Malposition

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Definition

- Malposition refers to any position of the vertex other than flexed occipito-anterior one.

- What is position?

➡ It is the relation of the denominator to the different quadrants of the pelvis. The pelvis is divided into equal segments of 45° to place the denominator in each segment. Thus, theoretically, there are 8 positions with each presenting part.

◉**<u>Denominator:</u>** it is an arbitrary bony fixed point on the presenting part which comes in relation with the various quadrants of the maternal pelvis. eg. occiput in vertex, mentum (chin) in face, frontal eminence in brow, sacrum in breech,acromios in shoulder presentation.

Occipito-posterior position

OPP

- Occipital-posterior position is an abnormal position of the vertex rather than an abnormal presentation.
- Majority of cases (90%), anterior rotation of the occiput occurs & follows the course like that of an occipito-anterior & moreover, in certain type of pelvis(anthropoid), it is a favourable position.
- Posterior position give rise to dystocia.

Incidence

- At the onset of labour, the incidence is about 10% of all the vertex presentations.
- The incidence is expected to be more during late pregnancy & is much less in late 2nd stage of labour
- Right OPP is 5 times more common than the left occito-position
- Dextrorotation of the uterus & presence of the sigmoid colon on the left, disfavour LOP position.

Causes of OPP

In majority causes are not clear

- The following are responsible factors
- **Shape of the pelvic inlet**- >50% of the OPP is associated with either anthropoid or android pelvis. Wide occiput can comfortably be placed in the wider post segment of the pelvis.
- **Foetal factors**- marked deflexion of the foetal head, too often favours posterior position of the vertex. Causes are discussed next.
- **Uterine factors-** abnormal uterine contraction which may be the cause or effect, lead to persistent deflexion & OPP.

Causes of OPP

FOETAL FACTORS

- The causes of deflexion are:

1. High pelvic inclination.
2. Attachment of the placenta on the anterior wall of the uterus-this favours the well flexed foetus ovoid looking towards the anterior wall of the uterus, i.e. remains in dorso-posterior position. Thus, the convexities of the maternal spines are apposed, leading to tendency of extension of the foetal spines with persistent deflexion attitude of the head.
3. Primary brachycephaly- this shortened the length of the lever from the frontal to atlanto-occipital joint, and thereby deminishes the effective movement of flexion.

Diagnosis

- Clinical presentation
- Abdominal examination
- Vaginal examination

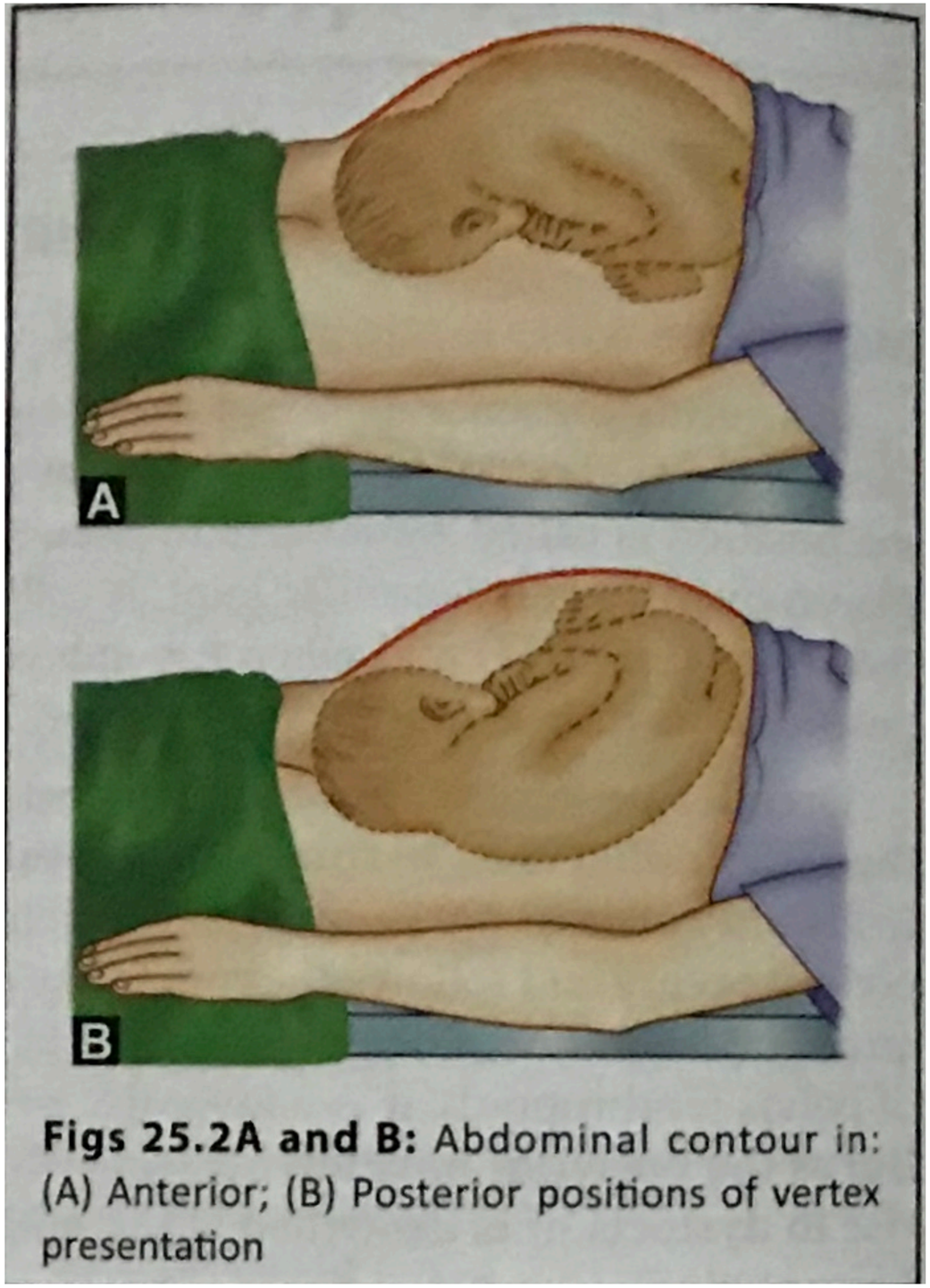
Abdominal

Examination

- Inspection: abd looks flat, below the umbilicus
- Lateral grip (umbilical grip):

1. The foetal limbs are more easily felt near the midline on either side.
2. The fatal backs far away from the midline on the flank often difficult to outline clearly
3. The ant shoulder lies far away from the midline

- Pelvic grips



Figs 25.2A and B: Abdominal contour in: (A) Anterior; (B) Posterior positions of vertex presentation

Diagnosis

- Pelvic grips: the findings are

1. The head is not engaged
2. The cephalic prominence (sinciput) is not felt so prominent as found in well flexed occipito-anterior.

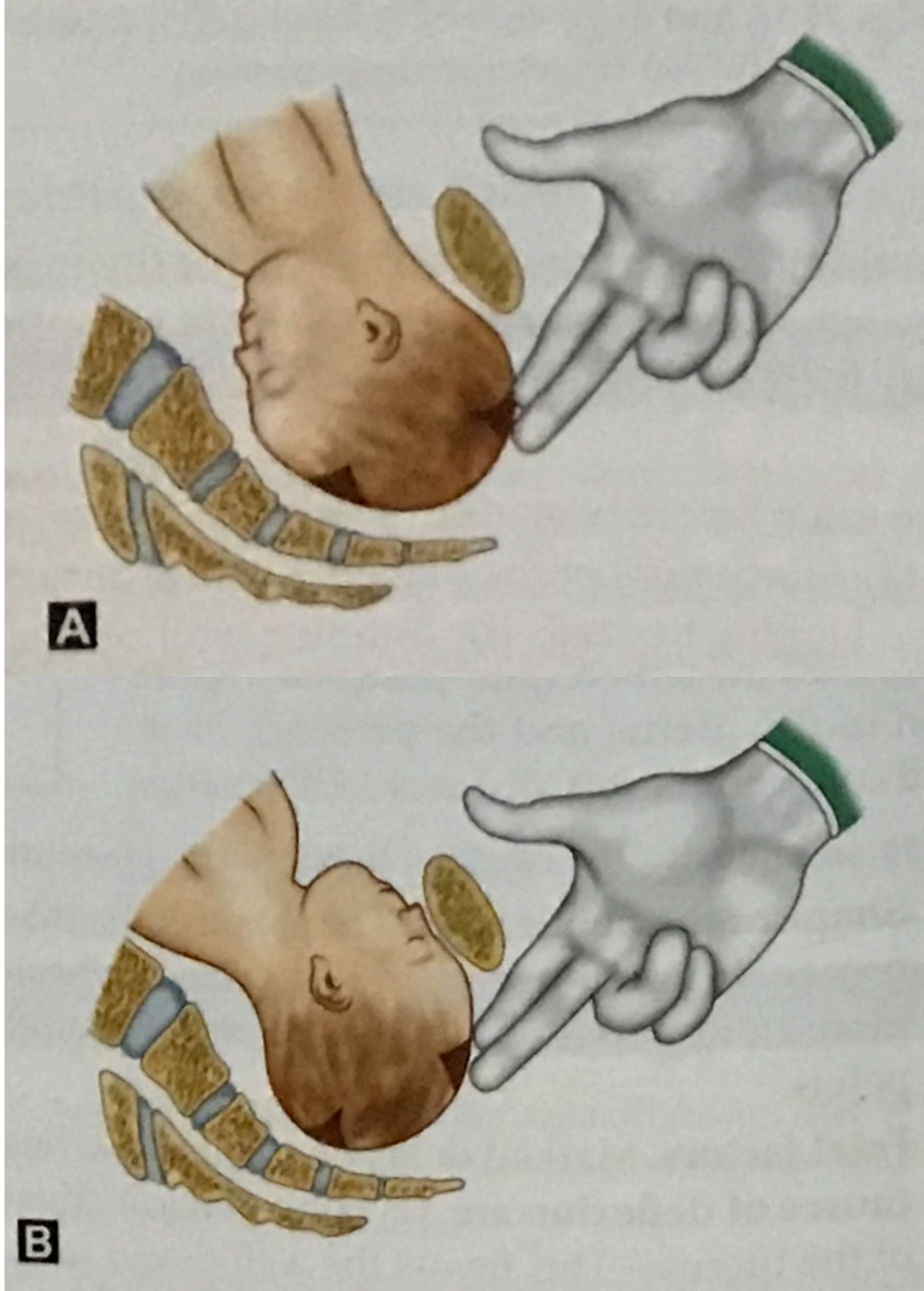
- In direct OPP, small sinciput is confused with breech.
- Auscultation-the maximum intensity of foetal heart sound is heard on the flank &often difficult to locate racially in LOP. However, in direct OPP, the FHR is distinctly felt in midline.

Vaginal

Examination

- In early labour:

1. Elongated bag of membrane which is likely to be ruptured
2. The signal suture occupies any of the oblique diameter of the pelvis
3. Posterior fontanelle is felt near the sacroiliac joint
4. The anterior fontanelle is felt more early because of deflexion of the head & at times, is felt at a lower level than the posterior one



Pelvic examination

- In late labour: the diagnosis is more difficult because of caput formation which obliterate the sutures & fontanelles.
- In such case the ear is to be located & unfolded pinna points towards the occiput.
- Simultaneous assessment pf pelvis should be done.
- Imaging -USG rarely done. Helpful to know the decent, attitude of the head & relation to the pelvic walls

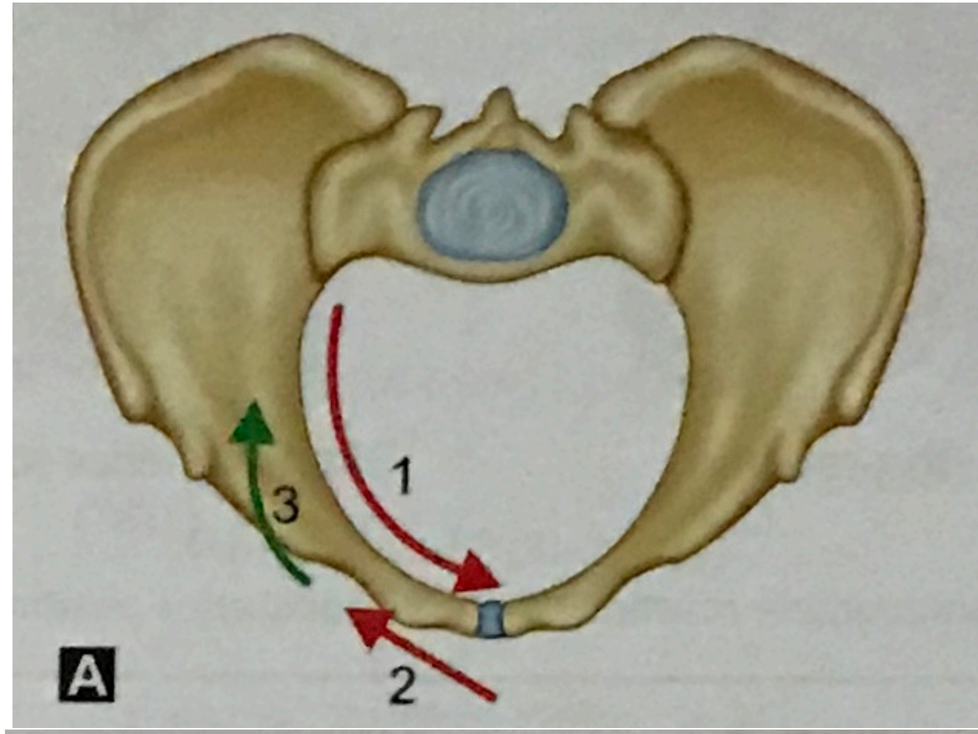
Mechanism of labour

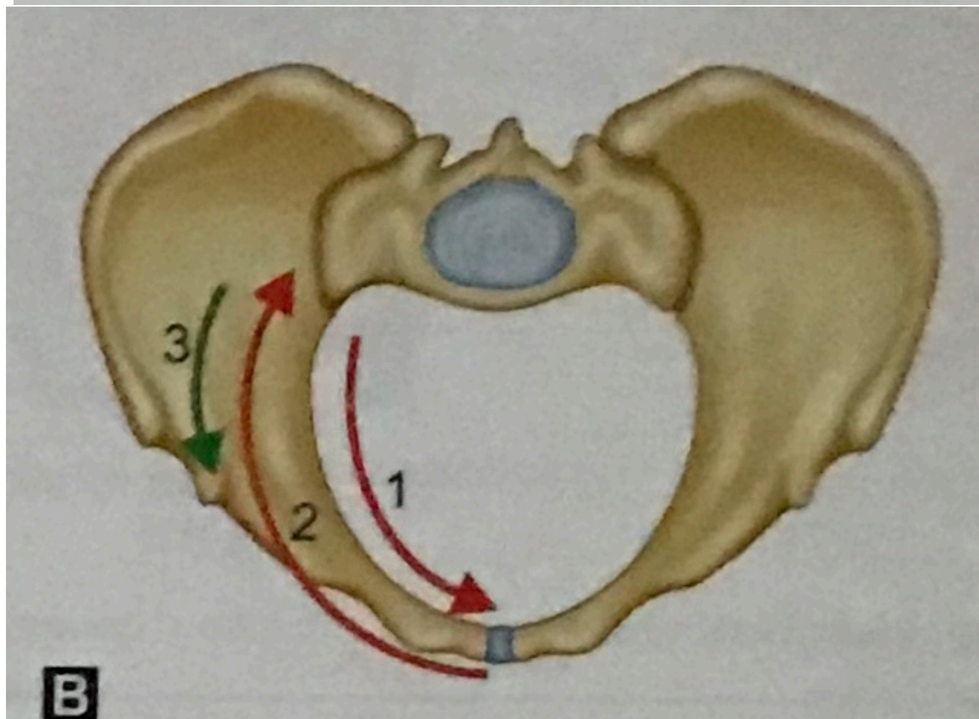
- The head engaged through the right oblique diameter in ROP & left oblique diameter in LOP. The engaging traverse diameter of the head is biparietal (9.5cm) & that of anteroposterior diameter is either suboccipitofrontal (10cm) or ocipitofrontal (11.5cm). Because of deflexion, engagement delayed.

In favourable circumstance

90%

- **<u>Flexion:</u>** Good uterine contractions results in good flexion of the head. Decent occurs until head reaches the pelvic floor
- **<u>Internal rotation of the head:</u>** As the occiput is the leading part, it rotates 3/8th of a circle (135°) anteriorly to lie behind the symphysis pubis. As the neck cannot sustain such amount of torsion, the shoulders rotate about 2/8th of a circle to occupy the right oblique diameter in ROP& left oblique inLOP with 1/8th of a circle torsion of the neckstill left behind. Thus, the rest of the mechanism is like that of right occipitoanterior in ROP & that of lt occipito-anterior in LOP.





In favourable circumstance

CONT.

- Further descent and delivery of the head occurs like that of occipitoanterior position.
- Restitution : there is movement of restitution to the extent of 1/8th of a circle in the opposite direction of internal rotation of the head.
- External rotation: the external rotation of the head occurs through 1/8th of a circle in the same direction of restitution as the shoulders rotate from the oblique to anterioposterior diameter of the pelvis.
- Birth of the shoulder and truck: the process of expulsion is the same as that of occipitoanterior.

alternative mechanism

Uncommon

- If the shoulder fail to follow the anterior rotation of the occiput, the neck sustains a torsion equal to 3/8th of a circle (135°) & the shoulders remain static in the left oblique diameter in ROP & in the right oblique diameter in LOP. In such cases, restitution occurs 3/8th of a circle & external rotation occurs through 1/8th of a circle in opposite direction of restitution. Hoeever, the mechanism is quite unlikely.

Figs : see B in previous slide.

In unfavourable circumstances

Non rotation or mal-rotation 10%

- When occiput fail to rotate, due to deflexion of the head, weak uterine contraction, faulty shape of the pelvis such as flat sacrum, prominent ischial spine or convergent side wall & weak pelvic floor muscles.
- Big baby & immobility of the foetal trunk consequent to the drainage of liquor amnii also contribute to the faulty rotation.
- Fate :

Fate

- Incomplete forwards rotation: leads to deep transverse arrest (DTA).
- Non rotation: leads to oblique posterior arrest.
- Mal rotation: leads to Persistent Occipito-postrior position (POP) of the vertex.

➡In favourable circumstance, i.e. with an average size baby, good uterine contractions & adequate pelvis such as an anthropoid or spacious gynecoid - spontaneous delivery may occur as “face to pubis”.

➡In unfavourable circumstance, when arrest occur, it is called occipito-sacral arrest.

Rotation Of OPP

Favourable & unfavourable rotations

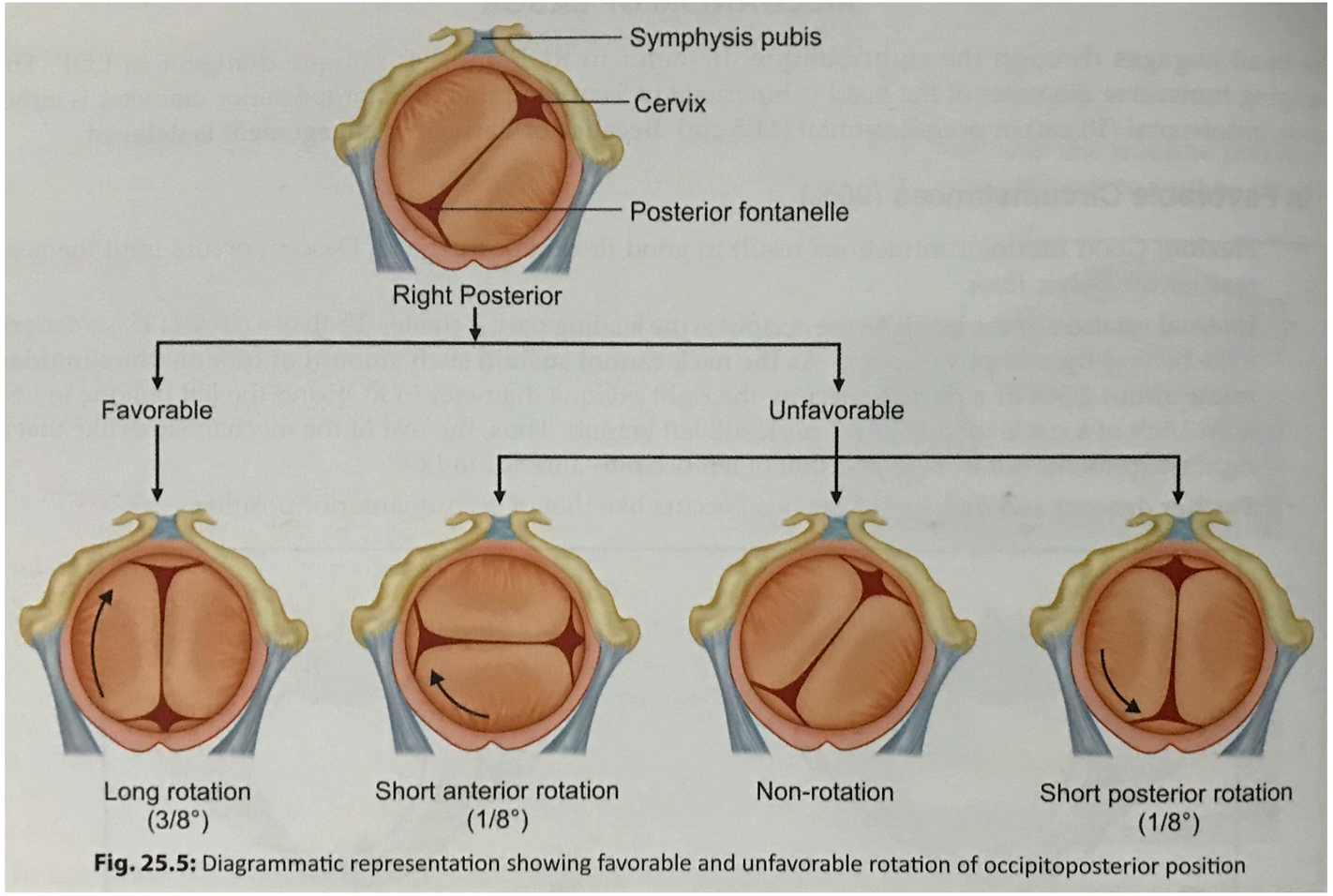


Fig. 25.5: Diagrammatic representation showing favorable and unfavorable rotation of occipitoposterior position

Mal rotation

Face to pubis delivery

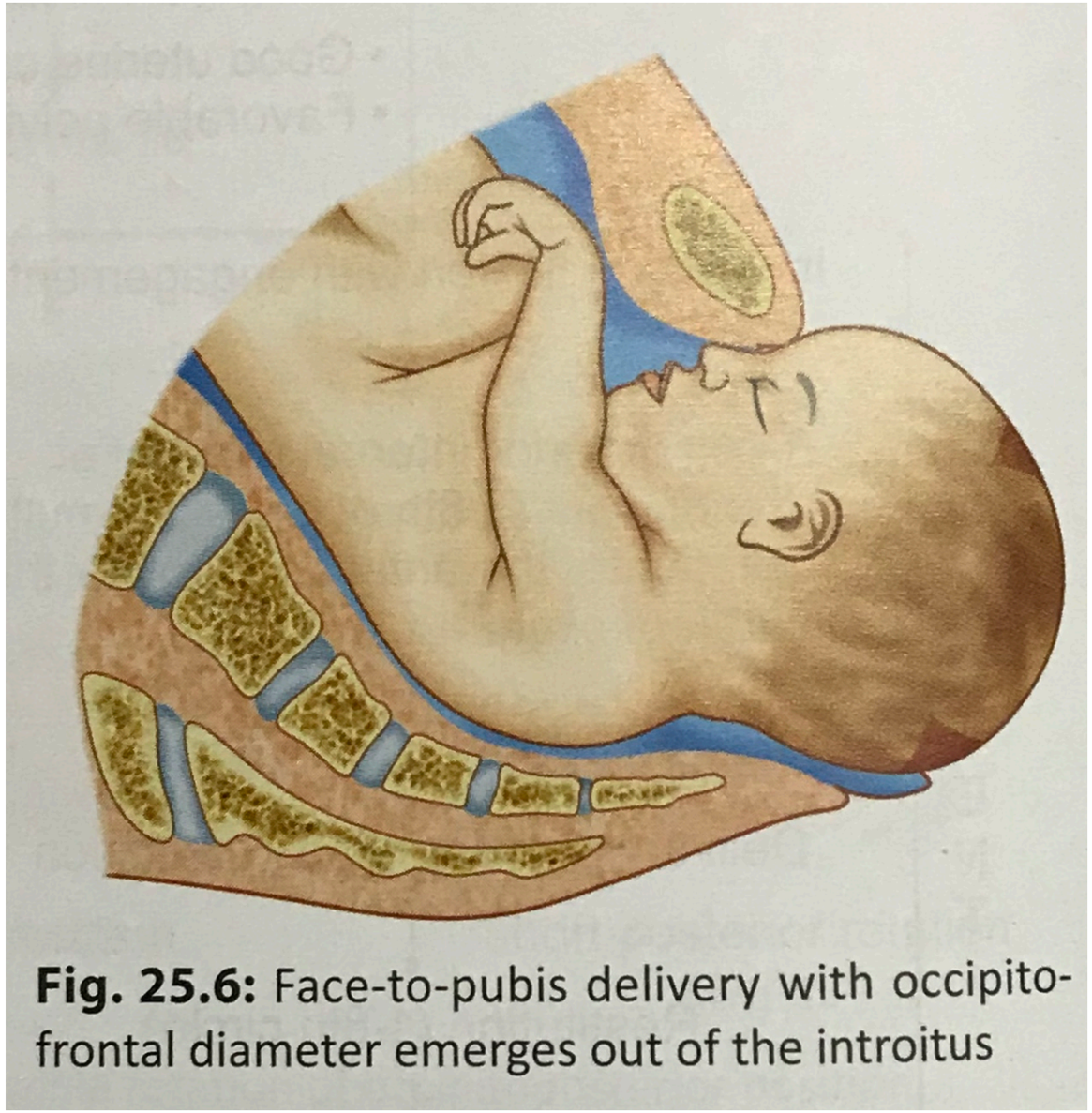
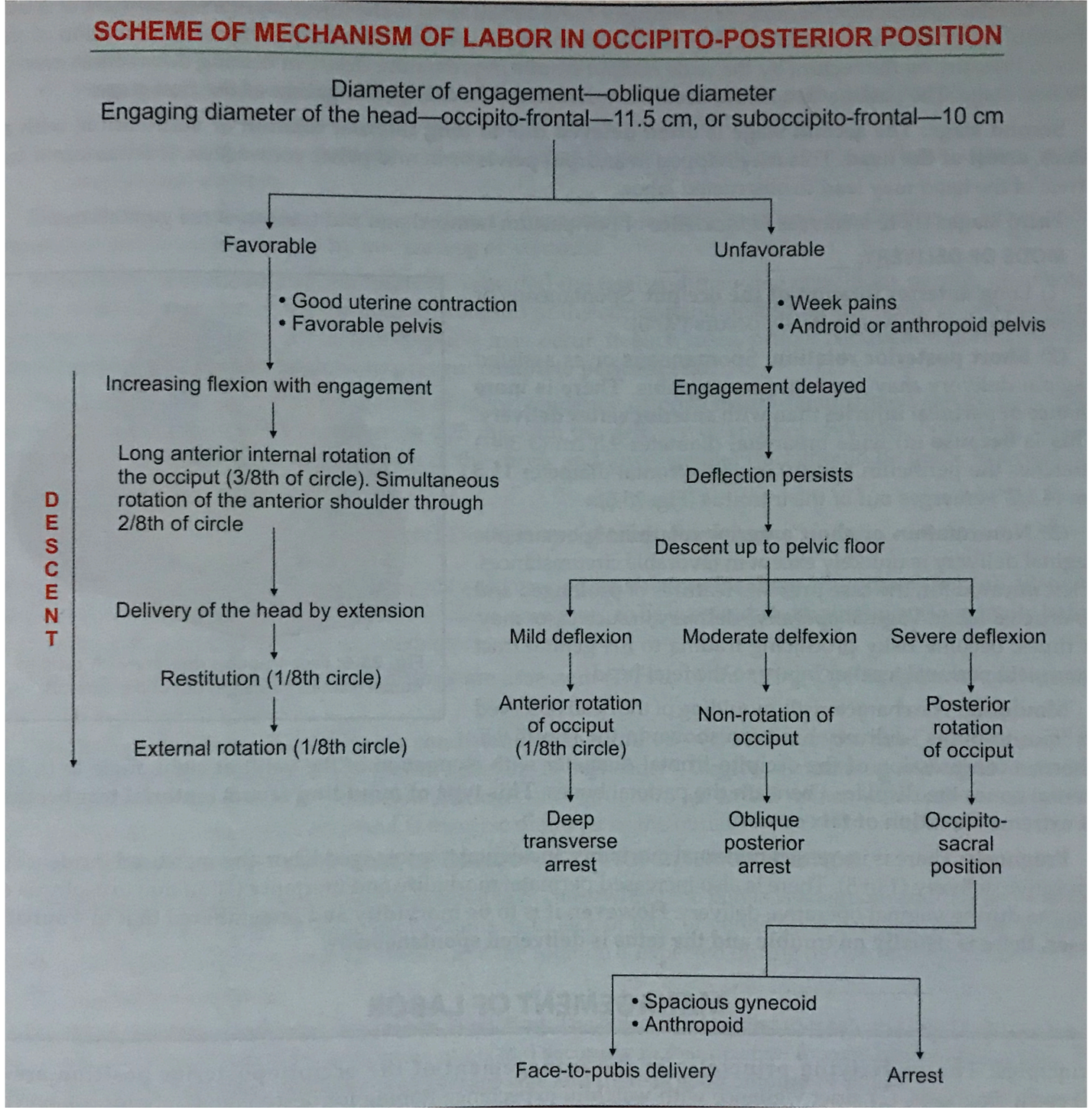


Fig. 25.6: Face-to-pubis delivery with occipito-frontal diameter emerges out of the introitus

SCHEME OF MECHANISM OF LABOR IN OCCIPITO-POSTERIOR POSITION



Course of labour

The average duration of both 1st & 2nd stage of labour is increased

- First stage: there is tendency to delay.

(1) Engagement : it is delayed due to

➡ Persistence of deflexion of the head thereby increasing the diameter of engagement - occipito-frontal — 11.5 cm

➡The driving force transmitted through the fatal axis is not in a alignment with the axis of the inlet.

(2) Membrane status: deflexed head becomes ovoid & this cannot fit well the spherical lower segment—> loss of ball valve action during uterine contraction —> early rupture of the membranes & drainage of liquor.

(3) Uterine contraction: due to ill fitting of the deflexed head to the lower ut segment, there is lack of stimulus for ut. contraction. This results in abnormal uterine contraction with slow dilatation of the cervix. Pressure on the rectum by the wide occiput results in premature desire of bearing down effort even in first stage. The pt, as a result, becomes exhausted. There is prolonged 1st stage.

- Second stage: it is often delayed due to long internal rotation or mal-rotation, with at times, arrest of the head. This may happed in android pelvis or in mid pelvic contraction. If left uncared for, arrest of head may lead to obstructed labour.
- Third stage: there is increased incidence of postpartum haemorrhage & trauma of the genital tract.

Mode of delivery

(1) Long anterior rotation of the occiput: spontaneous or assisted vaginal delivery usually occurs (90%).

(2) Short posterior rotation : spontaneous or assisted vaginal delivery may occur as face to pubis. Truer is more chance of perineal injuries than anterior vertex delivery. This is because

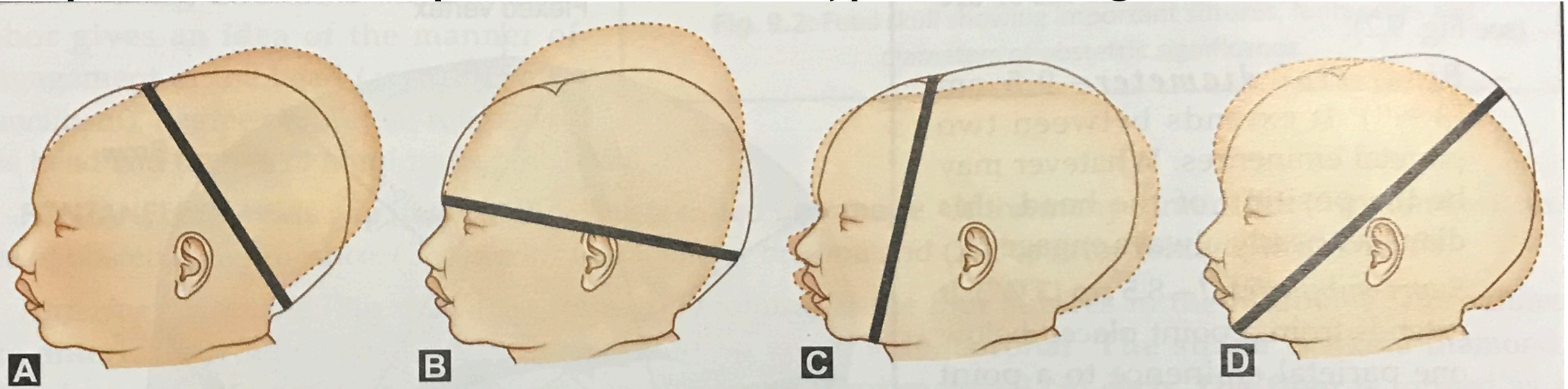
★ Wide biparietal diameter diameter 9.5 cm stretches the perineum

★ Occipito-frontal diameter 11.5 cm emerges out of he introitus.

(3) Non rotation or short anterior rotation: sp vaginal delivery is unlikely except in favourable circumstance. If left uncared lead tp prolonged or obstructed labour.

Cont

- **<u>Moulding</u>** : special type of moulding of the head is observed in “face to pubis” delivery has been shown below. There is compression of the occipito-frontal diameter with elongation of the vault at right angle to it. The frontal bones are displaced beneath the parietal bones. This type of moulding favours tentorial tear



Figs 9.5A to D: Types of moulding in cephalic presentations (shown by dotted line: (A) Vertex presentation with well flexed head; (B) Vertex presentation with deflexed head (sugar loaf head); (C) Face presentation; (D) Brow presentation.

Management of labour

Principles

- The underlying principles in the management of the occiptoposterior position are

✴Early diagnosis

✴Strict vigilance with watchful expectancy hoping for descent and anterior of the occiput and

✴Judicious and timely interference, if necessary.

✴**Diagnosis & evaluation :** foetal back on the flank with the FRH is not being easily located, early rupture of membranes should arouse suspicion.

Cont

- The pelvic assessment is very important & mandatory.
- Pelvic adequacy assess clinically.
- Inclination of the pelvis, configuration of the inlet, sacrum, ischial spines & the sidewalls are to be noted.
- **When early caesarean section planned:** OPP per se is not an indication.

➡ Pelvic inadequacy or its unfavourable configuration, along with obstetric complications such as, pre-eclampsia, post-caesarean pregnancy, big baby usually need direct caesarean section.

Cont

First stage

- The labour is allowed to proceed in a manner similar to normal labour. Special instructions are as follows:

- Anticipating prolonged labour, I/V infusion line is sited & Ringer's sol drip is started.

- Progress of labour is judged by-

(a) Progressive descent of the head

(b) Rotation of the back & the ant shoulder towards the midline

(c) Increasing flexion of the head

(d) Position of the sagittal suture on vaginal examination

(e) Cervical dilatation.

cont.

1st stage

- Weak pain, persistence of deflexion & non rotation of the ht occiput are the triad too often coexistent.
- Indication of caesarean section:

(a) Arrest of labour (failure of rotation)

(b) Uncoordinated uterine action

(c) Foetal distress.

Second stage

- In majority, anterior rotation of the occiput is completed & the delivery is either spontaneous or can be accomplished by low forceps or ventouse.

- In minority (unrotated & malrotated): provided the foetal & maternal conditions permit, one should take a watchful expectancy for the anterior rotation of the occiput & descent of the head. In occipitosacral position, spontaneous delivery as face-to-pubis may occur. In such cases, proper conduction of delivery & liberal episiotomy should be done to prevent complete perineal tear.

Third stage of labour

- Because of prolongation of labour, tendency of post partum haemorrhage can be prevented by prophylactic I/V ergometrine 0.25 mg with the delivery of anterior shoulder.
- Following vaginal operative delivery, meticulous inspection of the cervix & lower genital tract should be made to detect any injury specially periurethral region.

Arrested OPP position

If there is failure to progress in spite of good ut contractions for 30-60 min after full dilatation.

- The cause of arrest more to be assessed abdominally & vaginally before interference.
- P/A- 1. Size of the baby, 2. Engagement of the head, 3. Amount of liquor, 4. FHS.
- P/V-conditions to be noted- 1. Station of the head, 2. Position of the sagittal suture & the occiput, 3. Degree of deflexion, 4. Degree of moulding & caput formation, 5, assessment of the pelvis at or below3 the level of obstruction, i.e. ischial spines, side walls of the pelvis, sacrococcygeal plateau, pubic arch & transverse diameter of the outlet.

Arrest in occipito-transverse or oblique OPP

- Ventouse (vacuum extraction):
- Alternative method:

(a) Manual rotation followed by forceps extraction

(b) Forceps rotation & extraction

(c) Caesarean section

(d) Craniotomy in dead foetus

In occipito sacral arrest

- If occiput descends below the ischial spines forceps application in unrotated heat by keiland followed by extraction as face-to-pubis delivery with the aid of liberal episiotomy.
- If occiput remains at or above the level of ischial spines, caesarean section should be consider.

Deep transverse arrest (DTA)

- The head is deep into the cavity, the sagittal suture is placed in the transverse bispinous diameter & there is no progress in descent of the head even after 1/2 -1 hour following full dilatation of the cervix.
- It is the end result of incomplete ant. rotation (1/8th of circle) of oblique OPP,or it may be due to non rotation of the commonly primary occipiyo-transverse position of normal mechanism of labour.
- **Causes:** *a*. Faulty pelvic architecture such as prominent ischial spine, flat sacrum & convergent side walls, *b*. Deflexion of head, *c*. Weak ut contraction, *d*. Laxity of the pelvic floor muscles.

Diagnosis of DTA

- The head is engaged
- The sagittal suture lies in the transverse bispinous diameter,
- Anterior fontanelle is palpable
- Faulty pelvic architecture may be detected.

Management of DTA

- The foetal condition & pelvic assessment give the guide as to the line of management

(1) Vaginal delivery is found not safe (big baby & or inadequate pelvis) caesarean section

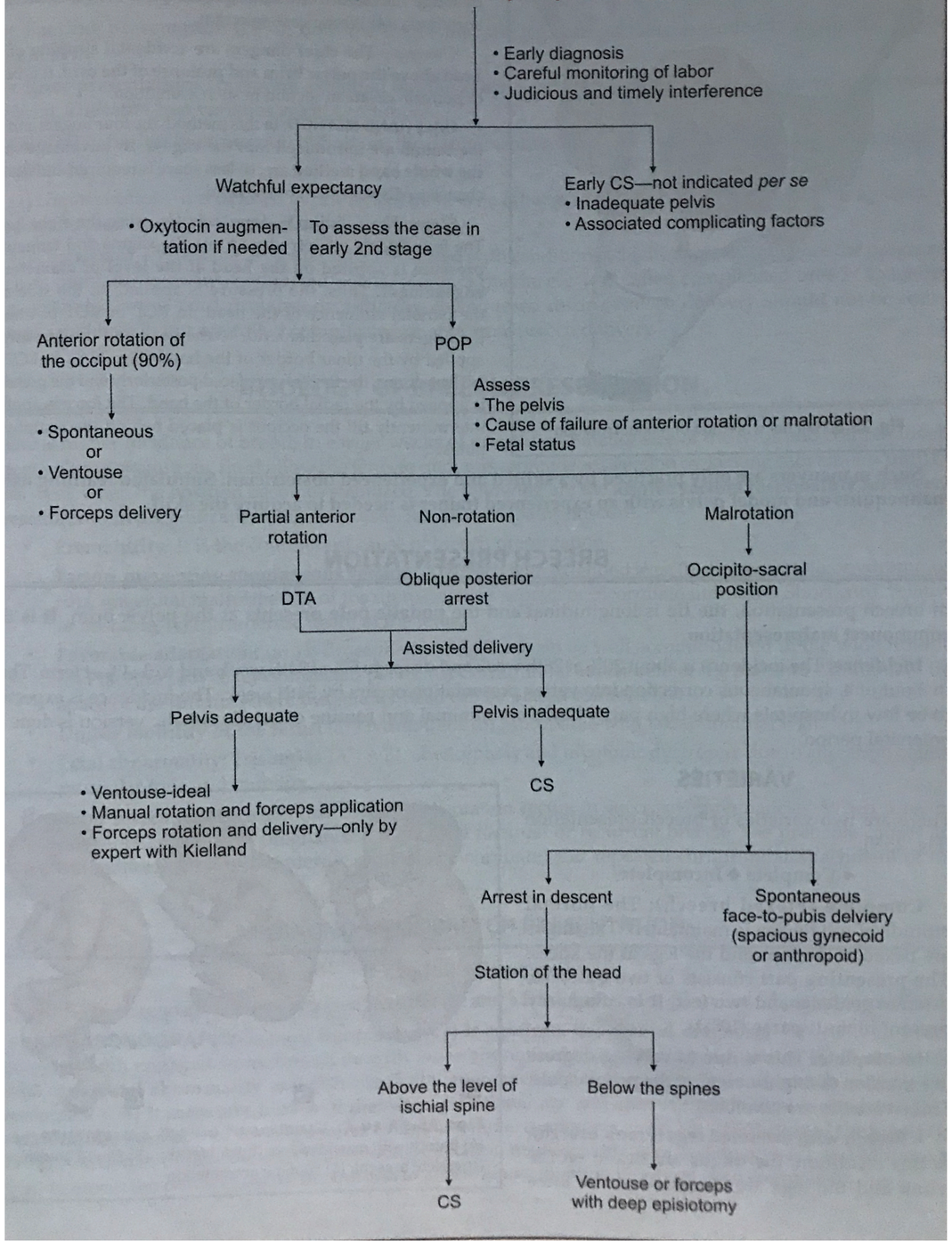
(2) Vaginal delivery is found to be safe: (any methods may be employed)

- Ventouse- excessive traction force should not be used
- Manual rotation & application of forceps
- Forceps rotation & delivery with KIELLAND in the hands of an expert.

Operative vaginal delivery should only be performed by a skilled obstetrician

Otherwise choose caesarean section.

Scheme of management of occipito-posterior position



The End

- Thank you all