in fluid retention, resulting in pedal edema. Physiological edema of pregnancy is generally benign and resolves postpartum, unlike the other conditions listed which may be associated with more severe symptoms and require immediate medical attention.<br>**Potential questions:** There could be questions showing common clinical findings elicited during pregnancy on head-to-toe examination. |

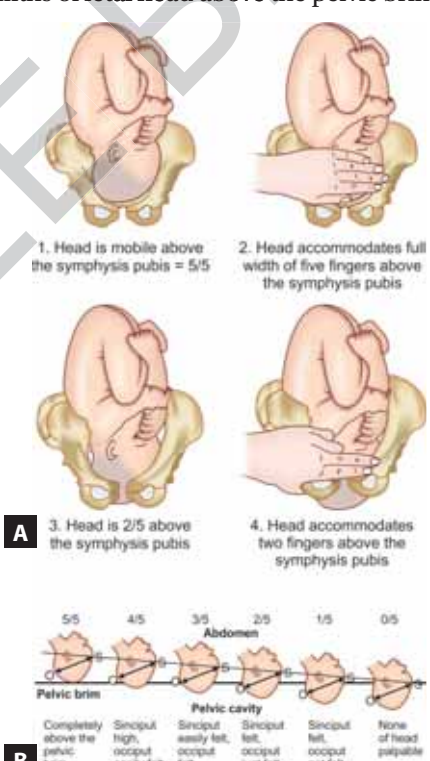
## OBSTETRIC EXAMINATION

| | | |
|---|---|---|
| **Q3.** What maneuver is being performed by the obstetrician in the below image?<br><br>A. Leopold's first maneuver<br>B. Leopold's second maneuver<br>C. Leopold's third maneuver<br>D. Leopold's fourth maneuver<br>E. Pawlik's grip | **Ans: A (Leopold's first maneuver)**<br>The adjacent image shows the obstetrician performing fundal grip (Leopold's first maneuver). The fundal area is palpated by placing both the hands over the fundal area **(Fig. 3)**.<br><br>**Fig. 3:** Fundal grip (Leopold's first maneuver). | **Explanation:** Fundal grip helps the obstetrician to identify which of the fetal poles (head or breech) is present at the fundus. This maneuver can serve as an effective screening tool for detecting fetal malpresentation, particularly in settings where ultrasound may not be readily available. Palpation of broad, soft, irregular mass at the fundus is suggestive of fetal legs and/or buttocks, thereby pointing towards cephalic presentation. Palpation of a smooth, hard, globular, ballotable mass at the fundus is suggestive of fetal head and points towards breech presentation.<br>**Potential questions:** There can be questions related to any of the four Leopold's maneuvers. |

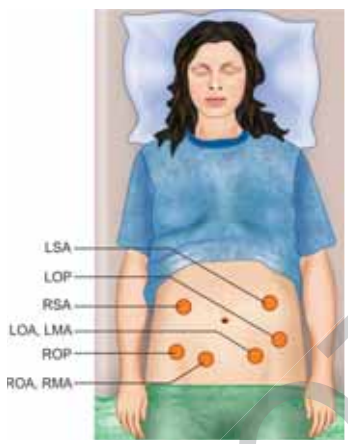
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| Question | Answer | Comment |
|---|---|---|
| **Q4.** What maneuver is being performed by the obstetrician in the below image?<br><br>A. Leopold's first maneuver<br>B. Leopold's second maneuver<br>C. Leopold's third maneuver<br>D. Leopold's fourth maneuver<br>E. Pawlik's grip | **Ans: B (Leopold's second maneuver)**<br>The adjacent image depicts Leopold's second maneuver or the lateral grip. In this grip, the obstetrician's hands are placed over the abdomen on either side of the umbilicus **(Fig. 4)**.<br><br>**Fig. 4:** Lateral grip (Leopold's second maneuver). | **Explanation:** Lateral grip helps the clinician in identifying the position of fetal back, limbs, and shoulder in case of vertex or breech presentation. The orientation of the fetus can be determined by noting whether the back is directed vertically (anteriorly, posteriorly) or transversely. In case of transverse lie, a hard round globular mass suggestive of fetal head can be identified horizontally across the maternal abdomen. The fetal back can be identified as a smooth curved structure with a resistant feel.<br>**Potential questions:** There can be questions related to any of the four Leopold's maneuvers. |
| **Q5.** What maneuver is being performed by the obstetrician in the below image?<br><br>A. Leopold's first maneuver<br>B. Leopold's second maneuver<br>C. Leopold's third maneuver<br>D. Leopold's fourth maneuver<br>E. First pelvic grip | **Ans: C (Leopold's third maneuver)**<br>The adjacent image depicts third Leopold's maneuver or second pelvic grip (Pawlik's grip). **Figure 5** depicts the method of performing this maneuver.<br><br>**Fig. 5:** Second pelvic grip (Pawlik's grip) or third Leopold's maneuver. | **Explanation:** In this grip, the obstetrician places the outstretched thumb and index finger of the right hand keeping the ulnar border of the palm on the upper border of the patient's pubic symphysis. If a hard globular mass is gripped during this maneuver, it implies vertex presentation. A soft broad part is suggestive of fetal breech. If the presenting part is not engaged, it would be freely ballotable between the two fingers. If the presenting part is deeply engaged, the findings of this maneuver simply indicate that the lower fetal pole is in the pelvis. In case of transverse presentation, the pelvic grip is empty.<br>**Potential questions:** There can be questions related to any of the four Leopold's maneuvers. |

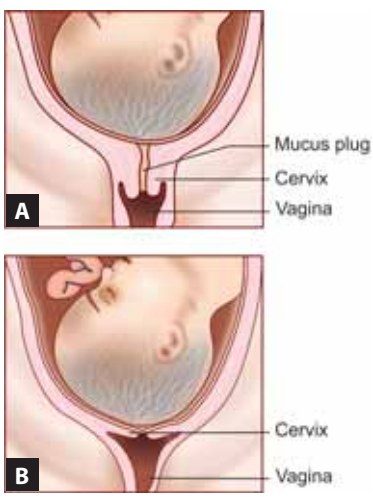
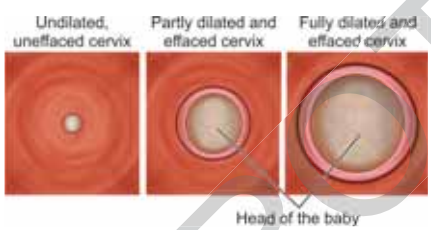
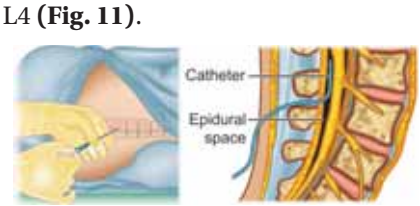
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| Question | Answer | Comment |
|---|---|---|
| **Q6.** What maneuver is being performed by the obstetrician in the below image?<br><br>A. Leopold's first maneuver<br>B. Leopold's second maneuver<br>C. Leopold's third maneuver<br>D. Leopold's fourth maneuver<br>E. Pawlik's grip | **Ans: D (Leopold's fourth maneuver)**<br>The adjacent image depicts Leopold's fourth maneuver or the first pelvic grip **(Fig. 6)**.<br><br>**Fig. 6:** First pelvic grip (fourth Leopold's maneuver). | **Explanation:** While performing this maneuver, tips of three fingers of each hand are placed on the either side of the midline in downward and backward direction in order to deeply palpate the fetal parts present in the lower pole of the uterus. In case of vertex presentation, a hard smooth globular mass suggestive of fetal head can be palpated on pelvic grip. In case of breech presentation, a broad soft, irregular mass is palpated.<br>**Potential questions:** There can be questions related to any of the four Leopold's maneuvers. |
| **Q7.** A 32-year-old woman at term presents to the labor ward with uterine contractions. On abdominal examination using the fifth's formula as shown in the image, the obstetrician can palpate none of the fetal head per abdominally. She describes her finding as 0/5. What is the interpretation of the above finding in terms of the descent of the fetal head?<br><br>A. Fetal head is unengaged<br>B. Fetal head is fixing<br>C. Recently engaged fetal head<br>D. Deeply engaged fetal head<br>E. Free floating fetal head | **Ans: D (Deeply engaged fetal head)**<br>As shown in **Figures 7A and B**, the assessment of fetal descent through the abdominal examination is done by using the Fifth's formula, which estimates the number of fifths of fetal head above the pelvic brim.<br><br><br>**Figs. 7A and B:** Abdominal examination for fetal descent using the Fifth's formula. | **Explanation:** In this method, the amount of fetal head that can be palpated per abdominally is estimated in terms of finger breadth which is assessed by placing the radial margin of the index finger above the symphysis pubis followed successively by other fingers. A free-floating head would be completely palpable per abdomen. This head accommodates full width of all the five fingers above the pubic symphysis and can be described as 5/5. A head which is fixing but not yet engaged may be three-fifths palpable per abdominally and is known as 3/5. A recently engaged fetal head may be two-fifths palpable per abdominally and is known as 2/5, while a deeply engaged fetal head may not be palpable at all per abdominally and may be described as 0/5.<br>**Potential questions:** There can be questions related to interpretation of various abdominal and vaginal findings for assessment of progress of labor. |

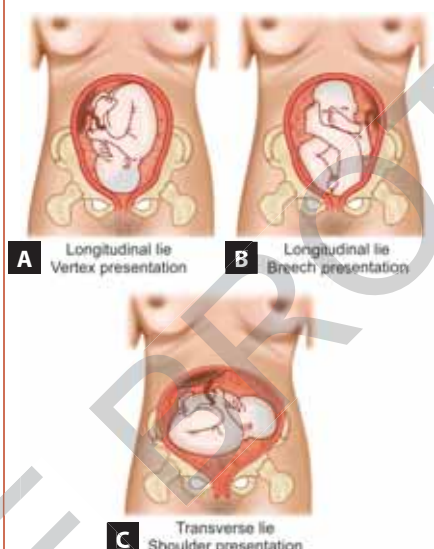
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| Question | Answer | Comment |
|---|---|---|
| **Q8.** A 28-year-old second gravida presents in labor at 38 weeks of gestation. While examining the patient, the obstetrician auscultates the fetal heart sounds at the location marked by the red circle in the below image.<br><br>What is the likely fetal position in this case based on the location of fetal heartbeat?<br>A. Right occipitoanterior<br>B. Left occipitoanterior<br>C. Right occipitoposterior<br>D. Left occipitoposterior<br>E. Right mentoanterior | **Ans: B (Left occipitoanterior position)**<br>**Figure 8** illustrates the location of fetal heart sounds based on the position of the fetal presenting part.<br><br>**Fig. 8:** Location of fetal heart rate based on the position of fetal head.<br>(LOA: left occipitoanterior; LOP: left occipitoposterior; LMA: left mentoanterior; LSA: left sacroanterior; ROP: right occipitoposterior; RMA: right mentoanterior; RSA: right sacroanterior) | **Explanation:** The region of maternal abdomen where the heart sounds are most clearly heard would vary with the presentation and extent of descent of the presenting part. In the LOA position, the fetal heart rate is typically best heard in the lower left quadrant of the maternal abdomen, just below the umbilicus. In the ROA position, it is heard in the same location on the right side. In both the occipitoanterior positions, the FHR is generally located closer to the midline of the maternal abdomen, reflecting the position of the fetal back, which is closest to the maternal abdominal wall in the OA positions.<br>**Potential questions:** There can be questions related to interpretation of various abdominal and vaginal findings for assessment of progress of labor. |
| **Q9.** Identify the instrument shown in the image below, commonly used in obstetrics.<br><br>A. Doppler ultrasound device<br>B. Otoscope<br>C. Fetoscope<br>D. Sphygmomanometer<br>E. Stethoscope | **Ans: C (fetoscope)**<br>Fetoscope (Pinard's stethoscope) is an instrument previously used for auscultation of fetal heart rate **(Fig. 9)**.<br><br>**Fig. 9:** Obstetrician using a fetoscope to measure the fetal heart rate in olden days | **Explanation:** It is a hollow tool made up of either wood or metal and is about 8 inches long. Tapering rim of the device is applied to the clinician's ear and the other wide side is pressed upon maternal abdomen. It functions like the trumpet by amplifying the sound.<br>This instrument is nowadays not commonly used in clinical settings due to the availability of advanced techniques for measurement of fetal heart rate. A stethoscope or a hand-held Doppler device can also be used instead of a fetoscope.<br>**Potential questions:** There can be other questions related to the common instruments used in obstetrics. |

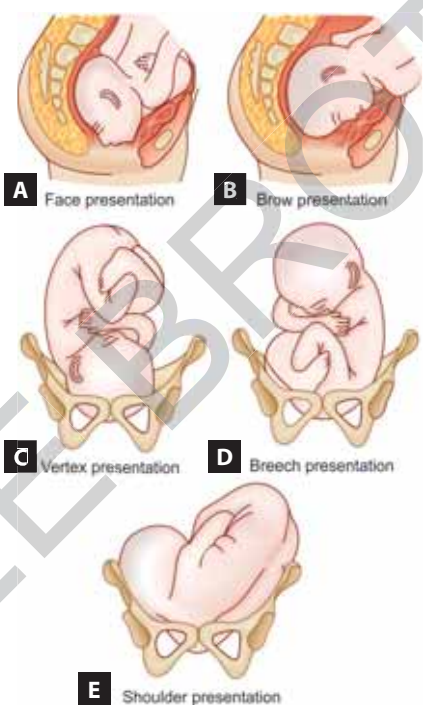
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| Question | Answer | Comment |
|---|---|---|
| **Q10.** A 28-year-old pregnant woman in her 39th week of gestation is in active labor. On vaginal examination, the cervix appears to be as shown in the image B below. What is the likely interpretation of the findings?<br><br><br>A. Uneffaced cervix<br>B. 20% cervical effacement<br>C. 50% cervical effacement<br>D. 80% cervical effacement<br>E. Fully effaced cervix | **Ans: E (Fully effaced cervix)**<br><br>The image B in the adjacent picture shows that the cervix is fully effaced. Fully effaced cervix implies that it has thinned out to 100% of its original length, which is necessary for the baby to pass through the birth canal during delivery. As shown in **Figure 10**, cervical effacement can be defined as the gradual thinning, shortening, or drawing up of the cervix. It is usually measured in terms of percentage from 0% to 100%.<br><br><br>**Fig. 10:** Cervical effacement. | **Explanation:** Cervical effacement can be defined as obliteration or taking up of cervix resulting in conversion of cervical canal (about 2 cm in length) into a circular orifice with paper thin edges. This takes place from above downward. The cervical effacement primarily results due to taking up or pulling upward of the muscular fibers at the level of internal os into the lower uterine segment.<br><br>**Potential questions:** There can be other questions related to the occurrence of various changes in the cervix and uterus at the time of labor and delivery to facilitate vaginal birth. |
| **Q11.** The clinical image below shows an anesthesiologist preparing to administer epidural analgesia to a patient in labor.<br><br>Which step is most critical for correct catheter placement?<br>A. Proper positioning<br>B. Aseptic technique<br>C. Identifying epidural space (loss of resistance)<br>D. Test dose administration<br>E. Continuous vital monitoring | **Ans: C [Identifying epidural space (loss of resistance)]**<br><br>Epidural analgesia has presently become a commonly employed technique for providing pain relief during labor. This technique involves injection of a local anesthetic agent into the epidural space (located between the dura mater and the vertebral periosteum as well as the ligamentum flavum, which connects the adjacent vertebrae.) at level of the space between the vertebrae L3 and L4 **(Fig. 11)**.<br><br><br>**Fig. 11:** Method for administration of epidural analgesia. | **Explanation:** Correct identification of the epidural space is the most important step in administering epidural analgesia. This is typically done using the "loss of resistance" technique, where the anesthesiologist carefully advances the needle and injects saline or air, feeling for a sudden loss of resistance that indicates entry into the epidural space. This step is essential to ensure that the anesthetic is delivered to the correct location for effective pain management during labor.<br><br>**Potential questions:** There can be questions related to the technique of epidural analgesia as well as the associated complications and their management. |

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| Question | Answer | Comment |
|---|---|---|
| **Q12.** A 32-year-old woman in her 37th week of pregnancy undergoes an abdominal examination which reveals that the fetus is lying longitudinally, with the head positioned upwards as shown in the image below. What is the fetal lie in this case?<br><br>A. Transverse lie<br>B. Oblique lie<br>C. Longitudinal lie with breech presentation<br>D. Longitudinal lie with cephalic presentation<br>E. Transverse lie with shoulder presentation | **Ans: C (Longitudinal lie with breech presentation)**<br>As shown in the adjacent image, the long axis of the fetus lies parallel to maternal spine. This refers to a longitudinal lie. However, since the fetal buttocks are the presenting part on vaginal examination, this is a breech presentation.<br><br><br>**Figs. 12A to C:** Types of fetal lie. | **Explanation:** Fetal lie refers to the relationship of cephalocaudal axis or long axis (spinal column) of fetus to the long axis of the centralized uterus or maternal spine.<br>Various types of fetal lie are as follows **(Figs. 12A to C)**:<br>*Longitudinal lie:* The maternal and fetal long axes are parallel to each other. About 99% of the fetuses at term present with longitudinal lie.<br>*Transverse lie:* The maternal and fetal long axes are perpendicular to each other.<br>*Oblique lie:* The maternal and fetal long axes cross each other obliquely or at an angle of 45°. The oblique lie is usually unstable and becomes longitudinal or transverse during the course of labor. |

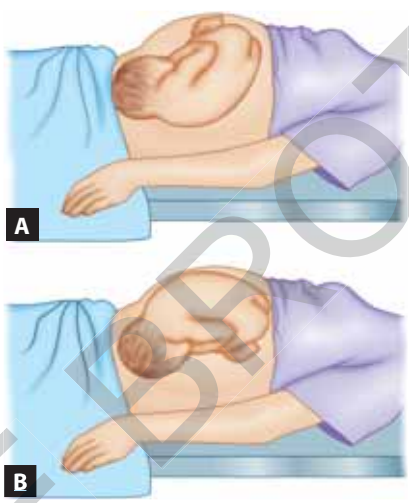
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| Question | Answer | Comment |
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| **Q13.** A 30-year-old woman at 38 weeks of gestation is in labor. An obstetrician performs a vaginal examination and finds the fetal head to be flexed with the occiput positioned anteriorly towards the mother's pelvis. What is the fetal presentation in this case?<br><br>A. Occiput posterior (cephalic)<br>B. Face presentation<br>C. Brow presentation<br>D. Occiput anterior (cephalic) presentation<br>E. Transverse presentation | **Ans: D [Occiput anterior (cephalic)]**<br>Fetal presentation can be described as the fetal body part, which occupies the lower pole of the uterus and thereby first enters the pelvic passage. Fetal presentation is determined by fetal lie and may be of three types: Cephalic, podalic (breech), or shoulder and is shown in **Figures 13A to E.** Cephalic or the head presentation is the most common and occurs in about 97% of fetuses.<br><br><br>**Figs. 13A to E:** Fetal presentation. | **Explanation:** In the adjacent image, the baby is in cephalic presentation. The presenting part may be vertex, brow or face depending upon the degree of flexion of the fetal head. Since the fetal head is fully flexed in this image, the presenting part is the vertex, where occiput can be palpated by the fingers on vaginal examination. and the sagittal sutures lie in one of the oblique diameters (right or left) of the pelvic inlet. In left occiput anterior (LOA) position, the sagittal diameter lies in the right oblique diameter of the pelvic inlet. This position is most favorable for normal vaginal delivery. With the anterior rotation of the fetal head in occipitoanterior position, the sagittal diameter of the fetal head occupies the most spacious diameter of the outlet (AP diameter), thereby facilitating the movement of fetal head outside the pelvic outlet.<br>**Potential questions:** There can be questions pertaining to various fetal presentations and different positions of the fetal presenting parts. |

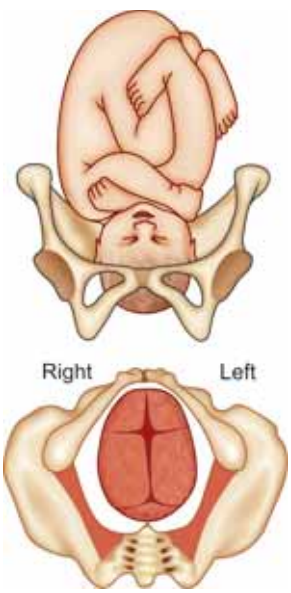
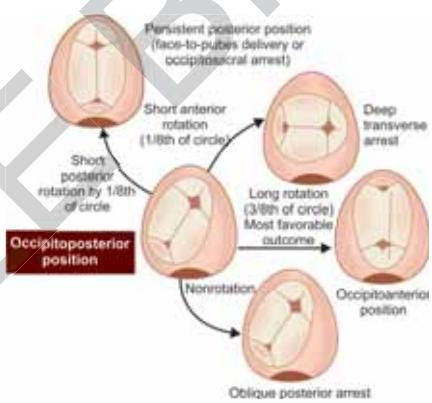
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| **Q14.** A 25-year-old primigravida woman presents in advanced labor at 38 weeks' gestation. Vaginal examination shows the fetal head in a transverse position relative to the maternal pelvis, with both the fontanels palpable as shown in the image below. The occiput is directed towards the maternal left side. What is the correct description of this fetal position in this case?<br><br>A. Left occiput anterior (LOA)<br>B. Right occiput posterior (ROP)<br>C. Left occiput posterior (LOP)<br>D. Left occiput transverse (LOT)<br>E. Right occiput transverse (ROT) | **Ans: D [Left occiput transverse (LOT)]**<br><br>The baby's head in the adjacent image can be described to be in the occipitotransverse (OT) position, with the fetal head positioned transversely in the maternal pelvis. The sagittal sutures lie in the transverse diameter of the pelvis and both the fontanels are palpable **(Fig. 14)**. The occiput can either point towards the left or right side. When the occiput is directed towards the maternal left side, it is specifically termed "left occiput transverse (LOT)."<br><br>**Fig. 14:** Baby's head in occipitotransverse position. | **Explanation:** In most cases of occipitotransverse position, the sagittal sutures rotate anteriorly by 2/8th of a circle to occupy the anteroposterior (AP) diameter of the outlet. This is a position, which is the most favorable for normal vaginal delivery. Sometimes, the occipitotransverse position can lead to deep transverse arrest. In cases of deep transverse arrest, the fetal head gets captured in this position and the sagittal suture fails to move anteriorly, the position which favors normal vaginal delivery. Neither sinciput nor occiput leads the fetal head because of which further labor gets arrested and there is no advancement of fetal head. The head lies deep in the pelvic cavity at the level of ischial spines, and there is no progress in the descent of fetal head even after ½–1 hour following complete cervical dilatation. In these cases, the mother must not be encouraged to push down because it may not resolve the problem. Operative cesarean delivery appears to be the safest option for delivery in cases of deep transverse arrest.<br><br>**Potential questions:** There can be questions pertaining to different positions of the fetal presenting parts and their outcomes in labor. |

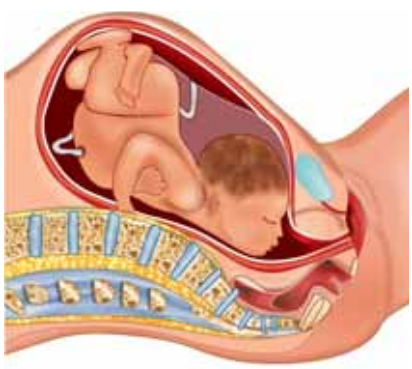
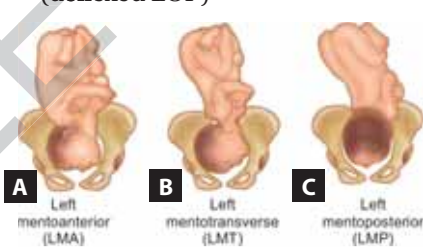
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| **Q15.** A 36-year-old para 3 woman presents in advanced labor at 37 weeks' gestation. On abdominal examination, the fetal limbs can be palpated easily. The fetal back could not be located. Vaginal examination reveals the fetus to be in vertex presentation and the occiput positioned posteriorly towards the maternal sacrum. What is the most likely diagnosis?<br><br>A. Occiput anterior position<br>B. Occiput posterior position<br>C. Occiput transverse position<br>D. Face presentation<br>E. Brow presentation | **Ans: B (Occiput posterior position)**<br>On abdominal palpation, both the positions, occipitoanterior and occipitoposterior (OP), may present differently as shown in **Figures 15A and B**. In OP position, the fetal limbs are palpated more easily near the midline on either side. Also, fetal back and shoulders are far away from the midline.<br><br>**Figs. 15A and B:** Comparison of abdominal examination. (A) Occipitoposterior position; (B) Occipitoanterior position. | **Explanation:** The adjacent image shows vertex in the OP position. This is a type of abnormal position of the vertex where the occiput may be placed over the left sacroiliac joint [left occipitoposterior (LOP)] or right sacroiliac joint [right occipitoposterior (ROP)] or directly over the sacrum (direct occipitoposterior position).<br>In majority of cases, long anterior rotation of head occurs. Delivery, therefore, in majority of cases occurs spontaneously or with low forceps or ventouse. Cesarean section is the most used mode of delivery in cases where there is failure of instrumental delivery or there is failure of rotation of fetal head or there is presence of an obstetric indication for cesarean delivery.<br>**Potential questions:** There can be potential questions related to the outcomes and consequences of OP position. |

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| Question | Answer | Comment |
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| **Q16.** In the same scenario as Q15, after 1 hour of active pushing in the second stage of labor, the vaginal examination shows the below image. The occiput can be palpated in the sacral bay. What is the fetal position now in this case?<br><br><br>A. Persistent occipitoposterior position<br>B. Deep transverse arrest<br>C. Occipitoanterior position<br>D. Oblique posterior arrest<br>E. Occipitoposterior position | **Ans: A (Persistent occipitoposterior position)**<br><br>The adjacent image shows persistent occipitoposterior position, one of the consequences of OP position. Other consequences related to OP position are depicted in **Figure 16**. In majority of cases of OP position, good uterine contractions result in the flexion of fetal head. Descent occurs and the occiput undergoes rotation by 3/8th of the circle to lie behind the pubic symphysis, resulting in an occipitoanterior position. In these cases, spontaneous vaginal delivery is likely to occur.<br><br>In a small number of cases, the outcome may be less favorable, resulting in short posterior rotation, nonrotation and short anterior rotation.<br><br><br>**Fig. 16:** Consequences related to occipitoposterior position. | **Explanation:** In case of short posterior rotation, posterior rotation of the sinciput may occur by 1/8th of the circle due to deflexed fetal head, putting the occiput in the sacral hollow. This position is known as persistent occipitoposterior position. Due to deflexed head, the occipitofrontal diameter (11.5 cm) enters the pelvis leading to delayed engagement.<br><br>Under favorable conditions with an average sized baby, spacious pelvis, and good uterine contractions, spontaneous face to pubis delivery can occur. If conditions are not favorable, delivery may not occur, resulting in an occipitosacral arrest. In these cases, cesarean delivery may be required.<br><br>In case of short anterior rotation, the occiput rotates through 1/8th of the circle anteriorly so that the sagittal sutures lie in the bispinous diameter. This position is known as the "deep transverse arrest".<br><br>In case of nonrotation of the occiput, sagittal sutures lie in the oblique diameter. Further progress of labor is unlikely and this is known as oblique posterior arrest.<br><br>**Potential questions:** There can be potential questions related to the outcomes, consequences of OP position, and their management. |

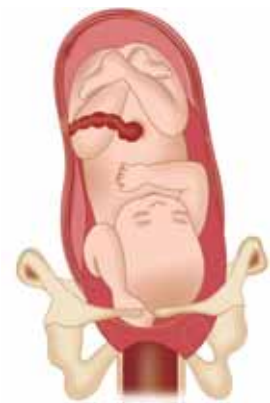
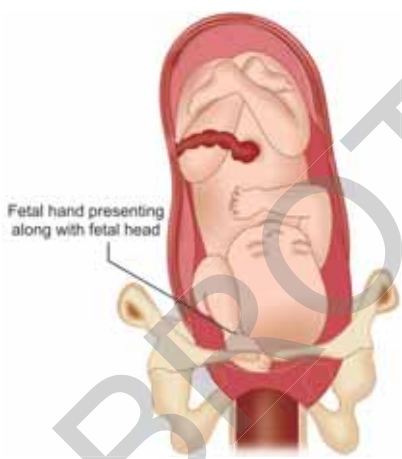
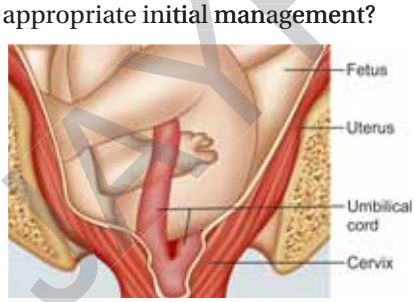
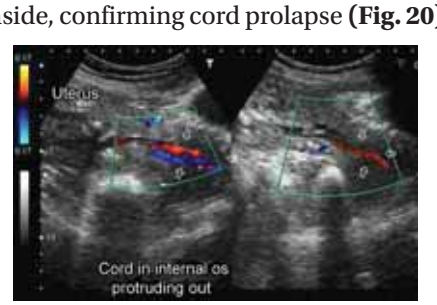
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| **Q17.** Upon vaginal examination of a 30-year-old second gravida in labor, the obstetrician feels the following structures: Alveolar margins of the mouth, nose, malar eminences, supraorbital ridges, and mentum. The clinical image of presentation is shown below. Which of the following is the most likely management option for this presentation?<br><br>A. Immediate cesarean section in all cases<br>B. Manual rotation to convert to vertex presentation<br>C. Allowing labor to progress naturally with close monitoring<br>D. Use of forceps for assisted delivery<br>E. Performing an episiotomy to facilitate vaginal delivery | **Ans: C (Allowing the labor to progress with close monitoring)**<br><br>The adjacent image and clinical findings point towards a face presentation. Face presentation is an abnormal fetal position characterized by an extreme extension of the fetal head so that the fetal face rather than the fetal head becomes the presenting part and the fetal occiput comes in direct contact with the back. Denominator in the cases of face presentation is mentum or chin. Four positions are possible depending on the position of the chin with left or right sacroiliac joints **(Figs. 17A to C)**:<br>1. Right mentoposterior position (deflexed LOA)<br>2. Left mentoposterior position [deflexed right occipitoanterior (ROA)]<br>3. Left mentoanterior position (deflexed ROP): Most common position<br>4. Right mentoanterior position (deflexed LOP)<br><br><br>**Figs. 17A to C:** Different positions in case of face presentation. | **Explanation:** Delivery occurs spontaneously in most of cases of face presentation. In the presence of normal cervical dilatation and descent, there is no need for the obstetrician to intervene. Labor will be longer, but if the pelvis is adequate and the head rotates to a mentoanterior position, a vaginal delivery can be expected. The mechanism of delivery and corresponding body movements in case of anterior face presentations are like that of the corresponding occipitoanterior position. The only difference being that delivery of head occurs by flexion rather than extension. The engaging diameter is submentobregmatic in case of a fully extended head. Close monitoring is essential to ensure the safety of both the mother and the baby.<br><br>If the head rotates backward to a mentoposterior position, a cesarean section may be required. In case of posterior face presentations, the mechanism of delivery is the same as that of occipitoposterior position except that the anterior rotation of the mentum occurs in only 20–30% of the cases. In the remaining 70–80% cases, there may be incomplete anterior rotation, no rotation, or short posterior rotation of mentum. There is no possibility of spontaneous vaginal delivery in case of persistent mentoposterior positions. Cesarean section may be required in these cases.<br><br>**Potential questions:** There can be questions related to complications and mechanism of delivery in various abnormal positions of the fetal presenting part. |

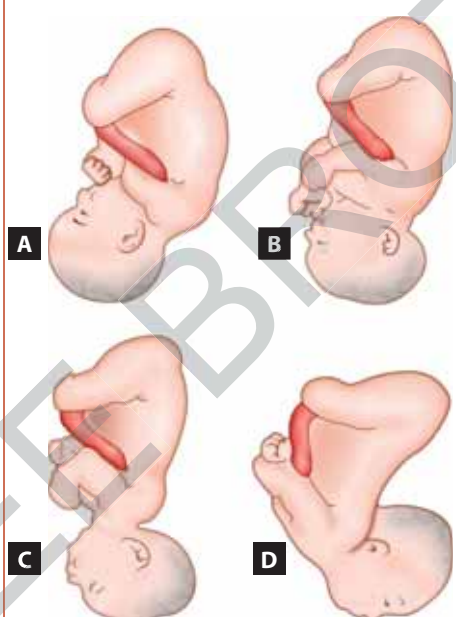
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| **Q18.** A 24-year-old primigravida presents to the labor room at 37 weeks of gestation with strong uterine contractions. Her abdominal examination reveals a cephalic presentation. The cervix has been fully dilated and effaced for more than 2 hours. On vaginal examination, the anterior fontanel, brow, and orbits are palpable. The obstetrician also feels both the sinciput and the occiput at the same level. The clinical image in this case is shown below. What is the most appropriate management for this presentation?<br><br>A. Proceed with a vacuum-assisted delivery<br>B. Allow spontaneous delivery without intervention<br>C. Attempt manual rotation to vertex presentation<br>D. Perform a cesarean section<br>E. Use of forceps for assisted delivery | **Ans: D (Perform a cesarean section)**<br>The adjacent image and clinical findings point towards a brow presentation. Brow presentation is an abnormal fetal presentation where the fetal head is partially extended. The head is short of complete extension, which could have resulted in a face presentation. As a result, the presenting part becomes the brow. On vaginal examination, the occiput and sinciput are palpated at the same level. The following structures are palpable on vaginal examination: Brow, orbits, anterior fontanelle and, occasionally, the eyes and bridge of the nose **(Fig. 18)**.<br><br>**Fig. 18:** Brow presentation. | **Explanation:** In brow presentation, the engaging diameter of the head is mentovertical (14cm). As a result, there would be no mechanism of labor with an average-sized baby and a normal pelvis. Vaginal delivery may be the possible option only in cases where there is spontaneous conversion to face or vertex presentation. Therefore, after ruling out the cephalopelvic disproportion and fetal congenital anomalies, the obstetrician must wait for spontaneous vaginal delivery. In cases where this does not occur, cesarean section is the best method for delivery.<br>**Potential questions:** There can be questions related to complications and mechanism of delivery in various abnormal positions of the fetal presenting part. |

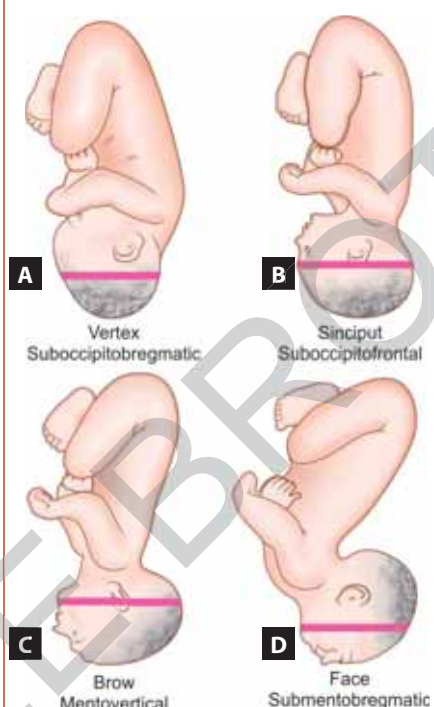
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| **Q19.** The clinical image below is encountered at the time of delivery. What is the most appropriate management for this presentation?<br><br>A. Proceed with vacuum-assisted delivery.<br>B. Attempt to manually push the hand back.<br>C. Perform a cesarean section.<br>D. Allow spontaneous vaginal delivery with careful monitoring.<br>E. Use forceps to assist delivery. | **Ans: D (Allow spontaneous vaginal delivery with careful monitoring)**<br><br>The adjacent image shows the fetal hand presenting along with the head. The presentation in which one or two of the fetal extremities enter the pelvis simultaneously with the presenting part is known as the compound presentation **(Fig. 19)**. The most common combinations are head–hand, breech–hand, and head–arm–foot.<br><br><br>**Fig. 19:** Compound presentation. | **Explanation:** Close monitoring is important to ensure that there are no complications. In most cases, the prolapsed extremity does not cause any interference with the normal progress of labor and vaginal delivery. Moreover, the prolapsed limbs spontaneously rise up with the descent of the presenting part in most of the cases. In presence of cephalopelvic disproportion and/or cord prolapse, cesarean section is required. Manual repositioning of the hand or cesarean section may be necessary, if complications arise<br><br>**Potential questions:** There can be questions related to complications and mechanism of delivery in various abnormal positions/presentations of the fetal presenting part. |
| **Q20.** A 35-year-old G3 presents to A&E with sudden rupture of membranes at home. On exam: partially dilated and effaced cervix, membranes absent, breech presentation, and a cord-like structure palpated alongside the fetal buttocks as shown in the image below. What is the most appropriate initial management?<br><br><br>A. Immediate C-section<br>B. Amnioinfusion<br>C. Manual cord reduction<br>D. Tocolytics + monitoring<br>E. Trendelenburg + emergency C-section | **Ans: E (Trendelenburg position and an emergency cesarean section)**<br><br>Cord presentation is the presence of the umbilical cord between the fetal presenting part and cervix with intact membranes. Cord prolapse is the descent of the umbilical cord through the cervix alongside the fetal presenting part (occult presentation) or past it (overt presentation) in the presence of ruptured membranes. In this case, color Doppler shows a dilated internal os with the cord inside, confirming cord prolapse **(Fig. 20)**.<br><br><br>**Fig. 20:** Color Doppler ultrasound showing cord prolapse. | **Explanation:** Cord prolapse carries higher mortality than cord presentation due to fetal asphyxia. Definitive management is urgent delivery by the fastest route. In this case, since the patient is in early labor, an emergency cesarean section would be required. Meanwhile, Trendelenburg position and elevation of the presenting part either manually or via bladder filling would help relieve cord compression.<br><br>**Potential questions:** There could be questions related to etiopathogenesis and management of cord prolapse in various clinical situations. |

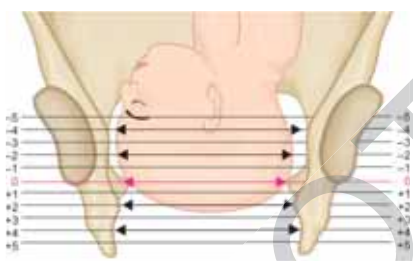
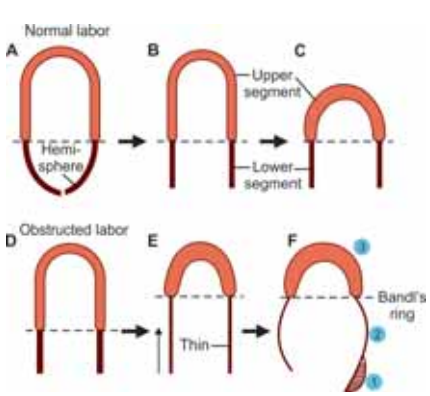
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| **Q21.** A fetal ultrasound shows the head to be extended back, the spine is straight, and the limbs are partially extended away from the body as shown in the image below. What is the fetal attitude in this scenario?<br><br>A. Flexed attitude<br>A. Extended attitude<br>B. Neutral attitude<br>C. Hyperextended attitude<br>D. Partially flexed attitude | **Ans: B (Extended attitude)**<br><br>During the later months of pregnancy, the fetus adopts a characteristic posture called attitude. Usually, this posture is associated with flexion at all the fetal joints. Different types of attitudes which can be adopted by the fetus are depicted in **Figures 21A to D**. The adjacent image shows an extended attitude, which is characterized by the fetal head being tilted back, away from the chest, with a straighter spine and limbs that are partially or fully extended.<br><br>**Figs. 21A to D:** Different types of fetal attitudes: (A) Complete flexion; (B) Moderate flexion; (C) Poor flexion; (D) Hyperextension. | **Explanation:** The clinical significance of fetal attitude is that with the increasing degree of deflexion, the engaging diameter of fetal head progressively increases. In these cases, normal vaginal delivery may become difficult.<br><br>Partially extended fetal attitude can create difficulties during labor and delivery, as the larger diameter of the fetal head may not align as favorably with the maternal pelvis.<br><br>On the other hand, the engaging diameter is smallest in case of completely flexed head or completely extended head. In these cases, the fetal head can negotiate through the maternal pelvis and normal vaginal delivery is possible.<br><br>**Potential questions:** There can be questions related to various other fetal attitudes and their clinical significance. |

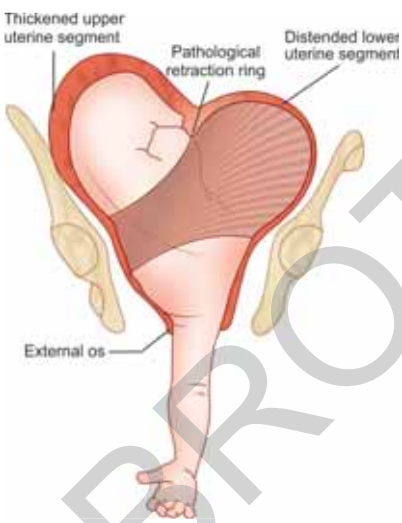
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| **Q22.** An obstetrician detects face presentation on the vaginal examination. The engaging diameter of the fetal head is shown by the pink band in the below image. What are the most likely dimensions of this diameter?<br><br>A. 9.4 cm<br>B. 10.4 cm<br>C. 11.4 cm<br>D. 12.4 cm<br>E. 13.4 cm | **Ans: A (9.4 cm)**<br>**Figures 22A to D** show engaging diameters of fetal head depending upon the position of presenting part. The fetal head is engaged when the maximum transverse diameter of fetal head can pass through the pelvic brim.<br><br><br>**Figs. 22A to D:** Engaging diameters of fetal head depending on the position of the presenting part. | **Explanation:** A normal pelvis would be easily able to permit the engagement of the fetal skull in vertex (fully flexed) and face (fully extended) presentations. This is so as in case of vertex and face presentations, the engaging AP diameters of fetal skull are respectively sub-occipitobregmatic (9.4 cm) and submentobregmatic (9.4 cm), both of which are equal in dimension. However, the passage of the fetal head in brow presentation would not be able to take place in a normal pelvis as the engaging AP diameter of fetal skull is mentovertical (13.9 cm) in this case. This can lead to the arrest of labor.<br>**Potential questions:** There can be questions related to engagement and descent of various positions of the fetal presenting part in different clinical scenarios. |

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| **Q23.** On vaginal exam, the fetal head is at –2 station, as shown in the image. Which statement best describes the fetal head position in this scenario?<br><br>A. 2 cm below the ischial spine<br>B. 2 cm above the ischial spines<br>C. At the ischial spines<br>D. 2.2 cm below the ischial spine<br>E. 2.2 cm above the ischial spines | **Ans: B (2 cm above the ischial spines)**<br>The station of the fetal head describes its position in relation to the ischial spines. When the fetal head is 2 cm above the ischial spines, it is assigned a station of–2. Negative stations indicate that the head is above the ischial spines, while positive stations indicate that the head is below them, moving towards delivery **(Fig. 23)**.<br><br>**Fig. 23:** Position of fetal head at various stations. | **Explanation:** ACOG classifies fetal head descent by dividing the pelvis into fifths above and below the ischial spines. Stations range from –5 at the inlet to 0 at the spines (engagement) and +5 at the introitus (head visible). Engagement means the biparietal diameter has passed the pelvic inlet.<br>**Potential questions:** There can be questions related to various clinical scenarios describing the passage of fetal presenting part through the pelvis. |
| **Q24.** A 32-year-old third gravida in labor presents with severe abdominal pain and a visible ridge across her abdomen, just above the umbilicus. Fetal descent has stalled despite strong contractions. Upon examination, the ridge is identified as shown in the image below. What is the most appropriate next step in management?<br><br>A. Administer uterotonic agents<br>B. Perform an emergent cesarean section<br>C. Apply forceps for vaginal delivery<br>D. Wait and observe labor progression<br>E. Initiate intravenous fluid therapy | **Ans: B (Perform an emergent cesarean section)**<br>In primigravidas, obstructed labor causes maternal exhaustion and sepsis with an inert uterus. In multigravidas, obstruction triggers strong contractions, leading to thinning of the lower uterine segment and possible rupture. A pathological retraction ring (Bandl's ring) may form between the upper and lower segments.<br><br>**Fig. 24:** Formation of Bandl's ring due to obstructed labor. | **Explanation:** The ridge shown in the adjacent image is Bandl's ring, also known as a pathological retraction ring. This is a late and serious sign of obstructed labor, indicating an impending uterine rupture. Obstructed labor can be defined as a condition in which the progressive descent of the fetal presenting part through the maternal genital tract is arrested despite strong uterine contractions. The presence of Bandl's ring suggests that the uterus is under extreme stress and unable to progress with labor naturally. An emergent cesarean section is necessary to prevent uterine rupture and ensure the safety of both mother and child. |

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| Question | Answer | Comment |
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| **Q25.** A 32-year-old second gravida in active labor with a transverse lie and a mass protruding through the cervix is in extreme pain. The finding on vaginal inspection is shown in the below image. If urgent cesarean is not performed, the most likely complication is:<br><br>A. Uterine inversion<br>B. Pathological retraction ring<br>C. Uterine inertia<br>D. Postpartum hemorrhage<br>E. Colporrhexis | **Ans: B (Pathological retraction ring)**<br>The adjacent image shows transverse lie with a prolapsed arm. If this is left neglected, a series of complications including obstructed labor can occur. Considering obstructed labor in this case, a pathological retraction ring or Bandl's ring develops **(Fig. 25)**.<br><br><br>**Fig. 25:** Pathological retraction ring. | **Explanation:** In obstructed labor **(Fig. 25)**, a Bandl's ring forms at the upper–lower uterine segment junction and becomes prominent with increasing obstruction, eventually causing uterine rupture. Complications include dehydration, ketoacidosis, sepsis, hemorrhage, shock, peritonitis, and genital tract injury. In transverse lie with a prolapsed hand, cesarean section is the safest option for maternal and fetal safety.<br>**Potential questions:** There can be questions related to complications associated with neglected transverse lie and their management. |

## BREECH VAGINAL DELIVERY

| Question | Answer | Comment |
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| **Q26.** In the below image, identify the type of breech presentation depicted.<br><br>A. Frank breech<br>B. Complete breech<br>C. Footling breech<br>D. Incomplete breech<br>E. Transverse breech | **Ans: A (Frank breech)**<br>**Figures 26A to C** show different breech types. The adjacent image depicts a frank breech (hips flexed, legs extended). Delivery choice—vaginal vs. cesarean—remains controversial; parents should be informed of maternal and neonatal risks and benefits.<br><br><br>**Figs. 26A to C:** Different types of breech presentations. | In breech presentation, the fetus is longitudinal with the buttocks presenting. Types include:<br>▪ *Frank breech (most common):* Buttocks first, hips flexed, legs extended.<br>▪ *Complete breech:* Buttocks first, hips and knees flexed, feet not below buttocks.<br>▪ *Footling breech:* One or both feet first, hips and knees extended.<br>**Potential questions:** There can be questions related to different types of breech presentation and their management strategies. |

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| **Q27.** A 32-year-old primigravida is in active labor with a breech presentation. The attending obstetrician decides to perform a vaginal breech delivery. During the delivery, after the fetal trunk is delivered, the obstetrician performs the maneuver shown in the image below to safely deliver the aftercoming fetal head. Which maneuver has been illustrated in the image below?<br><br>A. Mauriceau–Smellie–Veit maneuver<br>B. Wood's corkscrew man euver<br>C. Burns–Marshall maneuver<br>D. Pinard maneuver<br>E. Løvset maneuver | **Ans: C (Burns–Marshall technique)**<br>The Burns–Marshall maneuver is specifically used during a breech delivery to deliver the aftercoming fetal head. In this technique, after the fetal trunk is delivered, the baby's feet are grasped and the fetal body is gently swung in a wide arc over the mother's abdomen **(Figs. 27A and B)**. This maneuver helps to deliver the fetal head smoothly and avoids the risk of head entrapment, which is a critical concern in breech deliveries.<br><br>**Figs. 27A and B:** Burns–Marshall technique. | **Explanation:** The technique of performing Burns–Marshall technique is illustrated in **Figures 27A and B**. Following the delivery of shoulders and both the arms, the baby must be let to hang unsupported from the mother's vulva. This would help in encouraging flexion of fetal head. The nursing staff must be further advised to apply suprapubic pressure in downward and backward direction, in order to encourage flexion of the baby's head. As the nape of baby's neck appears, efforts must be made by the clinician to deliver the baby's head by grasping the fetal ankles with the finger of right hand between the two. Then the trunk is swung up forming a wide arc of the circle, while maintaining continuous traction when doing this. The obstetrician's left hand is used to provide pelvic support and to clear the perineum off successively from the baby's face and brow as the baby's head emerges out.<br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |

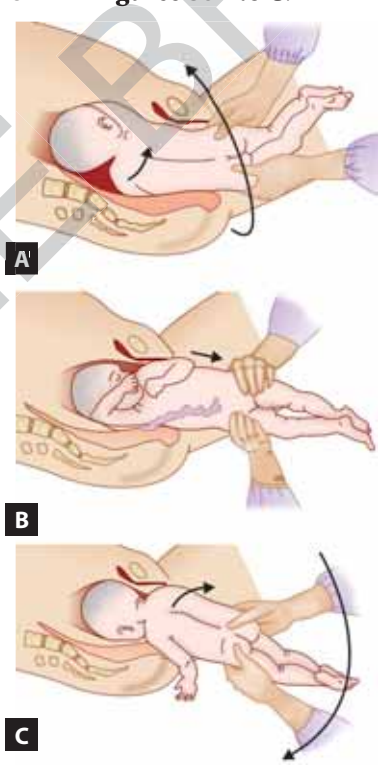
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| **Q28.** You are assisting in a vaginal breech delivery, and the fetal head remains in the pelvic cavity after the delivery of the body. The senior obstetrician instructs you to perform the Mauriceau–Smellie–Veit maneuver. You are shown the below image depicting the correct positioning of the hands during this procedure. Which of the following steps correctly describes the Mauriceau–Smellie–Veit maneuver for delivering the fetal head in a breech presentation?<br><br>A. Downward traction on shoulders with neutral head<br>B. Flexing head with one hand, upward traction with the other<br>C. Fingers on maxilla and occiput, downward traction<br>D. Suprapubic pressure, holding fetal feet<br>E. Rotating fetal body 180 | **Ans: C (Fingers on maxilla and occiput, downward traction)**<br><br>Mauriceau–Smellie–Veit maneuver **(Fig. 28)** is another commonly used technique for the delivery of aftercoming fetal head of the breech and is named after the three clinicians who had described the method of using this grip. This maneuver comprises the following steps:<br>▪ The baby is placed face down with the length of its body over the supinated left forearm and hand of the clinician.<br>▪ As shown in the adjacent image, the clinician must then place the first (index) and second finger (middle finger) of this hand on the baby's cheekbones and the thumb over the baby's chin. This helps in facilitating flexion of the fetal head. The next steps to be followed are described in the adjacent column to the right.<br><br><br>**Fig. 28:** Mauriceau–Smellie–Veit maneuver. | **Explanation:** The Mauriceau–Smellie–Veit maneuver involves placing the index and middle fingers on the maxilla and the other hand on the occiput to flex the fetal head while applying downward traction, facilitating the delivery of the aftercoming head during a breech birth.<br><br>An assistant may provide suprapubic pressure to help the baby's head remain flexed. The right hand of the clinician is used for grasping the baby's shoulders. The little finger and the ring finger of the clinician's right hand are placed over the baby's right shoulder, the index finger over the baby's left shoulder, and the middle finger over the baby's suboccipital region. With the fingers of the right hand in this position, the baby's head is flexed towards the chest. At the same time, the left hand is used for applying downward pressure on the jaw to bring the baby's head down until the hairline is visible.<br><br>Thereafter the baby's trunk is carried in upward and forward direction towards the maternal abdomen, till the baby's mouth, nose, and brow and lastly the vertex and occiput have been released.<br><br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |

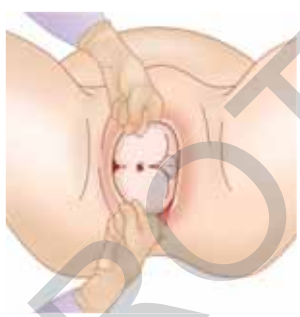
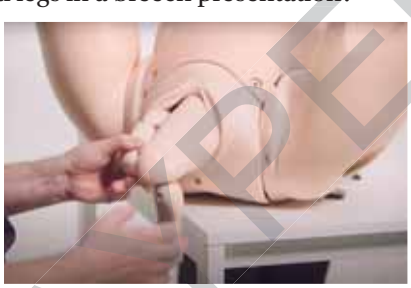
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| **Q29.** Which of the following statements best describes the correct application of Piper's forceps during a breech delivery as shown in the image below?<br><br>A. Piper's forceps are applied with the blades parallel to the fetal spine<br>B. The forceps are applied while the fetus is rotated 90°<br>C. Piper's forceps are applied after the fetal body is lifted to prevent head extension<br>D. The forceps are applied with the mother in a supine position with knees flexed<br>E. Piper's forceps are applied only after performing a midline episiotomy | **Ans: C (Piper's forceps are applied after the fetal body is lifted to prevent head extension)**<br><br>Nowadays, Piper's forceps are commonly used to deliver the aftercoming head of the breech **(Fig. 29)**. Use of forceps helps in better maintenance of flexion of fetal head and in transmitting the force to the fetal head rather than the neck. This helps in reducing the risk of fetal injuries and prevents extension of the fetal head.<br><br><br>**Fig. 29:** Delivery of aftercoming head of breech using forceps. | **Explanation:** For delivery of fetal head using forceps, the following steps are required:<br>▪ Ordinary forceps or Piper's forceps (specially designed forceps with absent pelvic curve) can be used.<br>▪ While the clinician is applying forceps, the baby's body must be wrapped in a cloth or towel and held on one side by the assistant. The left blade of the forceps is applied first followed by the right blade and the handles are locked.<br>▪ The forceps are used for both flexing and delivering the baby's head.<br>▪ The head must be delivered slowly over 1 minute in order to avoid sudden compression or decompression of fetal head, which may be a cause for intracranial hemorrhage.<br><br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |

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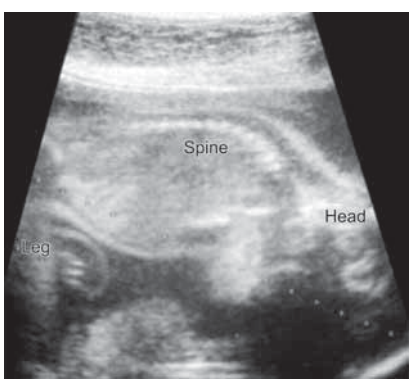
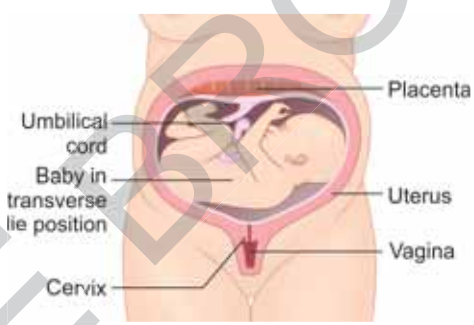
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| **Q30.** During a breech vaginal delivery, the obstetrician needs to deliver the fetal arms before the head and chooses to perform a maneuver by holding the baby by pelvifemoral grip as shown in the image. What is the purpose of rotating the fetal body 180° during this maneuver?<br><br>A. To align the fetal legs for easier delivery<br>B. To reposition the fetal head for a smoother passage<br>C. To bring one fetal arm into the anterior position for easier delivery<br>D. To reduce the risk of umbilical cord prolapse<br>E. To facilitate the delivery of both arms simultaneously | **Ans: C (To bring one fetal arm into the anterior position for easier delivery)**<br><br>The maneuver demonstrated in the adjacent image is Løvset's maneuver. In case of breech presentation, if the baby's arms are stretched above the head or folded behind the neck (nuchal displacement), this maneuver is used for the delivery of fetal arms. Løvset's maneuver is based on the principle that due to the curved shape of the birth canal when the anterior shoulder is above the pubis symphysis, the posterior shoulder would be below the level of pubic symphysis. The maneuver should be initiated only when the fetal scapula becomes visible underneath the pubic arch and includes the steps shown in **Figures 30A to C.**<br><br>**Figs. 30A to C:** Løvset's maneuver. | **Explanation:** Løvset's maneuver is essential to safely deliver the fetal arms in a breech presentation, reducing the risk of complications associated with extended arms. This maneuver comprises the following steps:<br>▪ First, the baby is lifted slightly to cause lateral flexion of the trunk.<br>▪ Then the baby which is held by pelvifemoral grip is turned by 180°, keeping the back uppermost. Simultaneously, downward traction is applied so that the arm that was initially posterior and below the level of pubic symphysis now becomes anterior and can be delivered under the pubic arch.<br>▪ Delivery of the arm can be assisted by placing one or two fingers on the upper part of the arm. Then the arm is gradually drawn down over the chest as the elbow is flexed, with the hand sweeping over the face.<br>▪ In order to deliver the second arm, the baby is again turned by 180° in the reverse direction, keeping the back uppermost and applying downward traction and then delivering the second arm in the same way under the pubic arch as the first arm was delivered.<br><br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |

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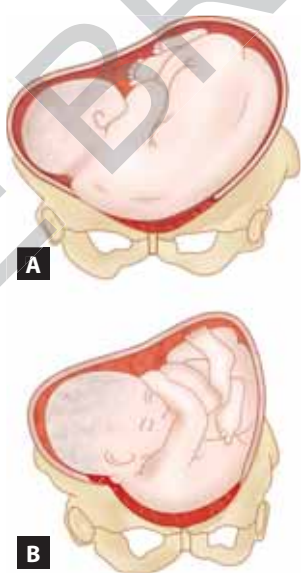
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| **Q31.** An obstetrician is performing a breech delivery and uses double groin traction as shown in the image below. What is the primary purpose of applying double groin traction during the delivery of the fetal buttocks in a breech presentation?<br><br>A. To rotate the fetus to an optimal position<br>B. To ensure the fetal buttocks pass through the birth canal smoothly<br>C. To prevent the umbilical cord from prolapsing<br>D. To decrease the risk of shoulder dystocia<br>E. To help in the delivery of the fetal head | **Ans: B (To ensure the fetal buttocks pass through the birth canal smoothly)**<br><br>If the buttocks and hip do not deliver by themselves, the clinician can make use of simple maneuvers such as single or double groin traction **(Fig. 31)** to deliver the fetal legs. By applying controlled traction during this maneuver, the obstetrician ensures that the buttocks descend steadily and safely, reducing the risk of complications like entrapment.<br><br>**Fig. 31:** Application of double groin traction. | **Explanation:** In single groin traction, the index finger of one hand is hooked in the groin fold and traction is exerted towards the fetal trunk rather than towards the fetal femur, in accordance with the uterine contractions. In double groin traction **(Fig. 31)**, the index fingers of both the hands are hooked in the groin folds and then traction is applied.<br><br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |
| **Q32.** An obstetrician is delivering a breech baby and uses a technique to aid in the delivery of the fetal legs as shown in the image below. What is the primary goal of using this technique during the delivery of fetal legs in a breech presentation?<br><br>A. To flex the fetal knees and bring down the legs<br>B. To rotate the fetus to a transverse lie<br>C. To prevent umbilical cord compression<br>D. To deliver the fetal head<br>E. To assist in the delivery of the fetal arms | **Ans: A (To flex the fetal knees and bring down the legs)**<br><br>The maneuver being performed in the adjacent image is Pinard's maneuver. This technique involves carefully flexing the fetal knees to help bring down the legs during a breech delivery **(Figs. 32A to C)**. Pinard's maneuver aims at safely bringing down the foot in cases where the fetal leg is extended, e.g., frank breech.<br><br>**Figs. 32A to C:** Steps for performing Pinard's maneuver. | **Explanation:** In this maneuver, pressure is exerted against the inner aspect of the knee (popliteal fossa), with help of the middle and index fingers of the clinician. As the pressure is applied, the knee gets flexed and abducted. This causes the lower leg to move downward, which is then swept medially and gently pulled out of the vagina.<br><br>**Potential questions:** There can be questions related to different maneuvers used for the delivery of fetal head, legs, or shoulders at the time of breech vaginal delivery. |

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## TRANSVERSE LIE

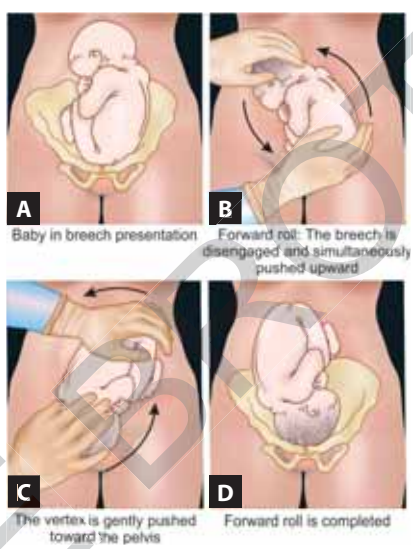
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| **Q33.** A 28-year-old patient having strong uterine contractions presents at 38 weeks' gestation. The ultrasound image of the fetus is shown below. What is the next most appropriate step in managing this patient?<br><br><br>A. Attempt external cephalic version<br>B. Proceed with an emergency cesarean section<br>C. Perform internal podalic version<br>D. Allow the patient to continue labor with close monitoring<br>E. Use oxytocin to augment labor | **Ans: B (Proceed with an emergency cesarean section)**<br>The adjacent image depicts an ultrasound image confirming the transverse lie with the fetal spine lying almost perpendicular to the maternal spine.<br>Transverse lie is an abnormal fetal presentation in which the fetus lies transversely with the shoulders presenting in the lower pole of the uterus **(Fig. 33)**. In this presentation, the long axis of the fetus is perpendicular to the maternal spine. As a result, the presenting part becomes the fetal shoulder.<br><br><br>**Fig. 33:** Transverse lie. | **Explanation:** Shoulder presentation occurs when the fetus is in a transverse lie, making vaginal delivery impossible. Since the patient is in labor, the safest course of action is an emergency cesarean section to avoid various complications and ensure the safety of both the mother and the fetus.<br>**Potential questions:** There can be questions related to the clinical finings, management, and complications related to transverse lie. |

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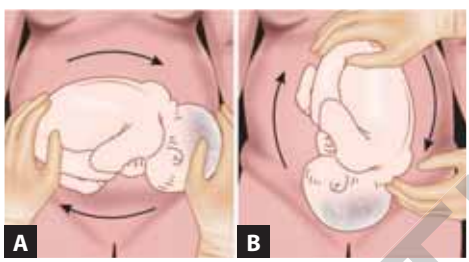
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| **Q34.** A 32-year-old primigravida presents in labor at 38 weeks of gestation. On abdominal examination, the pelvic grip is empty and fetal head is palpated in the left iliac fossa. On vaginal examination, no definite fetal part can be identified. The vaginal touch picture in this case is shown below. What is the most common fetal position likely to be present in this case?<br><br>A. Right dorsosuperior<br>B. Left dorsoanterior<br>C. Dorsoanterior<br>D. Dorsoposterior<br>E. Dorsoinferior | **Ans: C (Dorsoanterior)**<br>In case of transverse lie, the denominator is the fetal back. Depending on the position of the fetal back, various positions are possible as follows **(Figs. 34A and B)**:<br>▪ *Dorsoanterior:* The most common position where the fetal back is anterior<br>▪ *Dorsoposterior:* Fetal back is posterior<br>▪ *Dorsosuperior:* Fetal back is directed superiorly<br>▪ *Dorsoinferior:* Fetal back is directed inferiorly<br>Depending on the position of the fetal head, the fetal position can be described as right or left.<br><br>**Figs. 34 A and B:** (A) Dorsoanterior position; (B) Dorsoposterior position. | **Explanation:** In cases of transverse lie, at the time of labor, on vaginal examination, fetal shoulder including scapula, clavicle and humerus, and grid iron feel of fetal ribs can be palpated. If the membranes have ruptured, the fetal shoulder can be identified by feeling the acromion process, scapula, clavicle, axilla, ribs, and intercostal spaces. Ribs and intercostal spaces upon palpation give feeling of grid iron. If the arm prolapse has occurred, the fetal arm might be observed lying outside the vagina.<br>**Potential questions:** There can be questions related to the clinical finings, management, and complications related to transverse lie/shoulder presentation. |

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## VERSION

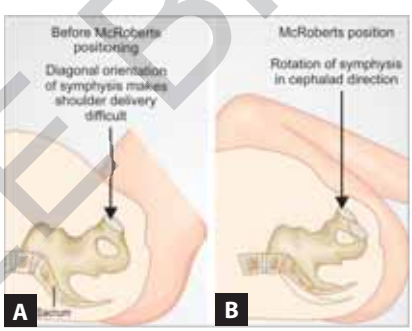
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| **Q35.** A 37-week-old pregnant patient presents with the fetus in a breech presentation during her antenatal visit. The obstetrician recommends an abdominal procedure to turn the fetus to a head-down position. Which of the following is most likely to increase the success rate of this procedure in a breech presentation?<br><br>A. Adequate amniotic fluid volume<br>B. Maternal body mass index BMI over 30 kg/m$^2$<br>C. Reduced amniotic fluid volume<br>D. Fetal engagement in the pelvis<br>E. Nulliparity | **Ans: A (Adequate amniotic fluid volume)**<br>The procedure being performed in the adjacent image is external cephalic version (ECV). This is a procedure in which the clinician externally rotates the fetus from a breech presentation into cephalic presentation **(Figs. 35 A to D)**.<br><br><br>**Figs. 35A to D:** External cephalic version through forward roll. | **Explanation:** While performing ECV, the clinician helps in gently manipulating the fetal head towards the pelvis, while the breech is brought up cephalad towards the fundus. The clinician must attempt a forward roll first and then a backward roll, if the initial attempt is unsuccessful.<br>Adequate amniotic fluid volume is a key factor that increases the likelihood of successfully performing an ECV. The presence of sufficient fluid allows the fetus to move more freely within the uterus, making it easier for the obstetrician to manually turn the fetus from a breech to a cephalic position. Factors like low fluid levels, a high maternal BMI, or fetal engagement. Anterior placental placement, etc., can reduce the chances of a successful ECV.<br>**Potential questions:** There can be questions pertaining to the indications and complications of various types of version procedures. |

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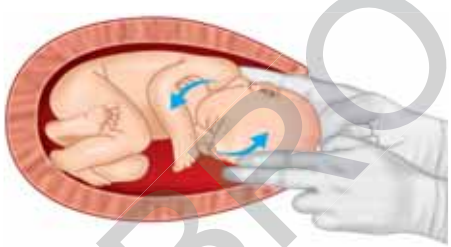
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| **Q36.** A 37-week-old pregnant woman presents with a fetus in a transverse lie. The physician considers performing an external cephalic version (ECV) to reposition the fetus into a cephalic presentation. Which of the following is the most appropriate initial step before performing ECV?<br><br>A. Administering a tocolytic agent<br>B. Immediate induction of labor<br>C. Performing an amniotomy<br>D. Performing rupture of membranes<br>E. Performing a digital vaginal examination | **Ans: A (Administering a tocolytic agent)**<br>While performing the ECV, the clinician helps in gently manipulating the fetal head towards the pelvis while the podalic pole is brought up cephalad towards the fundus **(Figs. 36A and B)**.<br><br>**Figs. 36A and B:** Technique of external cephalic version in case of transverse lie. | **Explanation:** External cephalic version is a procedure in which the clinician externally rotates the fetus from a transverse lie into a cephalic presentation.<br>Before performing an ECV in a transverse lie, it is important to administer a tocolytic agent to relax the uterus and increase the likelihood of a successful version. This reduces uterine tone and enhances the chances of successfully rotating the fetus into a cephalic presentation without causing distress or complications.<br>**Potential questions:** There can be questions pertaining to the indications and complications of various types of version procedures. |
| **Q37.** In the scenario being shown in the below image, what is the main indication for performing this maneuver?<br><br>A. Breech presentation in the second trimester<br>B. Transverse lie with a prolapsed umbilical cord<br>C. Twin delivery, where the second twin is in transverse lie<br>D. Fetal distress in cephalic presentation<br>E. Placenta previa with a transverse lie | **Ans: C (Twin delivery, where the second twin is in transverse lie)**<br>The technique of internal podalic version is shown in the adjacent figure. As demonstrated in **Figure 37**, This maneuver involves the obstetrician reaching into the uterus to grasp and bring down one or both feet, converting the fetus into a breech presentation for delivery. It is a highly specialized and rarely performed procedure, typically reserved for emergent situations where rapid delivery is needed.<br><br>**Fig. 37:** Technique of internal podalic version. | **Explanation:** The only indication for using internal podalic version in modern obstetrics is during the delivery of twins, particularly when the second twin is in a transverse lie following the delivery of the first twin. Besides this indication, the procedure of internal version has no place in modern obstetrics.<br>In case of vaginal delivery for twin gestation, following the delivery of the first twin in vertex presentation, the lie of second fetus is checked through abdominal examination. If the lie of second twin is transverse, external version must be attempted to correct the fetal lie. If the external version fails, internal version under general anesthesia can be attempted.<br>**Potential questions:** There can be questions related to indications, technique, and complications of any of the version procedures. |

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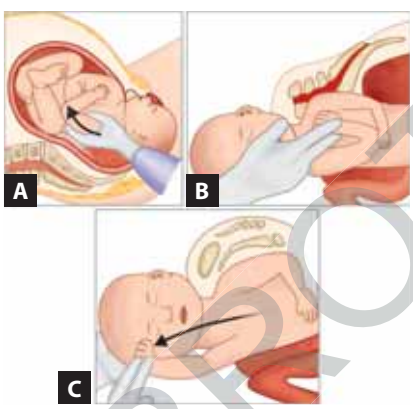
## SHOULDER DYSTOCIA

| Question | Answer | Comment |
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| **Q38.** A 28-year-old G2P1 woman at 39 weeks' gestation was in active labor. After delivering the fetal head, the shoulders became impacted behind the maternal pubic symphysis. The depicted maneuver was performed to resolve the dystocia. Which of the following is the primary purpose of this maneuver during delivery?<br><br>A. To rotate the fetal head during breech delivery<br>B. To reduce maternal discomfort during labor<br>C. To widen the pelvic outlet and relieve shoulder dystocia<br>D. To facilitate the descent of the umbilical cord<br>E. To expedite the second stage of labor | **Ans: C (To widen the pelvic outlet and relieve shoulder dystocia)**<br><br>The scenario in the given question is suggestive of shoulder dystocia and the maneuver being performed in the adjacent image is McRobert's maneuver.<br><br>Shoulder dystocia can be defined as the inability to deliver the fetal shoulders after the delivery of delivery fetal head without the aid of specific maneuvers (other than the gentle downward traction on the head).<br><br>McRobert's maneuver along with the application of suprapubic pressure is the first-line maneuver which must be employed in cases of shoulder dystocia. This maneuver is likely to be successful in nearly 90% women.<br><br><br><br>**Figs. 38A and B:** Mechanism by which McRobert's maneuver works. | **Explanation:** McRobert's maneuver involves sharp flexion and abduction of the maternal hips and positioning the maternal thighs on the woman's abdomen.<br><br>This maneuver helps in cephalad rotation of the symphysis pubis and the straightening of lumbosacral angle **(Figs. 38A and B)**. This maneuver, by straightening the sacrum, tends to widen the pelvic outlet, thereby helping to free the impacted anterior shoulder.<br><br>The American College of Obstetricians and Gynecologists (ACOG) has recommended that an estimated fetal weight of over 4.5 kg should be considered as an indication for delivery by cesarean section in order to reduce the potential morbidity and mortality in pregnancies complicated with maternal diabetes mellitus since macrosomia is an important risk factor for the development of shoulder dystocia.<br><br>**Potential questions:** There can be various questions related to risk factors, clinical diagnosis, and management of shoulder dystocia under different clinical circumstances. There can also be questions related to various maneuvers used for resolving this problem. |

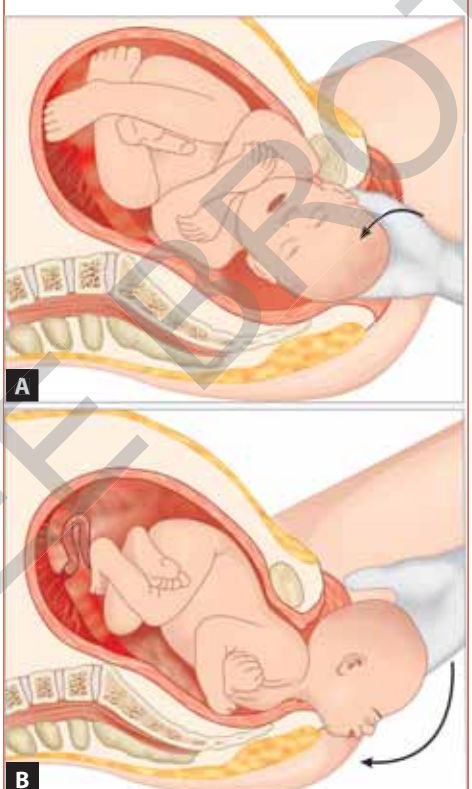
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| **Q39.** During a vaginal delivery, a 31-year-old, gravida 2, para 1, encounters difficulties delivering the fetal shoulder. First-line maneuvers like McRobert's maneuver and suprapubic pressure do not resolve the issue. The obstetrician then uses a manual method involving a corkscrew-like rotation to rotate the baby's shoulders as shown in the image below. What is the main goal of this technique in cases of shoulder dystocia?<br><br>A. To rotate the anterior shoulder by 180°<br>B. To increase the space in the birth canal by abducting the fetal arm<br>C. To deliver the posterior arm first<br>D. To apply suprapubic pressure<br>E. To rotate the posterior shoulder by 180° | **Ans: A (To rotate the anterior shoulder by180°)**<br><br>The adjacent image demonstrates the Wood's screw maneuver. In case of the failure of first-line maneuvers, such as McRobert's maneuver and the application of suprapubic pressure, the second-line maneuvers for resolution of shoulder dystocia must be employed. These include "enter the pelvis maneuvers" (internal rotation), such as Rubin II maneuver, Wood's screw maneuver **(Fig. 39)**, and reverse Wood's screw maneuver.<br><br>**Fig. 39:** Wood's screw maneuver. | **Explanation:** Wood's screw maneuver is used during shoulder dystocia to relieve the obstruction of the anterior shoulder by rotating it 180°. This rotation helps to free the shoulder from behind the pubic symphysis, allowing for easier delivery of the fetus. It is an important technique in managing shoulder dystocia, aiming to prevent complications such as brachial plexus injury.<br><br>*Procedure:* In this maneuver, the obstetrician's hand is placed behind the posterior shoulder of the fetus **(Fig. 39)**. The shoulder is rotated progressively by 180° in a corkscrew manner so that the impacted anterior shoulder is released.<br><br>**Potential questions:** There can be questions related to indications, management, and complications of the other "enter the pelvis maneuvers" such as reverse Wood's screw maneuver, Rubin II maneuver, etc. |

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| **Q40.** A 28-year-old primigravida presents to the labor ward in second stage of labor. After successfully delivering the fetal head, the obstetrician observes the turtle sign and fetal shoulders remain undelivered. First-line maneuvers like McRobert's maneuver and application of suprapubic pressure are unsuccessful. The obstetrician tries doing a maneuver as depicted in the image below. What is this maneuver?<br><br>A. Suprapubic pressure<br>B. Zavanelli maneuver<br>C. Delivery of the posterior arm<br>D. Rubin's maneuver<br>E. Wood's screw maneuver | **Ans: C (Delivery of the posterior arm)**<br>The maneuver being demonstrated in the adjacent image is "delivery of posterior arm" which is another effective maneuver for resolving shoulder dystocia. The steps for performance of this maneuver are described in **Figures 40A to C**.<br><br>**Figs. 40A to C:** Delivery of posterior arm: (A) The clinician's hand is introduced into the vagina along the posterior shoulder. Keeping the arm flexed at the elbow, it is swept across the fetal chest. (B) The fetal hand is grasped and the arm is extended out along the side of the face. (C) The posterior arm and shoulder are delivered from the vagina. | **Explanation:** In cases of shoulder dystocia, first-line maneuvers such as application of suprapubic pressure and McRobert's maneuvers are likely to work in most of the cases. However, if these maneuvers are unsuccessful, the obstetrician can try the second-line maneuvers, where there are two options: Delivery of the posterior arm or enter the pelvis maneuvers (Rubin II, Wood's screw maneuver, and reverse Wood's screw maneuver).<br>*Procedure:* In this maneuver, the obstetrician places his or her hand behind the posterior shoulder of the fetus and locates the arm. This arm is then swept across the fetal chest and delivered. With the posterior arm and shoulder now delivered, it is relatively easy to rotate the baby, dislodge the anterior shoulder, and allow delivery of the remainder of the baby.<br>**Potential questions:** There can be questions related to the indications, techniques, and complications of the various second-line or third-line maneuvers. |

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| **Q41.** During normal vaginal delivery, a 31-year-old woman, gravida 2, para 1, faces complications while delivering the baby's shoulder. As shown in the below image, the obstetrician decides to employ a specific maneuver involving repositioning the baby's head back into the birth canal for a cesarean delivery. What is the name of this maneuver?<br><br>A. McRobert's Maneuver<br>B. Wood's corkscrew maneuver<br>C. Rubin maneuver<br>D. Zavanelli maneuver<br>E. Reverse Wood's corkscrew maneuver | **Ans: D (Zavanelli maneuver)**<br>The maneuver being demonstrated in the adjacent image is Zavanelli maneuver. Several third-line methods have been described for cases of shoulder dystocia, which are resistant to all simple measures (including the first- and the second-line maneuvers). Some of the third-line maneuvers include cleidotomy, symphysiotomy, and Zavanelli maneuver **(Figs. 41A and B)**. These maneuvers are rarely employed in today's modern obstetric practice.<br><br><br>**Figs. 41A and B:** Zavanelli maneuver. | **Explanation:** Zavanelli maneuver involves cephalic replacement of the head followed by cesarean section. In this maneuver, firstly the fetal head is rotated back into its prerestitution position, i.e., occiput anterior. Following this, the head is flexed and pushed back up into the vagina. Once the fetal head gets back into the pelvis, an emergency cesarean section is performed to deliver a live baby.<br>It is typically used as a last resort when other maneuvers for resolving shoulder dystocia have failed. The maneuver requires careful execution and is associated with significant maternal and fetal risks and is rarely used.<br>**Potential questions:** There can be questions related to the indications, techniques, and complications of the various second-line or third-line maneuvers. |

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## INSTRUMENTAL DELIVERY

| Question | Answer | Comment |
|---|---|---|
| **Q42.** The image shows a pair of short, lightweight obstetric forceps used for outlet deliveries in the second stage of labor. Identify the forceps.<br><br>A. Kielland's forceps<br>B. Simpson's forceps<br>C. Neville Barnes forceps<br>D. Wrigley's forceps<br>E. Tucker–McLane forceps | **Ans: D (Wrigley's forceps)**<br>The adjacent image shows Wrigley's forceps. **Figure 42** illustrates different types of forceps employed in the clinical practice.<br><br><br>**Fig. 42:** Different types of forceps. | **Explanation:** Wrigley's forceps is one of the most commonly used forceps in the routine practice. It is a short, light instrument having pelvic and cephalic curves and an English lock. These forceps are designed specifically for outlet deliveries, often during the second stage of labor. Their short length and lightweight construction make them ideal for such situations, where more extensive forceps would be unnecessary or inappropriate. They are not suitable for high-cavity or rotational deliveries.<br>**Potential questions:** There can be questions related to different types of forceps, their indications, technique of application, and complications. |

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| Question | Answer | Comment |
|---|---|---|
| **Q43.** In which situation would forceps with a minimal pelvic curve as shown in the image below be most appropriate?<br><br>A. Breech presentation in the second stage of labor<br>B. Cephalic presentation with occiput transverse in the second stage<br>C. Fully dilated cervix in the first stage of labor<br>D. Cephalic presentation with posterior asynclitism<br>E. Compound presentation in the second stage of labor | **Ans: B (Cephalic presentation with occiput transverse in the second stage)**<br><br>The forceps shown in the adjacent image is the Kielland forceps, introduced by Dr Christian Kielland in 1915. This forceps was originally designed to facilitate rotation and extraction of the fetal head, arrested in the deep transverse or occipitoposterior position. **Figure 43** demonstrates different parts of the Kielland forceps.<br><br><br>**Fig. 43:** Parts of Kielland forceps. | **Explanation:** Kielland forceps are designed for malpositioned fetal heads, especially when the occiput is transverse or posterior, requiring rotation for an anterior position. They have a minimal pelvic curve, which enables the operator to safely rotate the blades during delivery. The anterior blade is applied first in the second stage of labor. Unlike nonrotational forceps, Kielland forceps feature overlapping shanks with a sliding lock and identifiable knobs on the finger grips for the anterior surface.<br><br>**Potential questions:** There can be questions related to different types of forceps, their indications, technique of application, and complications. |

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# Image-based Questions in Obstetrics and Gynecology

*Image-based Questions in Obstetrics and Gynecology* is an essential guide designed for students and practitioners who seek to strengthen their clinical acumen through visual learning. Ideal for those preparing for the MRCOG Part 1, NEET SS/NEET PG, and DNB OSCE exams, this atlas sharpens clinical skills through high-quality image-based questions with clear, evidence-based explanations. Tailored for exam success, it bridges practical application with academic rigor in obstetrics and gynecology.

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**Richa Saxena** MBBS MD (OBGYN) is an Obstetrician–Gynecologist, an RCOG Associate with nearly 1.5 decades of academic experience, and an esteemed author of many best-selling books for undergraduate and postgraduate medical students as well as MRCOG aspirants (inclusive of the three parts of the MRCOG exam). She is also the Co-author of the book *Jeffcoate's Principles of Gynaecology (9th edition)*, considered as the Bible of Gynecology for the postgraduates. She is also the Mentor and Director of MRCOG Online Course Modules on an e-learning platform, DigiNerve, for all the three parts of the MRCOG exam. She did both her graduation in Medicine and postgraduation (MD, Obstetrics and Gynecology) from New Delhi, India. She has been outstanding in academics throughout the medical course and subsequently only followed the upside of growth curve through hard work and determination. Besides being a prolific author of more than a dozen books in obstetrics and gynecology, she is an excellent Teacher, revolutionary Thinker, exceptional Doctor, and ardent Promoter of women's health. "Let's talk woman's health" is her initiative dedicated toward **E**mpowering and **E**nlightening women through **E**ducation and **E**-consultation. As a step-towards patient education and empowerment, she has taken many courses on Udemy related to topics of importance from the perspective of a woman's health.

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