UNIT 13 OCCIPITO-POSTERIOR POSITION: BROW, FACE AND CORD PRESENTATIONS

Structure

13.0 OBJECTIVES

After completing this unit, you will be able to:

- diagnose occipito-posterior position of vertex antenatally and also in labour;
- actively manage occipito-posterior presentation in labour;
- diagnose and manage deep transverse arrest, persistent occipito-posterior and, direct occipito-posterior presentations;
- select cases for early referral to decrease foetal and maternal morbidity; and
- diagnose and refer cases of face, brow, compound and cord presentations.

13.1 INTRODUCTION

In this unit you will learn about abnormal presentations and labour. At term, normal presentation (vertex) constitute 96% of cases, while 3% is breech and the remaining 1% is either face, brow shoulder, compound or cord presentation.

Occipito-posterior position is a malposition of the foetal head and occurs in 13% of vertex presentations. Occipito-posterior position can cause premature rupture of membranes and prolonged labour. Timely management will go a long way in reducing maternal and foetal morbidity and mortality.

When the extension of the head is incomplete, brow presents. Brow presentation has a large engaging diameter. Hence vaginal delivery is impossible.

Face presentation is brought about by extension of the head upon the spinal column. If extension is complete, the occiput rests against the cervical vertebrae and the face presents. Anterior positions of the face can deliver vaginally.

In cord presentation, the umbilical cord lies beside or below the presenting part with intact membranes. In cord prolapse, the membranes have ruptured, and umbilical cord is felt lying below or on the side of presenting part. It gets compressed by the presenting part.

Compound presentation occurs when there is prolapse of one or more of the limbs along the head or the breech, both entering the pelvis at the same time.

13.2 OCCIPITO-POSTERIOR POSITION

The occiput and the posterior fontanelle are in the posterior segment of the maternal pelvis and bregma is in the anterior segment.

Let us recall the earlier definitions of position and denominator. The position of the baby is the relationship of the presenting part to the mother's pelvis. It is conveniently expressed by referring to the position of one area of the presenting part, known as the denominator.

The denominator is an arbitrary part of the presentation, e.g. occiput in vertex presentation), and is used to denote its position with reference to the pelvis. The pelvis is divided into eight parts for the purpose of description (Fig. 13.1). The denominator is in one of these segments and takes its position from it. Thus in a vertex presentation if the denominator, which is the occiput, is close to the left ilio-pectineal, eminence, the position is described as left occipito-anterior or LOA. When the occiput lies against the sacroiliac joint, it is occipito-posterior.

Fig. 13.1: Position of Occiput

Right occipito-posterior (ROP) is 5 times more common than left occipito-posterior. This is due to (a) cushioning effect of sigmoid on left side; (b) normal dextrorotation of uterus.

13.2.1 Etiology and Diagnosis

Etiology

The etiological factors could be attributed to pelvis, uterus, foetal head and analgesia.

a) ***Pelvis***

- Cephalopelvic disproportion.
- The shape of the pelvic inlet influences the position of the occiput.

Where the forepelvis is narrow, there is a tendency for the occiput with its long biparietal diameter to be pushed to the rear. The front of the head with its short bitemporal diameter gets accommodated in the small forepelvis. Hence posterior positions of the occiput are often found in android and anthropoid pelvis. (Refer to Unit 10, Block 3 of this course for shape of pelvis.)

b) ***Uterus***

Poor or incoordinated uterine contractions do not push the foetal head down and there is no impetus for the occiput to rotate anteriorly.

c) ***Fetal Head***

Deflexed head has a larger engaging diameter – suboccipito frontal (10 cm) or occipito frontal (11.5 cm). This can cause cephalopelvic disproportion.

d) ***Analgesia***

Epidural analgesia cause relaxation of the levator ani. Contraction of the Levator ani muscles normally helps in rotation of the foetal head at the level of ischial pine. When the muscles are relaxed, the head may not rotate anteriorly.

Diagnosis

Diagnosis of occipito-posterior position could be made in antenatal or intrapartum period.

a) ***Antenatal***

Abdominal Examination

Fig. 13.2 shows the foetus lying in right occipito-posterior position.

1) Suprapubic flatening

2) Foetal limbs on the left in ROP

3) Back is difficult to feel

4) Foetal limbs are easily palpable

5) Foetal head is not engaged.

6) Foetal heart is faint, heard in the maternal flank.

Vaginal Examination

One should exclude cephalopelvic disproportion and android pelvis.

b) ***Intrapartum***

Abdominal Examination

In early labour abdominal findings are the same as given under antenatal diagnosis.

Vaginal Examination

Fig. 13.3 shows the sagittal suture in the right oblique diameter of the pelvis. The posterior fontanelle is in the right posterior segment of the pelvis. The bregma is anterior, easily felt and to the left of the symphysis pubis. Since flexion is imperfect, both fotanelles may be felt at the same level in the pelvis. In prolonged labour caput and moulding may occur. Where there is difficulty in diagnosis, if the pinna of the ear can be felt, it points to the occiput.

Points to Remember

1) **Premature rupture of membranes is more common because of ill-fitting presenting part.**
2) **Prolonged labour–both first and second stage of labour can be prolonged.**
3) **Frequent bladder distension occurs.**
4) **Persistent severe backache is noted.**
5) **Premature bearing down is common. This is because the broad position of the head (biparietal diameter) presses against the rectum.**

Fig 13.2:Abdominal View of Right Occipito-posterior

Fig.13.3:Vaginal View of Right Occipito-posterior

Check Your Progress 1

1) Fill in the blanks:

   a) Occipito-posterior position is common in …… and …….. pelvis.

   b) Incidence of occipito-posterior is …… of vertex presentation.

2) List the various diagnostic criteria of occipito-posterior by abdominal examination.

   .....

   .....

   .....

   .....

   .....

3) Why is premature rupture of membranes more common with occipito-posterior?

   .....

   .....

4) Why does premature bearing down occur in occipito-posterior?

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13.2.2 Mechanism of Labour (ROP)

The mechanism in occipito-posterior presentation differs from anterior vertex presentation mainly in its long internal rotation on the pelvic floor and initial deflexion of the head.

Rotation of varying degree and direction can take place.

1) **Descent**

The head enters the inlet with the sagittal suture in the right oblique diameter of the pelvis.

Suboccipito-bregmatic may be delayed if the head is deflexed, and diameter of engagement is larger than 9.4 cm, resulting in delayed engagement and the entire labour may take longer than in normal anterior positions.

2) **Flexion**

The head is often deflexed at the start of labour. If flexion is completed during descent, the occiput reaches the pelvic floor and rotates anteriorly. Otherwise there will be considerable delay in delivery, causing prolonged labour.

3) **Internal Rotation**

Internal rotation may occur anteriorly or posteriorly.

a) ***Anterior Rotation***

Occiput rotates anteriorly by 135^0 resulting in spontaneous vaginal delivery (Fig.13.4). This occurs in 90 per cent of occipito-posterior positions.

b) ***Posterior Rotation***

Head rotates from ROP to direct OP (occipito-posterior) with the occiput turning into the hollow of the sacrum and face to pubes delivery can occur. Posterior rotation often occurs in anthropoid pelvis (Fig. 13.5).

Fig.13.4: Arrested Anterior Rotation of Occiput from ROP, Sagittal Suture Transverse

Fig.13.5: Posterior Rotation of Occiput from ROP

c) ***Partial Anterior Rotation and Non-rotation***

- Partial anterior rotation of 45^0 occurs leading to ROT position and Deep Transverse Arrest (DTA). DTA occurs more commonly in android pelvis.
- Occiput may fail to rotate and remains as Persistent Occipito-posterior (POP) position.

Interventions are required to deliver the baby in these situations.

4) **Extension, Restitution and External Rotation**

You have been told that long arc rotation (135 degrees) to direct occipito-anterior occurs in 90% of occipito-posterior position. The baby then delivers the same way as in occipito-anterior presentation, with extension, restitution and external rotation of the head.

When rotation of 45 degrees occurs posteriorly, occiput turns directly into the hollow of sacrum, bregma/area anterior to bregma pivots under the pubic symphysis. The bregma, vertex, posterior fontanella and occiput are born by further flexion. Extension, restitution and external rotation occurs as already mentioned.

Hence outcome in occipito posterior position can be summarised as

- Anterior rotation and normal vaginal delivery.
- Posterior rotation and face to pubis delivery.
- Failure of rotation resulting in:

a) Deep Transverse Arrest (DTA)

b) Persistent Occpito-posterior Position (POP)

Check Your Progress 2

Fill in the blanks:

1) The engaging diameter in occipito-posterior with deflexed head is .....

2) Long arc rotation of occiput occurs through .....

3) The biparietal diameter measures .....

4) Posterior rotation of occiput through 45 degrees 1eads to .....

5) Anterior rotation of occiput through 45 degrees leads to .....

6) Anterior rotation of occiput through 135 degrees in right occipito-posterior leads to

.....

13.2.3 Management

Principles in Management

1) Early diagnosis.

2) Indications for caesarean delivery.

3) Strict vigilance with watchful expectancy for descent and anterior rotation of the occiput.

4) Judicious and timely intervention.

Elective caesarean delivery is needed in:

1) Contracted and android pelvis.

2) Big baby

3) Precious baby as in elderly primi, previous bad obstetric history.

Management of First Stage of Labour

In 90% of occipito posterior position, spontaneous vaginal delivery occurs. The labour is managed as follows:

1) Maintain partogram and observe progress of labour.

2) As long as the foetus and mother are in good condition and labour is progressing there is no need for intervention. The patient should remain in bed to avoid early rupture of membranes.

3) The labour may be prolonged and you must ensure adequate intake of fluids. Analgesia and sedation should be used as required.

4) Progress of labour is judged by descent of the head, rotation of back and shoulder towards the midline, increasing flexion of the head, position of sagittal suture on vaginal examination and progressive cervical dilatation.

5) Persistence of deflexion, nonrotation of the occiput and poor uterine contractions may require oxytocin drip to augment labour pains.

Management of Second Stage of Labour

1) ***Occurrence of Anterior Rotation***

In 90% of cases, anterior rotation of head occurs after some prolongation of second stage of labour as compared to occipito-anterior. The delivery is spontaneous in most cases or can be accomplished with low forceps or vacuum extraction (Fig.13.6).

Fig.13.6: Traction is made outword and posteriorly until the nape of the neck is under the symphysis pubis

2) ***Occipito-sacral Position***

Here, anterior rotation is unlikely. Instead, spontaneous delivery as face to pubes occurs. The large occipital parts of the head causes greater stretching and laceration of the perineum than does the narrow anterior part of the head. For this reason a large episiotomy is indicated. Frequently there is arrest at the perineum, and low forceps is the management of choice to avoid a prolonged bearing down.

Point to Remember in Low Forceps Application in Face to Pubes Delivery

When the occiput is directly posterior, traction should be applied downward and backwards applied until the root of the nose is under the symphysis. The handles should then be slowly elevated until the occiput gradually emerges over the perineum. Then, by imparting a downward motion to the instrument, the nose, face, and then chin is delivered.

3) ***Deep Transverse Arrest***

The head is deep in the cavity and the sagittal suture is in the transverse bispinous diameter. There is no descent of the head even after one hour in multi and two hours in primi in the second stage of labour inspite of good uterine contractions.

The causes are deflexed head, android pelvis (with flat sacrum and converging side walls) and poor uterine contractions.

Caesarean section is safest when the pelvis is android and/or baby size is large, hence all these cases are referred to the FRU for caesarean section/instrumental vaginal delivery.

In the FRU, vaginal delivery can be achieved by any of the following methods:

i) Manual rotation and forceps delivery under general anaesthesia.

ii) Ventouse application is ideal in a multiparous patient if the pelvic floor is lax and is having good uterine contractions. The ventouse should be applied towards the occiput to promote flexion and rotation of the head.

iii) Forceps rotation with kielland's forceps, in the hands of an expert only.

iv) Craniotomy in a dead baby.

4) ***Persistent Occipito-posterior***

Failure to progress inspite of good uterine contractions needs reassessment abdominally by noting the size of the baby, engagement of the head, amount of liquor and foetal heart sound. Vaginal examination should note station of head, position of sagittal suture and occiput, degree of deflexion, amount of moulding and caput formation reassessment of the pelvis. Cephalopelvic disproportion, head above "o station" (above the ischial spines) need caesarean delivery. If the head has reached the pelvic floor, the management is same as in deep transverse arrest.

Points to Remember

It labour is prolonged in occipito-posterior, it is diagnosed by keeping a partogram and referred to FRU.

Management of Third Stage of Labour

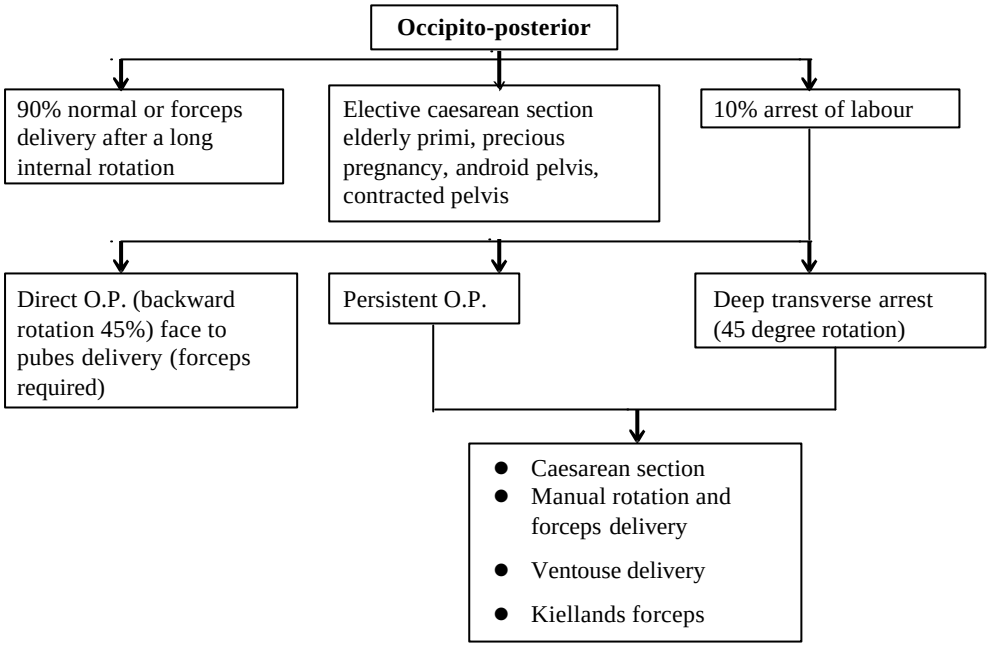
Atonic postpartum haemorrhage is not uncommon because of prolonged labour. Prophylactic methergin with oxytocin drip helps to reduce its occurrence.

Following vaginal operative delivery, meticulous inspection of the cervix and vagina should be done to detect any tear, or extension of episiontomy.

Referral

Although it is mentioned that 90% occipito-posterior will deliver normally, the labour can be prolonged, and operative vaginal manoeuvre may be needed. For this lesson, it is prudent to refer these cases to the FRU for the further evaluation and management.

The management of occipito-posterior position is summarised in the following flow chart:



13.3 BROW PRESENTATION

Brow presentation is a cause of obstructed labour (Fig.13.7).

Fig.13.7:Vaginal View of Left Frontum Anterior (Brow)

Definition

Brow presentation is an attitude of partial (halfway) extension in contrast to face presentation in which extension is complete. The presenting part is the area between to orbital ridges and the bregma. The denominator is the forehead (frontum). The engaging diameter is mentovertical, which at 13.5 cm is the longest diameter of engagement.

Incidence

Ranges from 1 in 1000 to 1 in 3000 pregnancies. Primary brow presentation that occurs before labour has started is rare. The majority are secondary i.e. they occur after the onset of labour. Often the position is transitory, the head either flexes to an occiput presentation or extends completely and becomes a face presentation.

Etiology

The causes are similar to those of face presentation and include those which interferes with engagement in flexion.

Diagnosis

The head remains high, does not engage and is therefore easily palpable. On vaginal examination, the brow is palpable between the bridge of the nose and supraorbital ridges and the anterior fontanelle.

If the labour is prolonged and the landmarks on the foetal head are obscured by oedema and moulding, x-ray is helpful in making diagnosis.

Management

The management is to deliver the child by caesarean section. If the foetus is dead, craniotomy is done.

Referral

All brow presentations detected in labour should be transferred to the referral unit to avoid obstructed labour and rupture uterus.

13.4 FACE PRESENTATION

Definition

The lie is longitudinal, the presentation is cephalic, the presenting part is the face, the attitude is one of complete extension, the chin is the denominator, and the engaging diameter, is submentobregamatic 9.5 cm. The part between the glabella and chin presents.

Incidence

This occurs in approximately 1 in 600 deliveries. Most face presentations are secondary, extension taking place during labour generally at the pelvic inlet. About 70 per cent of face presentations are anterior or transverse, while 30 per cent are posterior.

Etiology

Anything that delays engagement of head can contribute to the etiology of attitude of extension. This could be due to cephalopelvic disproportion, congenital goitre, multiple coils of cord around the neck and spasm of extensor muscles of neck. Anencephalic foetus (absence of cranium) presents by face. Pendulous abdomen may also be a contributory cause.

Diagnosis

This can sometimes be made antenatally but it is usually recognised in labour. The head feels large on abdominal palpation and the nuchal groove can often be felt (Fig. 13.8).

On vaginal examination (Fig.13.9), the foetal nose, eyes, mouth arid chin can be recognized but are sometimes obscured by considerable facial oedema. By passing the finger into the mouth the margins of the alveolar process can be recognised, and this distinguishes face from breech presentation. Anus may be mistaken for mouth, but careful examination will elicit sphincter tone and there will be no alveolar margin. Occasionally radiological examination or ultrasound is necessary to confirm the diagnosis and to estimate the pelvic capacity. Malformation such as anencephaly should be ruled out to avoid unnecessary caesarean section.

Referral

All face presentation require investigations such as ultrasound/x-ray. It is safe for you to refer these cases to FRU as soon as the diagnosis is made.

Management

Vaginal delivery can be anticipated if the pelvis is normal and the chin is anterior as it rotates anteriorly. If progress is slow, it is safer to deliver by caesarean section. The facial bruising and oedema usually subside within a few days.

Fig.13.8: Abdominal View of Left Mentum Anterior

Fig.13.9: Vaginal View of left Mentum Anterior

Elective Caesarean Section

Elective caesarean section is indicated in mentoposterior presentation, contracted pelvis and big baby.

Mechanism of Labour in Mentoanterior Presentation

As labour progresses, extension, descent and internal rotation of mentum occur. The submental region at the neck impinges under the symphysis pubis with the head pivoting around this point. The mouth, nose, orbits, forehead, vertex and occiput and borne over the perineum by flexion.

13.5 CORD PRESENTATION AND CORD PROLAPSE

Prolapse or presentation of the umbilical cord exists when it is found to lie beside or below the presenting part. If the membranes are still intact, the condition is called cord presentation, and if the membranes have rupture, it is called cord prolapse. Incidence is less than 1 per cent.

Predisposing factors: Any condition that causes management of the head or other presenting part predisposes to cord prolapse. It particularly occurs in the presence of malpresentations, cephalopelvic disproportion and polyhydramnios. Other condition which favour its occurrence are placenta previa and abnormally long cord.

Diagnosis

The diagnosis of prolapse of the cord is made in two ways (Fig.13.10):

1) Seeing the cord outside the vulva and

2) Feeling the cord on vaginal examination. Since the foetal mortality is high once the cord has protruded through the introitus, early diagnosis must be made in these predisposing conditions.

Fig.13.10: Cord Presentation

Vaginal examination should be performed when:

- there is unexplained foetal distress, especially if the presenting part is not engaged.
- the membranes rupture with high presenting part.
- the baby is premature.
- in all cases of malpresentation when the membranes rupture.
- in case of twins.

Prognosis

Labour : It is not affected by prolapsed cord.

Mother : Maternal danger results only by traumatic attempt to save the child

Foetus : The uncorrected perinatal mortality is around 35%

Management

Core prolapse is an obstetric emergency to save the foetus and delivery must be effected as quickly as possible. This means that unless the cervix is fully dilated and forceps or ventouse delivery can be effected, caesarean section is necessary.

As soon as the diagnosis is made, there is no point in trying to replace the cord and indeed it should be handled as little as possible to avoid inducing arterial spasm. Pressure on the cord can be reduced by displacing the presenting part digitally per vaginum or by placing the woman in the knee-chest position (Fig.13.11). The patient should be taken for immediate caesarean section.

Fig.13.11: Knee-chest Position

Points to Remember

The effect of prolapse and presentation of the cord are same. The principles of management are:

1) **To relieve pressure on the cord.**
2) **To find out if the foetus is alive or dead.**
3) **If alive, to deliver expeditiously.**
4) **If dead and the pelvis and presentation are favourable, to await spontaneous delivery.**

Abnormal presentation is present in almost half of the cases of prolapse of the cord. The incidence is in the following order: 1) Shoulder presentation, 2) Breech presentation especially the footling variety, and 3) Cephalic presentation, head free at the brim.

Compression of the umbilical cord between the presenting part and the maternal pelvis reduces or cuts off the blood supply to the foetus, and the maternal pelvis reduces or cuts off the blood supply to the foetus, and leads to death of the baby. The danger is greater in vertex than in breech presentation.

The sooner the baby is delivered after the cord prolapses, the better is the result. Delay of over 30 minutes increases the foetal mortality four times.

Referral

Cord presentation should be immediately transferred to FRU, but cord prolapse should be managed by you if the cervix is fully dilated. Baby can survive only for 20-30 minutes after the cord prolapse and this short time will not permit transfer in the second stage.

13.6 COMPOUND PRESENTATION

Occasionally a vertex presentation is complicated by descent of the arm or the leg, so that the hand or foot enters the pelvic brim along with the head. Prolapse of one or more of the upper limbs along with breech is extremely rare. These conditions are known as compound presentation. This occurs more often in premature labour twins, and when the pelvis is contracted, it occurs 1 in 1000 confinements.

Prolapse of the foot is rarer than prolapse of the hand. When the head is small, prolapse of the hand dose not prevent natural delivery (Fig.13.12). If there is no cephalopelvic disproportion, normal delivery is awaited. With good uterine contractions, the head descends and the head may receed. If the cervix is fully dilated and progress is delayed, the hand should be replaced under anaesthesia, and forceps delivery done. Care should be taken to avoid compression of the hand by the blades.

Fig.13.12: Compound Presentation of Head and Hand

13.7 LET US SUM UP

Occipito-posterior is a malposition of the head and its overall incidence is 10-13% of vertex presentations. Early diagnosis and appropriate management leads to successful outcome in 90% of cases. Premature rupture of membranes, prolonged labour (both first and second stage) and postpartum haemorrhage (**3 P's**) are common with occipito-posterior.

Judicious management of second stage is a crucial factor because:

1) Spontaneous delivery can take place after:

   a) Anterior rotation to occipito-anterior occurs.

   b) Posterior rotation to occipito-posterior with face to pubes delivery.

2) Arrest can occur at:

   a) Pelvic inlet with failure to engage

   b) Midpelvis leading to deep transverse arrest, persistent occipito-posterior or direct occipito-posterior.

   c) Outlet.

Conservative management with intravenous fluids, proper analgesia and oxytocin when indicated helps in achieving vaginal delivery. Adequate episiotomy is a must to prevent perennial injury.

Occipito-posterior is associated with an increased incidence of instrumental delivery and caesarean section. Inspite of optimum care maternal and foetal morbidity are more than in occipito anterior positions.

In this unit you also learnt about early diagnosis and referral of the less common conditions like brow, face, cord and compound presentations.

Brow and face presentations occur when the head is extended. Mentoanterior can deliver normally if pelvis is adequate. Mentoposterior and brow presentation require caesarean section.

Cord presentation or prolapse is an obstetric emergency. If the foetus is alive immediate caesarean section is warranted. In second stage of labour vaginal delivery (e.g. breech extraction in breech presentation) or forceps delivery in vertex is possible.

Compound presentation occur when the head is extended. Mentoanterior can deliver normally if pelvis is adequate. Mentoposterior and brow presentation require caesarean section.

Compound presentation is also uncommon. Head with the hand is the most common. Judicious management is required in such situations.

13.8 KEY WORDS

Deep transverse arrest (DTA) : Arrest of head at midpelvis, with sagittal suture in bispinous diameter at full cervial dilatation. With good uterine contractions, second stage duration more than one hour in multigravida and more than two hours in primigravida.

Denominator : An arbitrary bony point on the presenting part chosen to determine position.

Long arc rotation : Rotation of occiput through 135 degrees.

Position : Relationship of denominator to the four quadrants of the maternal pelvis.

Short arc rotation : Rotation of occiput through 45 degrees.

Vertex : Area between both anterior and posterior fontanelle and two parietal eminences.

13.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) a) android, anthropoid

   b) 13%

2) - Suprapublic flattening
   - Back difficult to palpate, it is more lateral
   - Foetal limbs on either side of midline
   - Unengaged foetal head, deflexed, feels larger than usual.
   - Faint foetal heart sound in maternal flank.

3) Ill-fitting presenting part leads to hour glass shaped bag of membranes.

4) The larger biparietal diameter presses on rectum, giving rise to the urge to bear down.

Check Your Progress 2

1) occipito-frontal.

2) 135 degrees.

3) 9.5 cm.

4) direct occipito-posterior.

5) deep transverse arrest.

6) complete rotation and normal vaginal delivery.

13.10 FURTHER READINGS

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