Preterm Labor & Disorders of Uterine Action

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Preterm Labor

DEFINITION

- Preterm labor is defined as labor starting spontaneously after the gestation viability (24 -28 weeks) and before 37 completed weeks of pregnancy.

INCIDENCE

- The prevalence widely varies and ranges between 5 -10 %

Graphs generated from Hamilton, Martin, Ventura, 2009

ETIOLOGY

- **History :-**
  - Induced or spontaneous abortion or preterm delivery.
  - Recurrent urinary tract infection.
  - Smoking habits.
  - Low socioeconomic and nutritional status.
  - Maternal stress

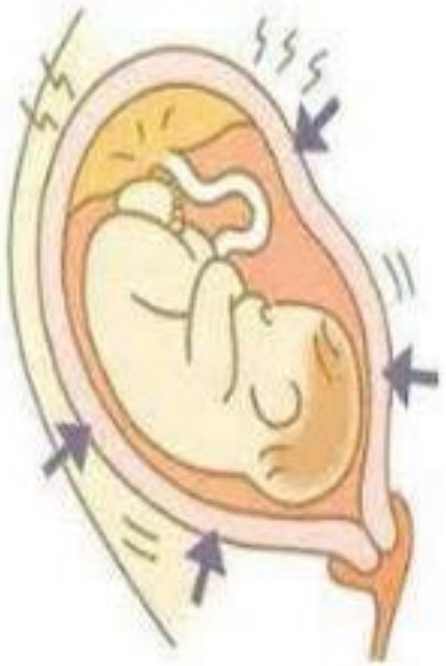
Complication in present pregnancy:-

- Maternal –

Preeclampsia,
Antepartum haemorrhage
Premature rupture of membrane
Polyhydromnios
Acute fever, acute pyelonephritis,
Acute appendicitis,
Toxoplasmosis
Abdominal operation
Hypertension, decompensate heart lesion
Severe anaemia
Genital tract infection, such as:-

i) bacterial vaginosis
ii) beta hemolytic streptococcus
iii) chlamydia
iv) mycoplasma

- **Fetal :-**
  - Multiple pregnancy
  - Congenital malformation
  - Intrauterine death
- **Placental :-**
  - Infraction
  - Thrombosis
  - Placenta previa or abrubtion
- **Idiopathic**:-
  - premature effacement of the cervix with irritate uterus and early engagement of the head are often associated.



DIAGNOSIS

- Regular uterine contraction with or without pain
- Dilatation (>2cm) and effacement 80% of the cervix
- Length of the cervix (<2.5cm) & funneling of the internal os.
- Pelvic pressure, backache, vaginal discharge and bleeding

Vaginal Secretions: Fibronectin

MANAGEMENT

- To prevent preterm onset of labor, if possible.
- To arrest preterm labor if not contraindicated
- Appropriate management of labor
- Effective neonatal care

PREVENTION OF PRETERM LABOR

- **Identification of the risk fector from history and employing measures such as-**

  # adequate rest

  # nutritional supplement

  # avoidance of smoking

- **Premature effacement of the cervix:-**

  # put to bed rest

  # administered tocolytic agent

- **Appropriate therapy, rest and hospitalization for close observation in complicated pregnancy such as:-**

  #pre eclampsia, polyhydromnios, placenta previa

INVESTIGATION

- Full blood count
- Urine for routine analysis, culture and sensitivity
- USG for fetal well being, cervical length and placental location.
- Serum electrolytes and glucose level when tocolytic agent are to be used

TO ARREST PRETERM LABOR

- Adequate rest in bed, left lateral position.
- Adequate sedation is ensured with diazepam
- Adequtae hydration is maintained
- Antibiotic therapy.
- Tocolytic agent can be administered to inhibit uterine contraction. It should be used as a short term or long term therapy.

Short term therapy:-

- To delay delivery for at least 24 hours for glucocorticoid therapy, if labor starts before 34 weeks.
- To enable transfer woman with the baby in utero to a unit more able to manage a preterm neonate.

Long term therpy:-

- It is instituted if pregnancy to be prolonged for at least one week.

GLUCOCORTICOID THERAPY

- Maternal administration of glucocorticoid is advocated where the pregnancy is less than 34 weeks.
- Betamethasone (Batnesol) 12 mg 12 hourly.
- Dexamethasone (decadrone) 8 mg 12 hourly

MANAGEMENT OF PRETERM LABOR

- Labor is judge to have started when the women experiences regular, painful uterine contraction accompanied by either slow, rupture of membrane or complete effacement of the cervix.

PRINCIPLES OF MANAGEMENT OF PTL

- To prevent asphyxia , which makes the neonate more susceptible to Respiratory Distress Syndrome.
- To prevent birth trauma.

FIRST STAGE MANAGEMENT

- Women is put to bed to prevent early rupture of membrane
- Oxygen is given by mask.
- Strong sedative or epidural analgesia.
- Clinically or electronic monitor of progress of labor.
- Better to deliver by cesarean section in case of delayed or anticipating traumatic vaginal delivery.

SECOND STAGE MANAGEMENT

- The birth should be gentle and slow to avoid rapid compression an decompression of the fetal head.
- episiotomy under local anesthesia to minimize head compression.
- Tendency to delayed must be characterized by low forceps.
- Cord must be clamped immediately.
- To placed the baby in intensive care unit.

IMMEDIATE MANAGEMENT OF THE PRETERM BABY FOLLOWING BIRTH

- Cord to be clamped quickly
- The cord length should be about 10 – 12 cm in case of exchange transfusion.
- The air passage should be cleared of mucous from promptly and gently and stomach content are also to be sucked out.

- Adequate oxygenation should be provided.
- Baby should be wrapped in a sterile warm blanket and laid in the warmer in the head slightly lowered down.
- Vit. K 1mg to be injected IM.
- Bathing is not appropriate for the preterm baby.

SUPPORT FOR THE MOTHER

- The attendance of a support person though out labor is crucial .
- An individual approach to care an instruction during labor.
- Communicate with women effectively , evaluate whether labor is progressing as expected.

- Once the baby born the mother will be anxious about baby condition and appropriate communication must be maintained.

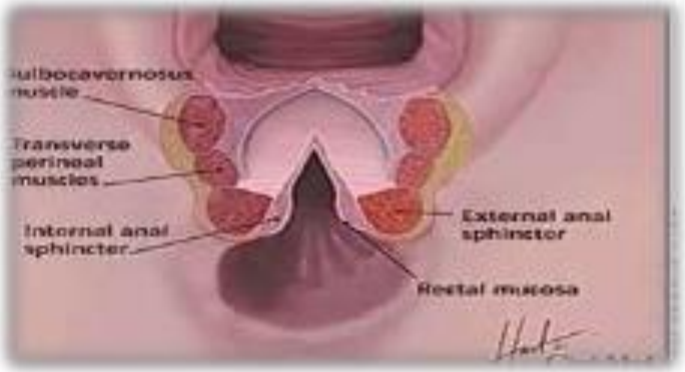
- Opportunity given to the mother to see the baby prior to transfer to the nursery.

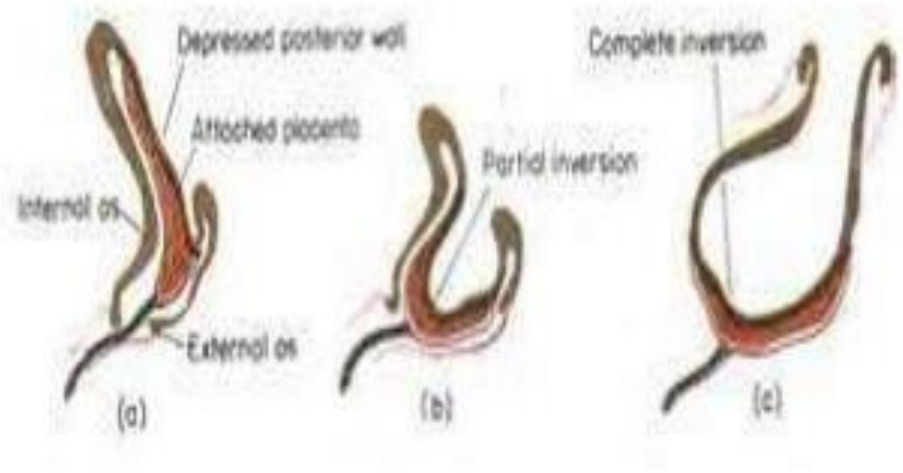
PRECIPITATE LABOR

- A labor is called precipitate when the combined duration of the first and second stage is less than two hours.
- It is common in multipara.
- Rapid expulsion is due to the combined effect of hyperactive uterine contraction associated with diminished soft tissue resistance.

MATERNAL RISK

- Extensive laceration of the cervix, vagina and perineum.
- PPH
- Inversion of uterus
- infection





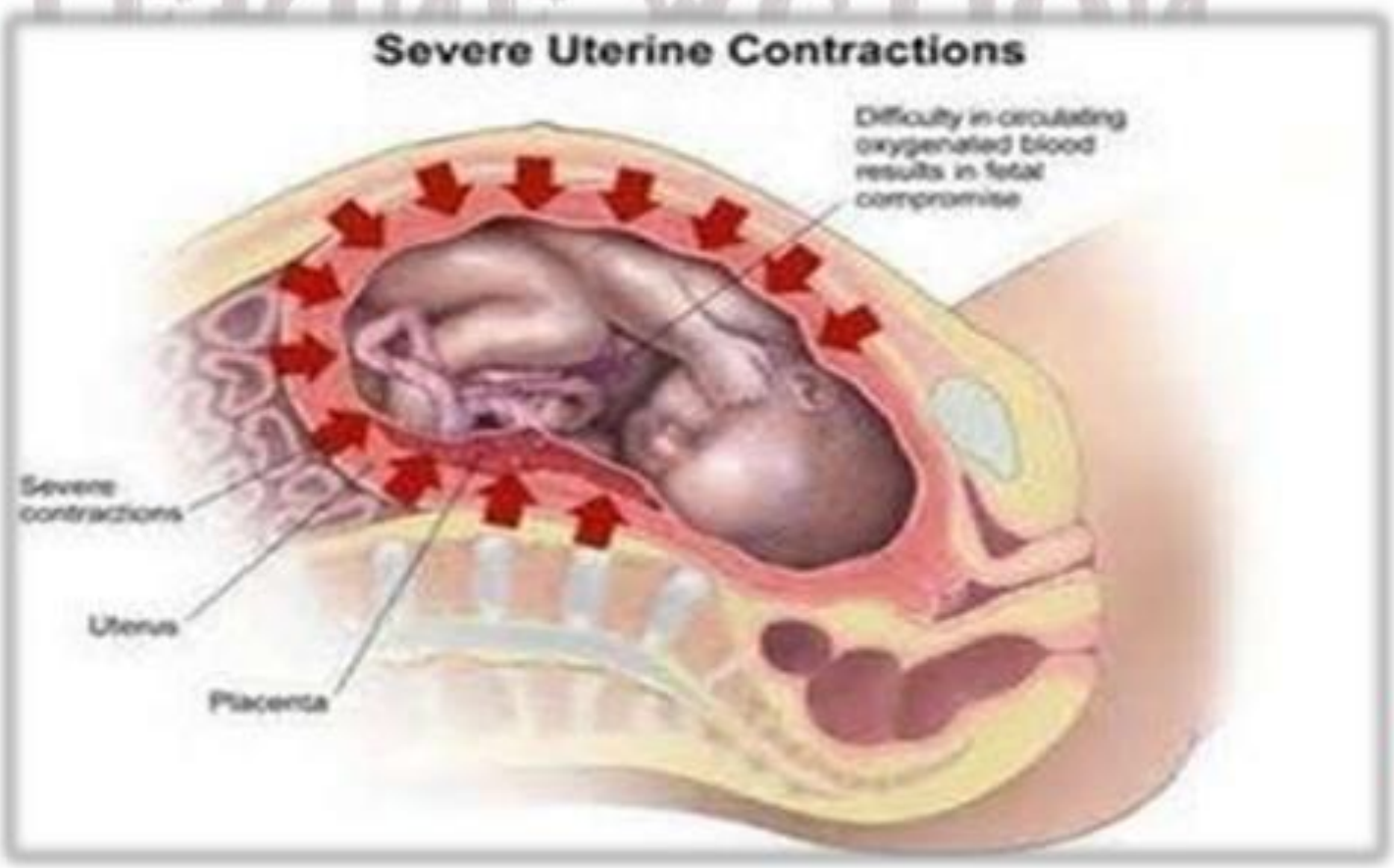
FETAL RISK

- Intracranial stress and hemorrhage because of rapid expulsion without time of moulding of head.
- The baby may sustain serious injuries of delivery occurs in standing position due to bleeding from the torn cord and direct hit on the skull.

Management of precipitate labor

- Woman with previous history of precipitate labor should be hospitalized prior to labor
- Uterine contraction may be suppressed by administering ether during contraction
- Delivery of the head should be controlled.
- Episiotomy to protect the perineum
- Elective induction of labor by low rupture of membranes and careful conduction of controlled delivery may be done.

DISORDER OF UTERINE ACTION

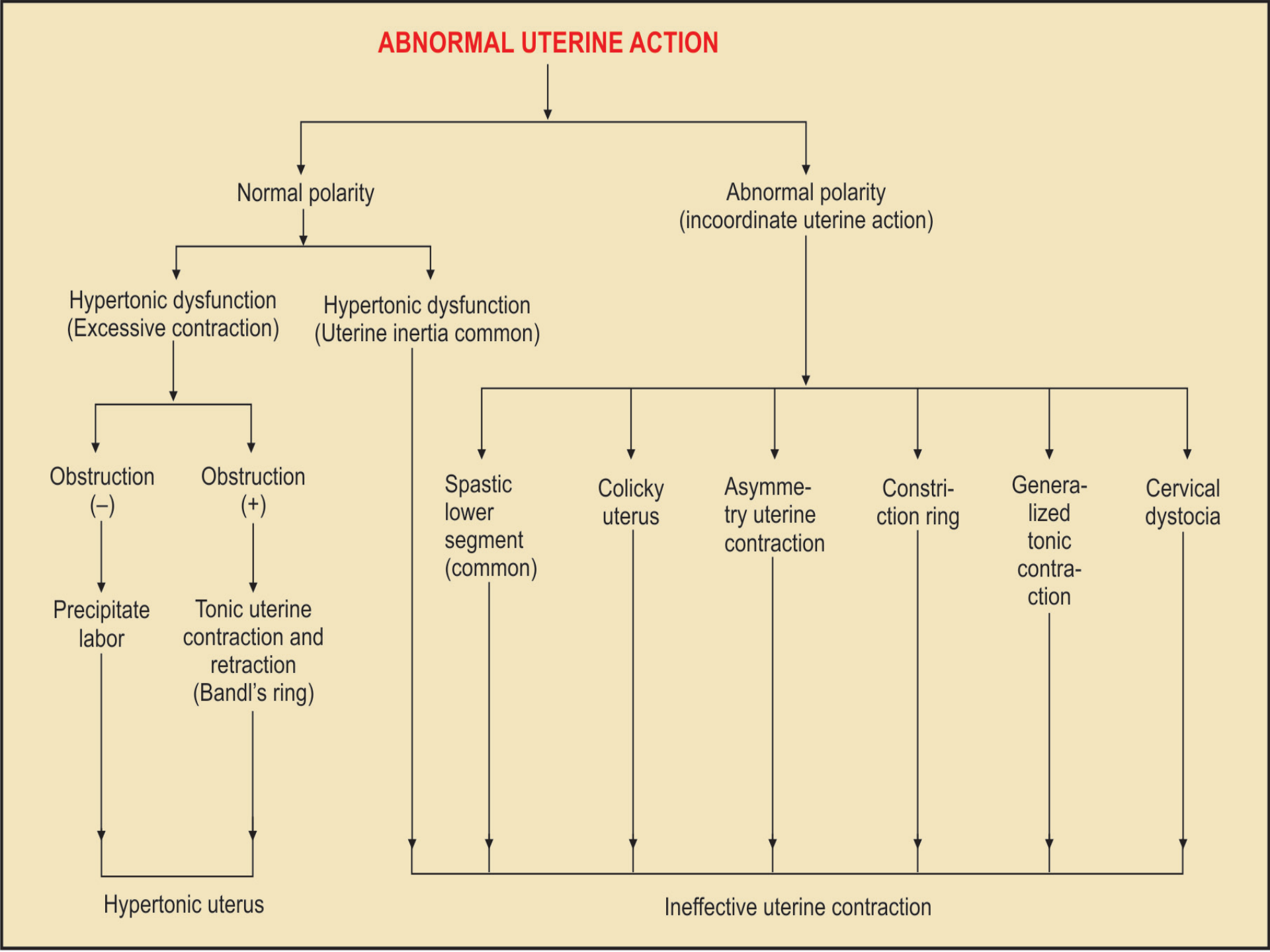


DEFINITION

- Any deviation of the normal pattern of uterine contraction affecting the course of labor is designated as disorder or abnormal uterine action

ETIOLOGY:-

- Prevalent in first birth specially with elderly woman
- Prolonged pregnancy.
- Over distension of the uterus.
- Emotional factors (anxiety, stress)
- Constitutional factor (obesity).
- Contracted pelvis and malpresentation.
- Injudicious administration of the sedatives, analgesics and oxytocin.
- Premature attempt at vaginal delivery.


ABNORMAL UTERINE ACTION
Normal polarity
Abnormal polarity
(incoordinate uterine action)
Hypertonic dysfunction
(Excessive contraction)
Hypertonic dysfunction
(Uterine inertia common)
Obstruction
(–)
Obstruction
(+)
Precipitate
labor
Tonic uterine
contraction and
retraction
(Bandl's ring)
Hypertonic uterus
Spastic
lower
segment
(common)
Colicky
uterus
Asymme-
try uterine
contraction
Constri-
ction ring
Genera-
lized
tonic
contra-
ction
Cervical
dystocia
Ineffective uterine contraction

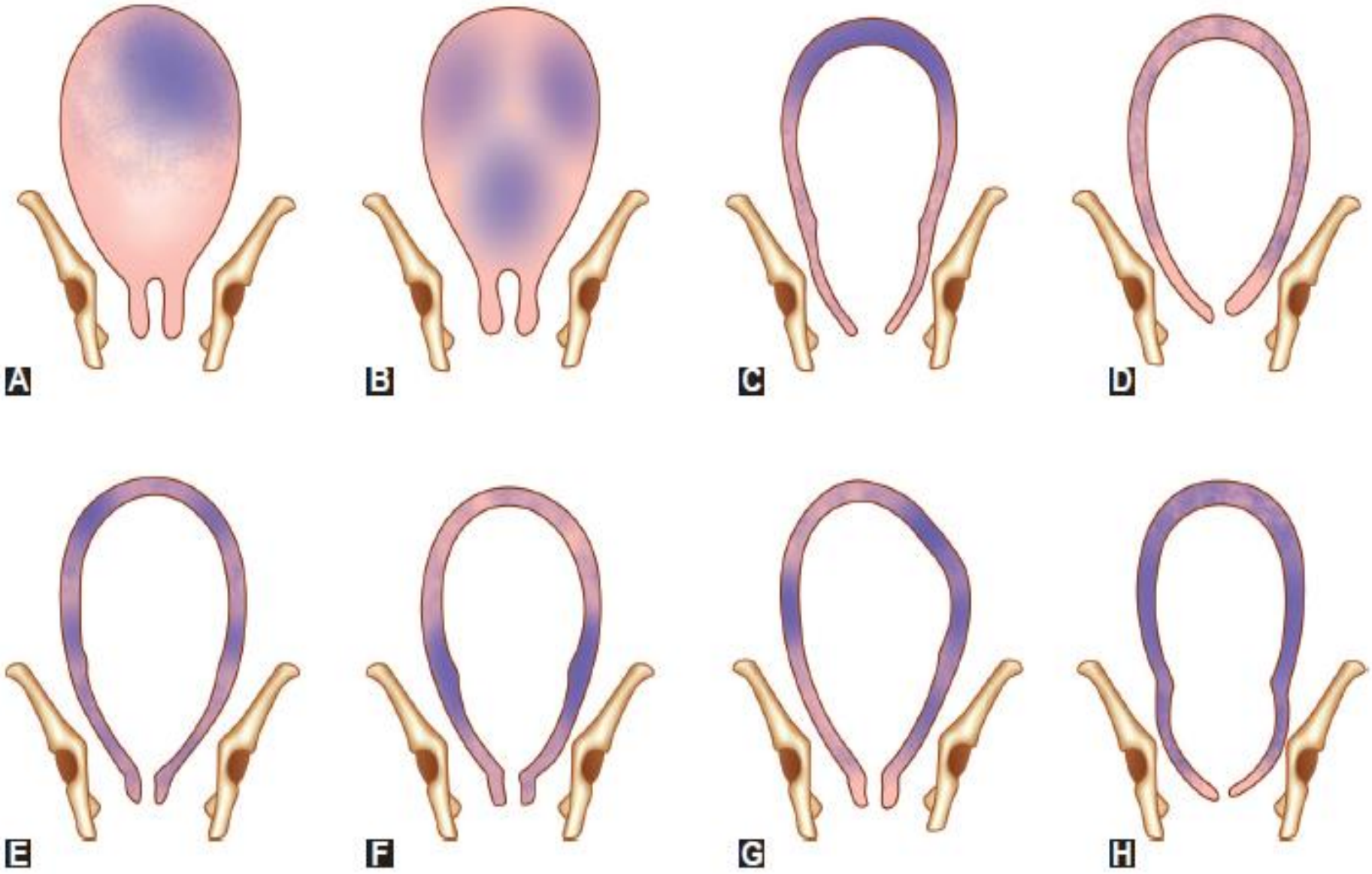
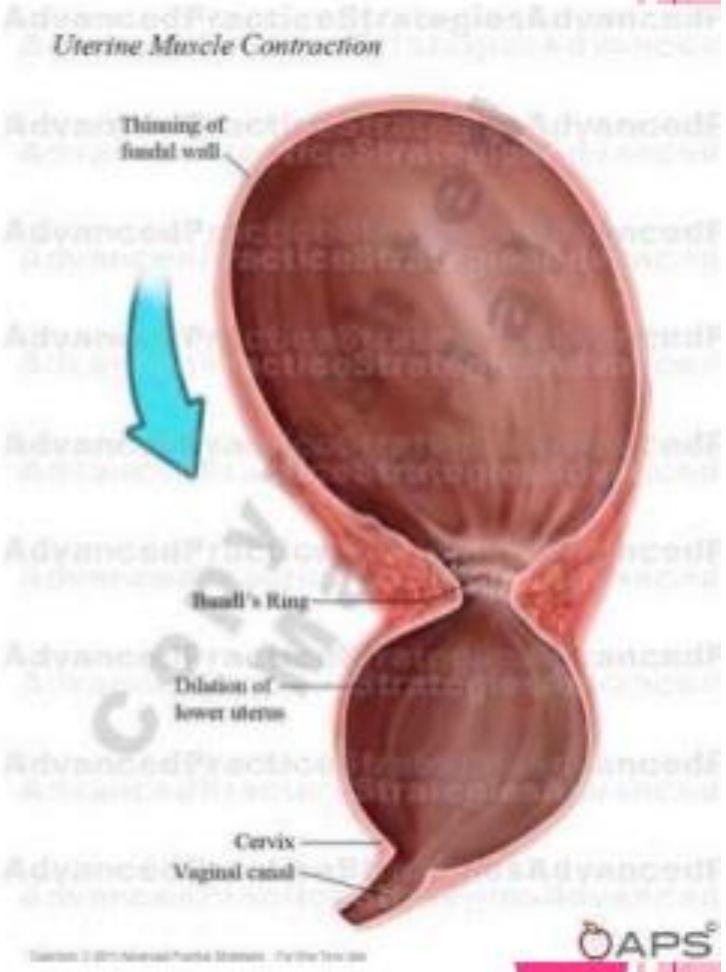


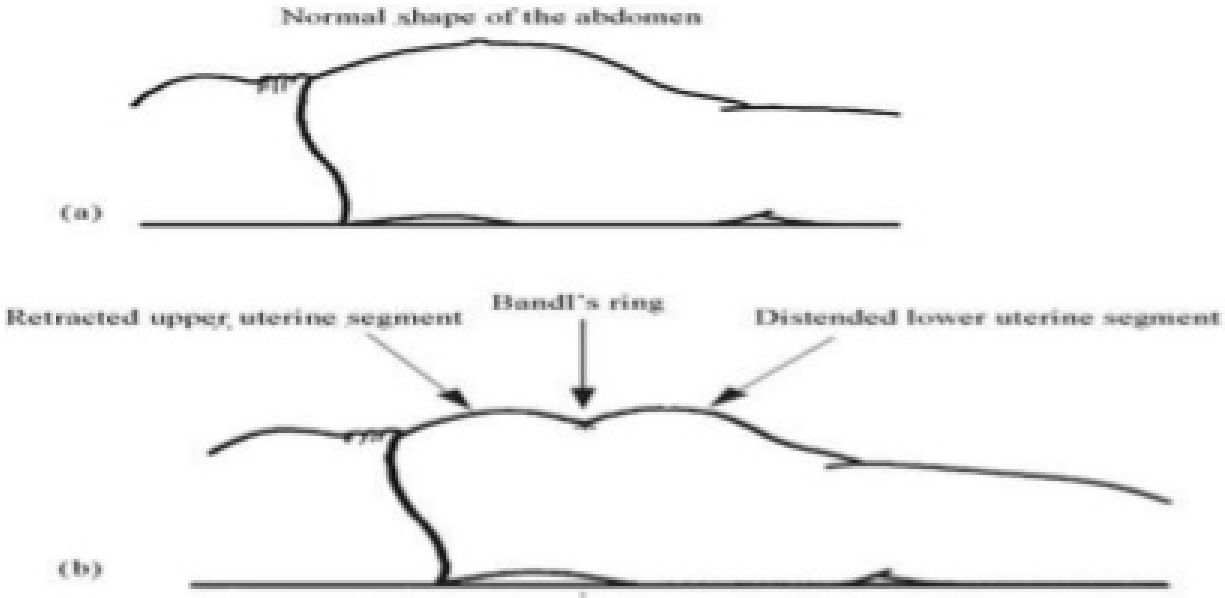
Fig. 24.1 : Normal and abnormal patterns of uterine contractions (dark shade indicating strong contraction) — (A) Normal uterine contractions with single dominant pacemaker focus; (B) Uterus with three separate pacemakers firing sequentially; (C) Normal uterine contraction; (D) Uterine inertia; (E) Colicky uterus; (F) Spastic lower segment; (G) Asymmetrical contraction; (H) Cervical dystocia.

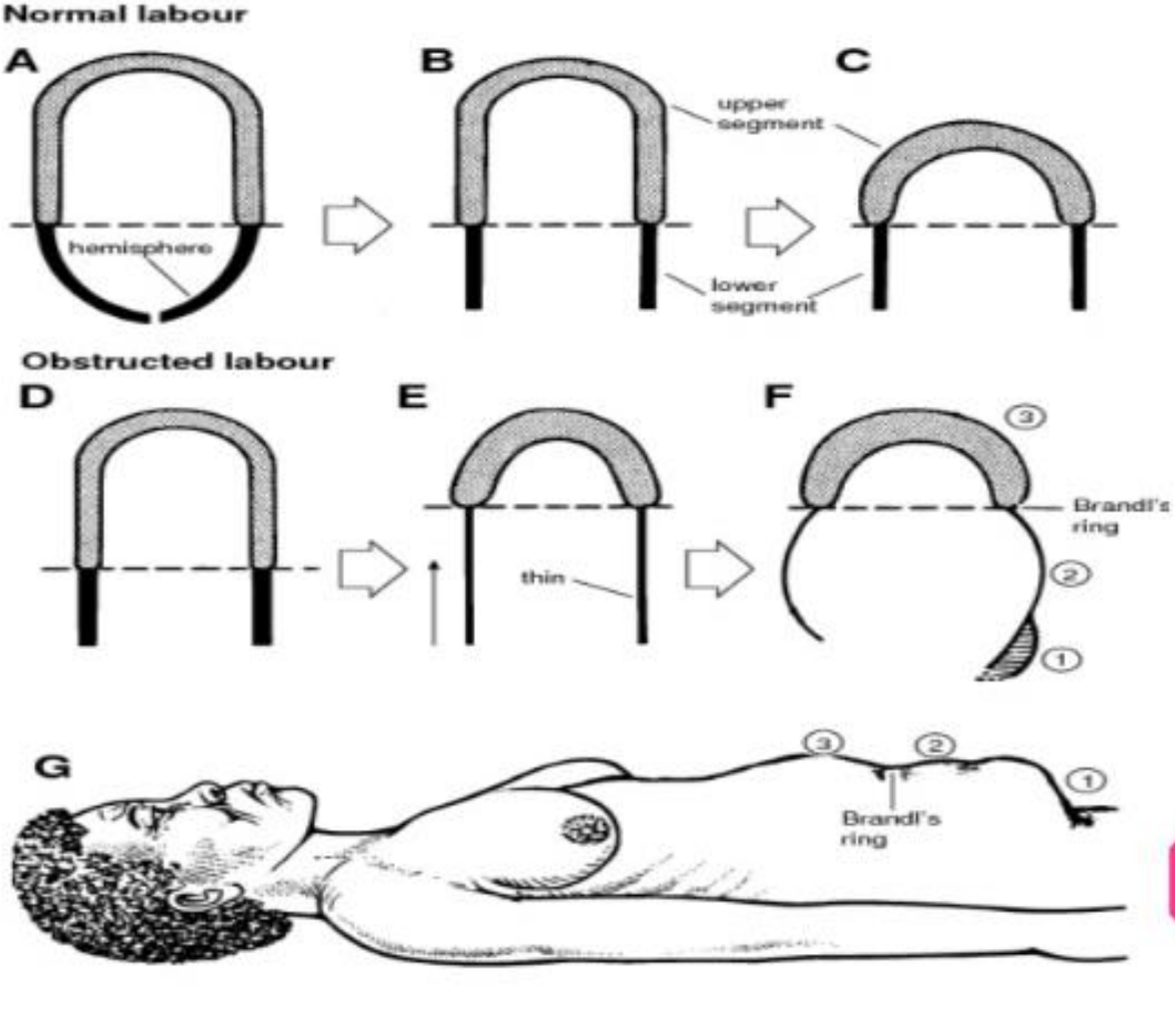
TONIC UTERINE CONTRACTION AND RETRACTION RING.

- There is gradual increase in intensity, duration and frequency of uterine contraction.
- The relaxation phase becomes less and less
- Ultimately a state of tonic contraction results or develop. Retraction however continue



- The lower segment elongates and become progressively thinner to accommodate the fetus driven from the upper segment.
- A circular groove encircling the uterus is formed between the active upper segment and the distended lower segment called pathological retraction ring.
- Due to pronounced retraction, there is marked reduction of blood flow to the placenta leading to fetal death.




Normal labour
A
B
C
upper segment
hemisphere
lower segment
Obstructed labour
D
E
F
thin
Brandl's ring
3
2
1
G
3
2
1
Brandl's ring

COMPLICATIONS:-

- **In primigravida:-**

  a state of uterine exhaustion comes.

- **In multigravida:-**

  retraction continues with progressive circumferential dilation and thinning of the lower segment, there is progressively rise of the bandl's ring, moving nearer and nearer to the umbilicus and ultimately the lower segment ruptures.

CLINICAL FEATURES

- Patient become restless due to continues pain and discomfort.
- Features of exhaustion and ketoacidosis are evident.
- Abdominal palpation reveals:-
  - ***Upper segment is hard and tender***
  - ***Lower segment is distended and tender.***

MANAGEMENT:-

- **Prevention:-**

  It is preventable condition. The abnormality is either in passage (bony and soft tissue) or in the passenger (malpresentation or malformation) can be detected during antenatal or early intranatal period and appropriate treatment solves the problem.

  - Partographic management of labor
  - Delivery by caesarean section

MANAGEMENT

- **Adequate pain relief:-**

  morphin 15mg intramuscularly

- **Parentral antibiotic:-**

  ceftrixone 1gm

- **Correction of dehydration and ketoacidosis**

- **Caesarean section is done**

UTERINE INERTIA

- It is a common type of disorder of uterine contraction but less serious.

Features of contraction:-

- ✓ The intensity is diminished
- ✓ Duration is shortened
- ✓ Good relaxation in between contraction
- ✓ The interval are increased.

DIAGNOSIS

- Patient feels less pain during contraction
- Hand place over the uterus during uterine contraction reveals less hardening of the uterus.
- Uterine wall is easily idendentable.
- Uterus become relax after the contraction; fetal part are well palpable and fetal heart rate remains normal.
- Internal examination reveals:

  a. poor dilatation of the cervix.

  b. associated presence of contracted pelvis, malposition, deflexed head or mal presentation may be evident.

  c. membrane usually remains intact.

MANAGEMENT:-

- Case is reassessed to exclude CPD or malpresentation.
- **Ceasarean section :-**
  - Presence of contracted pelvis
  - Malpresentation
  - Evidence of fetal oe maternal distress.

Vaginal delivery:-

A) General measures:-

i) to keep up the morale of the patient. Maternal stress and emotion appear to inhibit uterine contraction through endogenous adrenaline.

ii) posture of the woman should be changed.

iii) empty the bladder.

iv) maintain hydration

v) adequate pain relief

B) Active measure:-

- acceleration of the uterine contraction by low rupture of membrane followed by oxytocin drip.
- the drip rate is gradually increased.
- the drip should be continued till one hour after delivery.

INCOORDINATED UTERINE ACTION

- Incoordination of the uterine contraction arises from any of the condition such as:-

- ***Spastic lower uterine segment***
- ***Colicky uterus***
- ***Asymmetrical uterine action***
- ***Generalised tonic contraction***

SPASTIC LOWER SEGMENT

- Fundal dominance is lacking and often there is revered polarity.
- Pacemaker do not work in rhythm
- Lower segment contraction are stronger.
- Inadequate relaxation in between contraction

MANAGEMENT:-

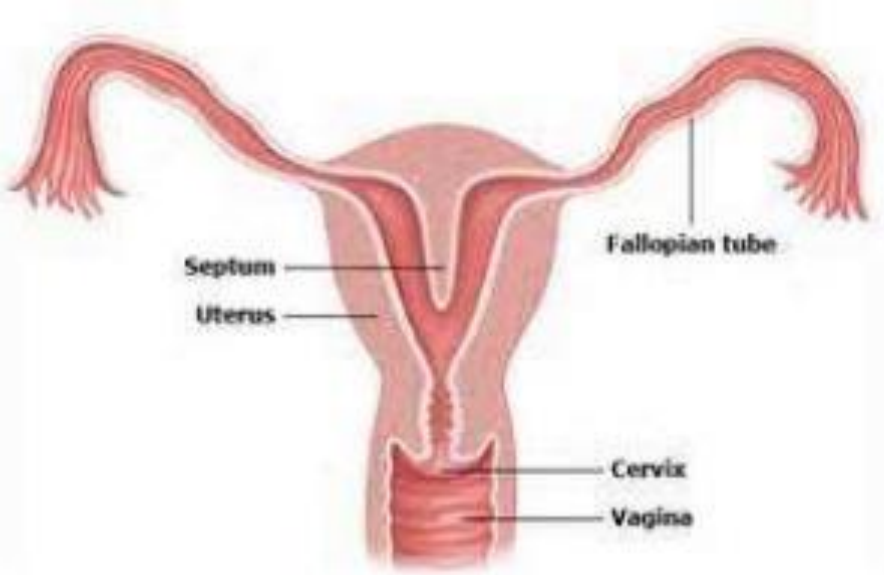
- No oxytocin augmentation.
- Caesarean section is done in majority of cases.
- Correction of dehydration and ketoacidosis.

COLICKY UTERUS

- Lack of polarity and uterus contracts strongly.
- Contraction are very painful and felt at hypogastrium.
- Uterus has high resting tone and irritable and tender.
- The cervix usually remains thick and remains unaffected and poorly applied to the presenting part.

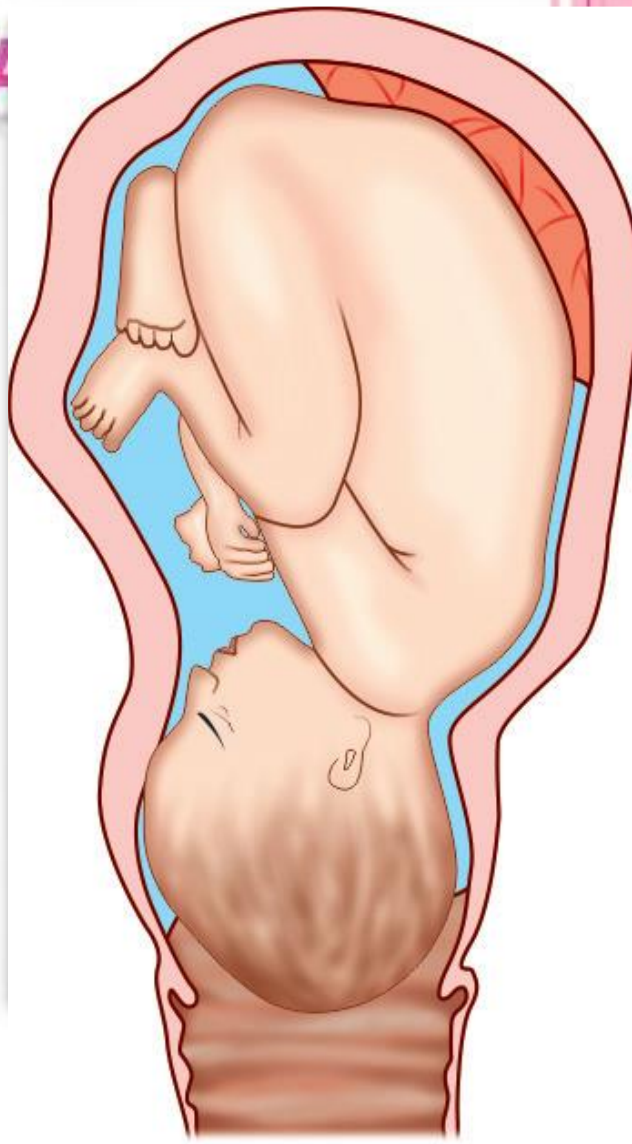
ASYMMETRICAL UTERINE ACTION

- It is commonly seen in septate uterus.
- In which two halves act out of step with each other may result in production of pain and contraction mainly on one side.
- This rarely diagnosed.



GENERALIZED TONIC CONTRA

- It involves whole of the uterus upto the level of internal os.
- There is no physiological differentiation of the active upper segment and the passive lower segment of the uterus.
- The uterine contraction cease after a period and the whole uterus under goes a short of tonic muscular spasm holding fetus inside.



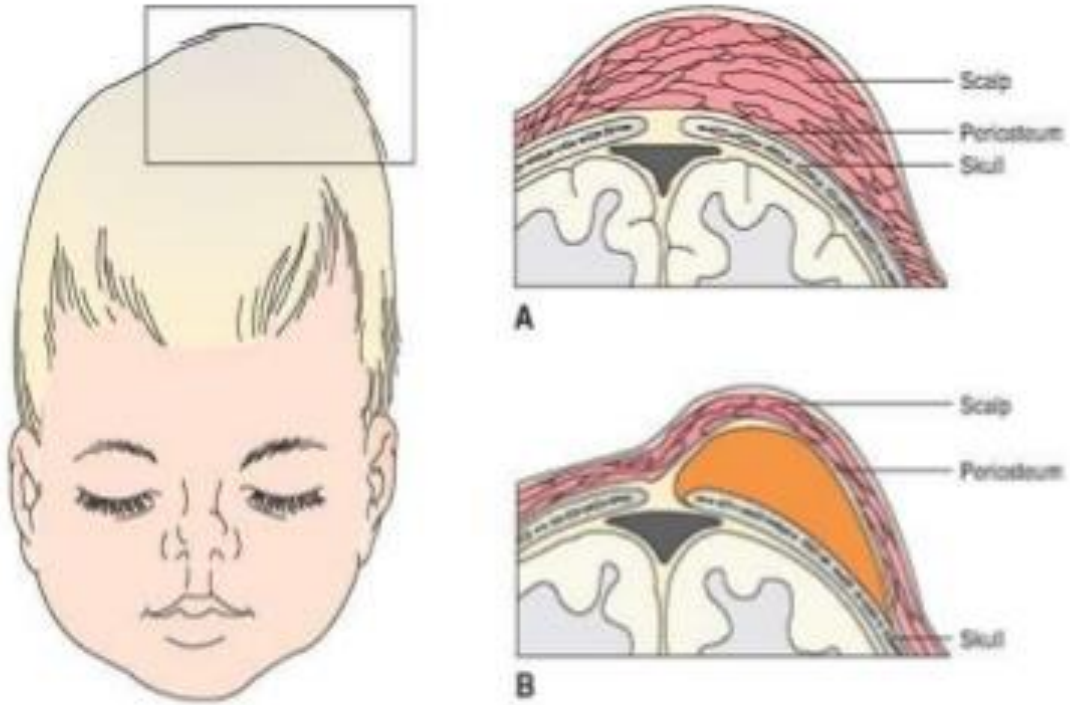
CAUSES

- Failure to over come the obstruction by power full contraction of the uterus.
- Repeated unsuccessful attempts at artificial delivery.
- Injudicious intra muscular administration of oxytocin.

CLINICAL MANIFESTATION

- Prolonged labor with sever and continuous pain.
- Evidence of dehydration and ketoacidosis.
- On abdominal examination
  - Uterus is somewhat smaller in size
  - Tense and tender
  - Fetal part are not well defined
  - Fetal heart sound is not audible on auscultation

- On vaginal examination
  - Jammed head with a big caput
  - Dry and edematous vagina



MANAGEMENT

- Correction of dehydration and ketoacidosis
- Administration of antibiotics
- Adequate pain relief or deep sedation by intramuscular morphine 15 mg or pethidin drip
- In case of hyper contractility induced by oxytocics can be managed by tocolytic, and oxytocin infusion should be stopped
- Caesarean delivery is done when obstruction is suspected

CERVICAL DYSTOCIA

- Causes of cervical dystocia:-
  - inefficient uterine contraction
  - Malpresentation, malposition

TYPES OF CERVICAL DYSTOCIA

PRIMARY

SECONDARY

1. PRIMARY CERVICAL DYSTOCIA

- Commonly observed during the first birth where the external os fails to dilate.
- Rigid cervix
- Inefficient uterine contraction.

TREATMENT

- In presence of associated complication (malpresentation, malposition) caesarean section is preferred.
- If the head is sufficiently low down with only thin rim of cervix left behind, the rim may be pushed up manually during contraction or traction is given by ventouse.
- In other, where the cervix is very much thinned out but only half dilated. Incision at 2 and 10' o clock positions followed by forceps or ventouse extraction is quite soft and effective.

2. SECONDARY CERVICAL DYSTOCIA

- This type of cervical dystocia results usually due to excess scarring or rigidity or disease.

such as:-

i. Post delivery

ii. Post operative scarring

iii. Cervical cancer

SUMMARY & CONCLUSION

QUESTION


thank
you.