ABNORMAL MIDWIFERY

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OBSTETRICAL EMERGENCIES

POST PARTUM HEAMORRHAGE (PPH)

Def: It's the bleeding after delivery of the baby amounting to 500 mls or more per vaginally or 1 litre through ceaserian section or ay amount affecting the mother's condition.

TYPES OF PPH;

There are two types of PPH;

1. Primary PPH
2. Secondary PPH

PRIMARY PPH

Def: It's the bleeding after delivery of the baby amounting to 500 mls or more vaginal or 1 litre through ceaserian section or ay amount affecting the mother's condition occurring within 24 hours after birth

Causes of PPH

There are four causes: (4Ts)

1. T- Tone (Atonic uterus) – **most common**
2. T-Trauma (e.g. tear, ruptured uterus)
3. T-Tissue(Retained products of conception)
4. T-Thrombin (thrombocytopenia- clotting disorders)

1. Atonic uterus

Def: This is a situation where the uterus fails to contract after delivery of the baby.

NB/ The commonest cause of primary PPH

Predisposing factors to Atonic uterus

a. Multiple pregnancy

This is as a result of over distension of the uterus

b. Polyhydromnous

This is a condition where is excessive amniotic fluid in the uterus either or equal to 1500ml. this contributes to over distension of uterus leading to atonic uterus

c. Big baby

This causes over distension of the uterus leading to uterus Atomy.

d. Prolonged labour

It exposes uterine muscles to fatigue reducing the ability to contract after the delivery of the baby causing uterine atony

e. Fibroids

It reduces the ability of the uterus to contract (being an abnormal growth/mass in the uterus) after the delivery of the baby

f. Full bladder

A full bladder competes for space with the contracting uterus which prevents the uterus from contracting fully thus causing atonic uterus.

g. Previous caesarean section CCS

The previous as scar usually heals with a formation of a fibrous tissues; the fibrosis reduces the ability of the uterus to contract leading to uterus atony.

h. Multiply parity

Every time you conceive the placenta site changes for convenience.

Every previous placental site heals with fibrosis. The more placental site the more the myometrium is replaced with fibrous tissue and this result to uterine atony after the delivery of the baby

i. Placenta previa

This is a placenta on the lower uterine segment; the ability of the uterus to contract and close the placental site of the uterus segment is low It is as a result of fewer myometrium on the lower uterine segment leading to haemorrhage.

j. Placenta abruption

With placenta abruption there is a formation of rect ro-placental dot. Blood from the dot leaks or its absorbed into the myometrium, resulting into a couvelewr uterus or uterine myometra. This will lead to inability of myometrium to contract resulting to uterine atony.

k. Precipitate labour

This is abnormal short labour characterized by contractions with no retractions, after delivery of the baby the uterus fails to contract due to poor muscle co-ordination during labour to uterine atony.

l. Drugs

Use of drugs that affect the contractility of the uterus e.g. Anesthetic drug, Anticonvulsant e.g. MgSo4

m. Mismanagement of 3rd stage of labour

This includes even the failure or delay to administer syntocinon after the birth of the baby as required.

n. Over massaging of the abdomen.

Massage brings muscle confusion.

o. Over use of oxygen will lead to failure of oxytonic to cause contraction of the uterus.

Once the uterus is exposed to sintocinon several times the effectiveness of the drug goes down. The oxytocin receptors on the uterus fail to work effectively.

p. Retained placenta

This is when retained products of conception e.g. placenta, clots, membranes have not been delivered. This is one of the most common causes of uterine atony.

Diagnosis of an Atonic uterus

a. Excess bleeding after the delivery of the body
b. Uterus feels softly and boggy, distended.

NB

All women with risk factors to atonic uterus should receive prophylactic management to the mother about an atonic uterus.

Management of postpartum hemorrhage with Atonic uterus

1. Shout for help, Dr ABC
2. Reassure the mother.
3. Massage the uterus to expel clots
4. Empty bladder
5. Remove clots if any
6. Give oxytocin if not given or repeat 10ru
7. Fix an iv access preferably with large bone cannula gauge 16-18.
8. Collect blood sample for investigation, GXM, dotting time platelet count Hb

9. Start the mother on syntocinon 20- 40 IU in 1000ml of normal saline and run at a rate of 60drops for the 1st one litre. Then 20 – 40 IU in 1000ml of normal saline to run at 40 drops per minute.
10. Administer misoprostal or cytotec 800mg start rectal for PPM (4table for mouth for induction)
11. administer ergometrine 0.2 mgs intravenously every 15 minutes to a maximum of 1 gram
12. Administer prostaglandin F2 1-2 mg start intramyometrial through abdomen to the endometrium.
13. Perform bi- manual compression of the uterus either internal or external.

- With internal bi- manual compression one head on the fundus and other on cervix
- With external bi- manual compression, one hand is on the abdomen targeting the posterior aspect of the uterus while the other hand is abdomen again targeting the uterus anteriorly. Pressure is applied to compress the uterus.

14. Baloon temponade can be done.
15. Perform an aortic compression
16. A B- lych suture can be applied in theatre.
17. If bleeding is more do total or subtotal hysterectomy

Supportive management

- ✓ Observe the mother closely 15 min for TPR, blood pressure putting more emphases on pulse.
- ✓ Ensure that the mother is warm
- ✓ You can consider transfusion
- ✓ Observe infection prevention procedures.
- ✓ Encourage breastfeeding
- ✓ Administer broad spectrum antibiotic prophylactically.

2. TRAUMA

Def: This is injury to genital tract/reproductive organ following delivery of the baby leading to haemorrhage.

Predisposing factors

1. Perineal tear. (tight and rigid perineum)
2. Big baby
3. Cervical tear
4. Malpresentation e.g. breech

5. Malposition
6. Instrumental vaginal delivery e.g. vacuum delivery
7. Assisted vaginal delivery
8. Massage
9. External and internal cephalic version.
10. Mismanagement of labour (fail to support the perineum)

Classification of perineal tears

A. 1ST Degree – it involves the vaginal mucosa
B. 2nd degree – it involves the vaginal mucosa and muscles
C. 3rd degree – involves vaginal mucosa and muscle and the anal sphincter
D. 4th degree – vaginal mucosa, muscles and anal sphincter and anterior wall of the rectum.

Principles of repair to perineal tear

i. Observe infection prevention technique
ii. Us minimal suture
iii. Achieve haemostasis
iv. Pain management, adequate analgesics
v. Prophylactic; PRN (where technique)
vi. Good exposure/ view of the tear.
vii. Type 3 and 4 repair in theatre

Management of PPH secondary to trauma

1. Shout for help, DR, ABC
2. IV access, fix large bone cannula, 16-18 gauge
3. Investigations; GXM , blood dotting time
4. Keep mother warm
5. Observations, TPR BP.
6. Repair the tear
7. Observe principals of perineal repair.

Health education after repair.

- Observe personal hygiene.
- Clean with warm saline water. remember not hot saline saturated water otherwise it may interfere with healing process.
- Delay sexual intercourse until healing takes place.
- Avoid saline
- Avoid constipation
- Remind the mother that the suture used if absorbable then there will be removal of stitches.

3. Thrombocytopenia'- Clotting disorders

This is bleeding after delivery of the baby due to clothing disorders

Predisposing factors.

i. Intra uterine fetal death (IUFD)
ii. Severe pre-eclampsia (PET)
iii. Amniotic fluid embolism; if amniotic fluid goes to maternal circulation
iv. Antipartum haemorrhage due to placenta abruption
v. Drugs e.g. Heparin for treatment of coagulant disorders
vi. Septicemia secondary to severe haemorrhage
vii. Massive transfusion
viii. Haemophilia

Diagnosis

i. Excessive bleeding
ii. Low platelet count less than 150
iii. Prolonged bedside clotting time above 11 minutes

Management

A. Dr ABC, shout for help
B. Iv access
C. Investigation
D. Observation, temperature, blood pressure, pulse.
E. Keep the mother warm

Specific management

i. Give fresh frozen plasma
ii. Transfuse with most fresh blood
iii. Give intrinsic factors or synthetic fibrinogen 0.8mg stat. Cryoprecipitate boasts the intrinsic factors
iv. Give clotting factors (platelets)

Complications

- anaemia
- Dic
- Sheehan's syndrome
- puerperal sepsis
- maternal death

4. RETAINED PLACENTA

Definition- This is a condition where after the delivery of the baby the placenta fails to be delivered spontaneously within 30 minutes.

Occurs to 0.8- 1.2% of deliveries.

15 re- 20% of maternal death as a result of pph is due to retained placenta.

Causes

- atonic uterus
- placenta separated but trapped in cervix
- abnormal placentation (accrete, incrata, pancreta)

Risk factors

- previous surgery or trauma
- uterine abnormality
- preterm deliveries
- poor skills placenta removal

Management

- explain to the mother
- reassure
- manage uterus
- empty bladder
- Start sintocinon 10 units intramuscularly and 5 units intravenously.
- perform manual removal - skill
- administer antibiotics
- In case placenta cannot be delivered e.g. in placenta pancetta, reduce cord, ligate and retain
- Administer methotrixate to avoid malignancy.
- once out explore uterine cavity and perform placental examination
- Encourage breastfeeding.

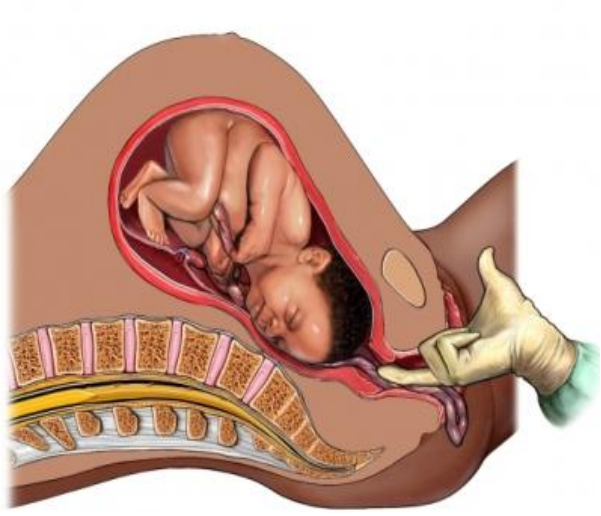
Complications

- Haemorrhage
- Sepsis of
- Risk of cancer
- Maternal death

CORD PROLAPSE

Def: This is a condition where ***the cord*** is lying ***ahead of the presenting part*** and ***membranes are ruptured***

Incidence: **1** in every **300** pregnancies is likely to complicate with cord prolapse.



Cord presentation; this is a condition where the cord is a head of presenting part and membranes are intact

Occult cord presentation; this is when the cord is on the side of the presenting part, neither the head/ buttocks nor the cord is leading.

PREDISPOSING FACTORS

1. **Long cord**

Any cord above 60 cm is considered log cord. It ca always take advantage of its length ad find itself ahead of the presenting part.

2. **Polyhydromnous**

This is presence of excessive amniotic fluid I the uterus. The risk for cord prolapsed is high in case of spontaneous rupture of membranes. The force exerted by the gush of the amniotic fluid sweeps the cord ad brings it ahead of the presenting part..

3. **Premature rapture of membranes**

The head is rarely engaged and the cord can find space and lead the presenting part

4. **A high presenting part**

There is room for cord to present when the mother goes into labour with head still high.

5. **Malpresentation**

This is when there is a abnormal presentation e.g. shoulder presentation, breech e.t.c. abnormal presentations are associated with poor fitting presenting part to the pelvis. That situation creates space for the cord to find its way ahead of the presenting part.

6. **Placenta previa**

The placenta is already on the lower uterine segment so the cord. This gives advantage of the cord to be ahead of the presenting part.

7. **Contracted pelvis**

A contracted pelvis will not favour the presenting part to fit well. It may allow some space for the cord to present.

8. **Multiple pregnancy**

There is more than one fetus in the uterus. The risk for cord prolapse increases from the one fetus to the other as they are being born. In case of twin pregnancy the second twin carries a greater risk.

9. **low birth weight**

A low birth weight <2500 predisposes to cord presentation. this condition is almost similar to prematurity.

DIAGNOSIS

i. Visibility of a cord on vaginal inspection.
ii. Palpation of a cord with ruptured membranes ahead of presenting part.
iii. Suspect with abnormal fetal heart after rapture of membranes
iv. ultra sound

MANAGEMENT

NOTE:

In the management of cord prolapsed with a live fetus we aim at quick delivery of the baby using the quickest method possible. Guidelines suggest that any cord prolapse occurring during first stage of labour the mode of delivery should be ceaserian section. During second stage consider vaginal delivery unless contraindicated.

Factors determining management of cord prolapse;

i. *Whether the cord is pulsating or not*
ii. *Adequacy of the pelvis*
iii. *Stage of labour*
iv. *The level of health facility – Bemonc or Cemonc*

- During the management of cord prolapse, assess if the cord is outside the birth canal clean it with warm normal saline or hibitane and pack with clean gauze back into the birth canal.
- Reassure the mother and the relatives.
- If it occurred at home while undergoing home delivery thank the mother for making the decision to come to the hospital.
- Perform abdominal palpation to confirm the lie is of the fetus. It must be longitudinal. If it is transverse prepare for referral if in a basic obstetrical care facility or ceaserian section if in a comprehensive obstetrical care facility.
- Always relieve pressure of the cord. The fetus may not survive beyond 10 minutes with cord compression.

Methods of relieving pressure off the cord pressure

1. *Knee elbow position*
2. *Raise the foot of the bed – reverse tendelsburg position.*
3. *Counter pressure*
4. *Exaggerated sims position*
5. *Fill the bladder with N/S*
6. *Tocolytics; give mg5Os, 4gm IV of 20% or sulbutamol.*

MANAGEMENT IN A BASIC EMERGENCY MATERNAL AND NEWBORN CARE (BEMoNC) FACILITY.

During first stage of labour

- It is an obstetric emergency. Do not start any partograph as per the guidelines.
- If the **cord is pulsating** and **pelvis is adequate** refer the mother to a comprehensive obstetrical care facility. This is according to the guidelines.
- If the **cord is pulsating** and **pelvis is not adequate** refer the mother to a comprehensive obstetrical care facility. Inform the mother and relatives about the delivery option which is caesarian section.

As you are referring the woman since the fetus is alive do the following:

- Establish intra venous access.
- Take blood samples
- Start the woman on intravenous fluids preferable normal saline.
- Put her on oxygen by mask
- Prevent any pressure to the cord by presenting part by taking the following measures;
- Position the mother in the either of the following positions as explained earlier to relieve pressure off the cord;
  1. **Reverse tendelberge position**
  2. **Exaggerated sim,s position**
  3. **Knee chest position**

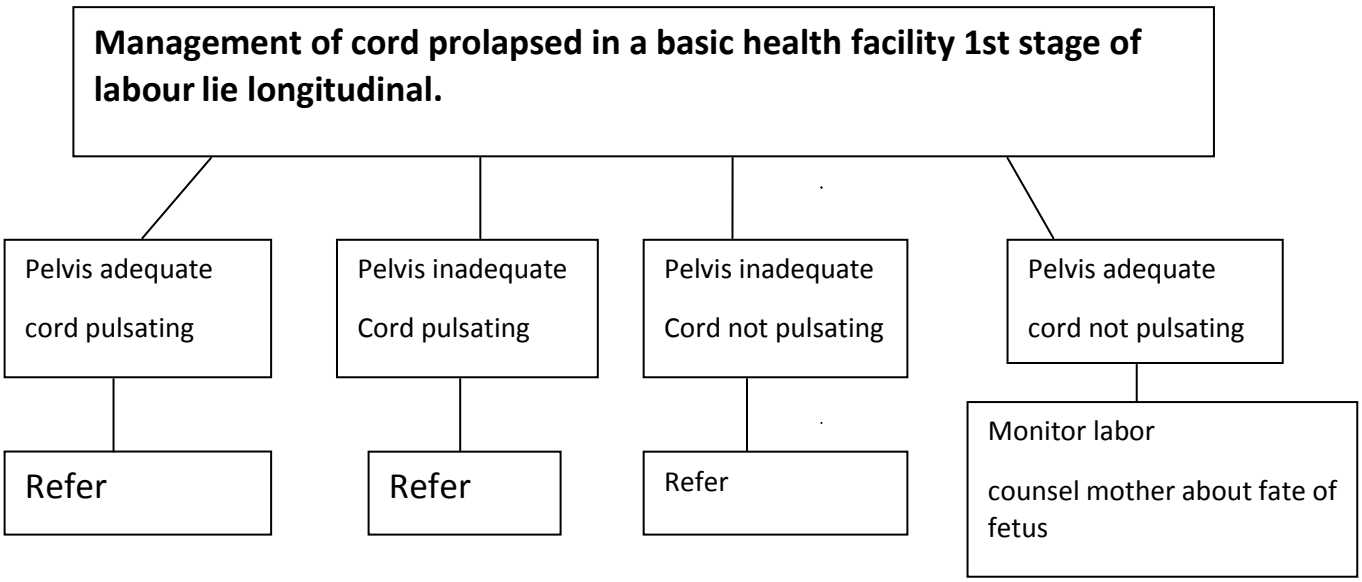
OR use the manourvers to relieve pain

1. **Fill bladder with normal saline approximately 500mls- 1000mls.**
2. **Apply counter pressure with your examination fingers in the vagina during every contraction.**
3. **Administer tocolytics magnesium sulphate or salbutamol**

Note: The cause for occlusion of cord vessels is either **physical compression** OR **low temperatures**.

- In case she approaches second stage allow her to push if the fetus is in longitudinal lie.
- Expect to receive an asphyxiated baby.

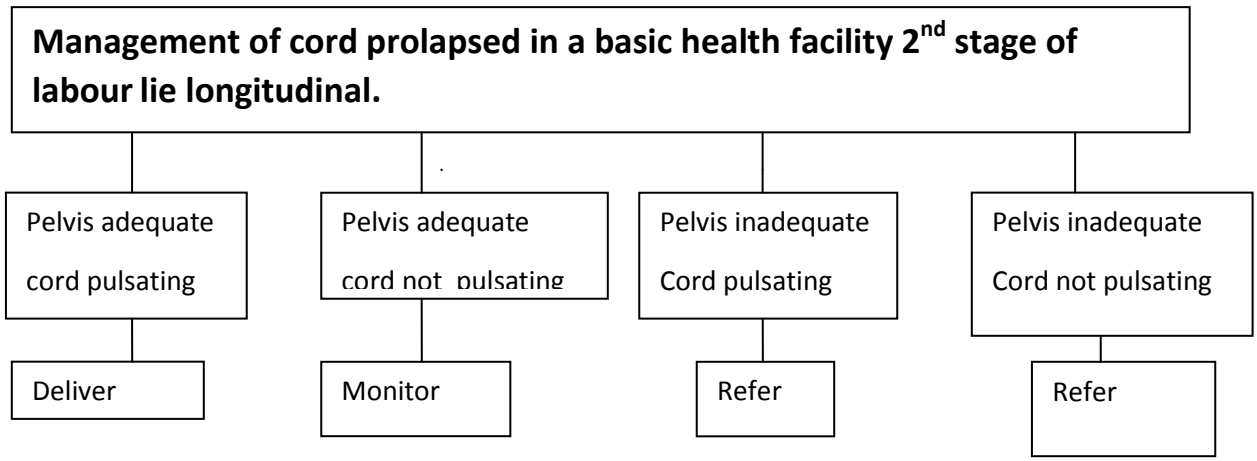
- If cord is **not pulsating**, **pelvis is adequate** and fetus in longitudinal lie, allow the mother to bear down. Counsel her to expect a dead fetus.
- If cord is **not pulsating** ad pelvis is **not adequate** refer the mother to a comprehensive care facility for further management to include destructive operation/ embryotomy.
- In case the fetus is dead and the mother has very strong uterine contractions with an inadequate pelvis you can administer **tocolytics** e.g. **magnesium sulphate 4gms of 20%** intravenously start dose as you refer.
- Always remember to carry with you a delivery pack during referral.
- Inform the referral hospital about the condition of the mother.



Management during second stage of labour in a BEMoNC.

- If the lie longitudinal, **fetal heart present, pelvis is adequate** and in **second stage of labour,** plan for a quick delivery and give an episiotomy. Assisted vaginal delivery (AVD) can be applied to fasten 2nd stage.. Prepare for resuscitation
- If fetal heart is present, pelvis is inadequate and lie is longitudinal refer the mother to a comprehensive care facility. Give normal saline or ringers lactate. Put the mother on oxygen.
- Carry with you a delivery and resuscitation pack.
- Monitor fetal heart rate ¼ hourly and inform the comprehensive facility to prepare for an obstetrical emergency.

- If the **pelvis is inadequate**, cord is **not pulsating,** inform the mother about the condition. Refer her to a comprehensive care facility for embyotomy or decapitation.



MANAGEMENT IN A COMPREHENSIVE OBSTETRIC AND NEWBORN CARE (CEMONC) HEALTH FACILITY

During first stage of labour

- If cord is **pulsating, pelvis is adequate** and lie is longitudinal position the mother to relieve pressure off the cord and prepare for emergency ceaserian section. Give intravenous fluids, oxygen via mask, investigations can be done and monitor fetal heart rate vigilantly.
- In case the cord is **not pulsating, pelvis is adequate** and lie longitudinal counsel her and let her undergo normal labour aimed at vaginal delivery unless there is a contraindication.
- In case the cord is **not pulsating, pelvis is inadequate and lie** longitudinal or not counsel her and let her undergo embyotomy.

During second stage of labour

- If **cord is pulsating** and **pelvis is adequate** give a generous episiotomy and urge the mother to push. Assisted vaginal delivery (AVD) can be applied to hasten second stage of labour.
  Prepare for resuscitation as you anticipate receiving an asphyxiated baby.
- If **cord is pulsating** and **pelvis is inadequate** prepare for emergency c/s. meanwhile administer oxygen via mask, relieve pressure off the cord and rehydrate the mother.
- If **cord not pulsating** and **pelvis is adequate** prepare the mother to accept a dead and deliver baby by spontaneous vaginal delivery unless contraindicated.

- If **cord not pulsating** and **pelvis is inadequate** prepare the mother to accept a dead and deliver baby by embryotomy/ decapitation.

A lecturer demonstrates a skill to students at MTC Msambweni,s skills labour

NB: It is approximated that 10 minutes is a long time for the baby to stand cord compression without much complications.

Prognosis of cord presentation is good in ***breech*** presentation as compared to **cephalic**.

COMPLICATIONS

Complications of cord prolapse

- Fetal distress
- Maternal distress
- Fetal death
- Maternal mortality
- Fetal hypoxia
- Asphyxia neonatorum
- Brain damage
- Still birth

UTERINE INVERSION

Definition

This is when the uterus turns inner side out i.e. inner side of the fundus into the vaginal canal.

Incidence 1/:1200

Predisposing factors

- Mismanagement of 3rd stage of labour
- Excessive fundal pressure
- Short cord
- Precipitate labour
- Polyhydrominous
- Prolonged labour
- Fundal myoma
- Ante partum use of magnesium sulphate
- Primiparity
- Fundal placentation
- Abnormal placentation
- History of uterine inversion.

Classification

It is according to **time of onset** and **severity.**

Classification according to time of onset

1. Acute inversion
2. Sub- acute inversion
3. Chronic inversion

1. Acute inversion

- Occurs after birth and before the cervical ring closes
- Usually within 24 hours after delivery.

2. Sub acute inversion

- Occurs after cervical ring has closed
- Occurs after 24 hours after birth of the baby to 4 weeks

3. Chronic inversion

- Occurs after 4 weeks after delivery.
- It is associated with disease e.g. CA.

Classification according to severity

1. **Incomplete/ 1st degree**

Uterine inverts but lies in the uterine cavity.

2. **Complete uterine inversion/ 2nd degree**

Fundus of the uterus goes beyond the external OS of the cervix. It is in the vaginal canal but not beyond the hymen. It's palpable on vaginal examination.

3. **Prolapsed uterine inversion/ 3rd degree**

Inverted uterus goes beyond the vaginal introits.

4. **Total uterine inversion/ 4th degree**

Involves vaginal walls and the uterus both seen at the vulva. Associated with CA cervix and Peurperial sepsis.

Diagnosis

a) Visible in case of uterine prolapse.
b) Palpated inverted uterus
c) Haemorrhage
d) Felt in the vagina in case of complete inversion
e) Severe hypotension with other signs of shock
f) Fundus missing on abdominal palpation
g) Ultra sound can be done

3.5 Management.

The principles of management of uterine inversion are;

- Treatment of shock/ stabilizing the mother from hemorrhage.
- Replacement of the uterus

- This is an obstetric emergency.
- Call for help
- Reassure the mother
- Fix two large bore cannulars
- Resuscitate with intravenous fluids
- Administer oxygen
- Take blood for GXM and order for fresh blood

- Elevate the foot of the bed
- Sedate the mother with pethidine.
- Take vital signs ¼ hourly
- Clean the uterus with hibitane or warm normal saline and pack with gauze.
- Discontinue uterotonic therapy.
- If the uterus is inverted and contracted at the same time making replacement difficult halothane can be administered.
- Replace the uterus immediately manual (**Johnsons manouvre**) or inflate with normal saline (**hydrostatic manouvre**)
- Administer syntocinon immediately after correction has been done.
- The mother should be started on broad spectrum antibiotics
- If the maneuvers were unsuccessful consider surgical interventions to include laparatomy and OR hysterectomy.
- In case the uterus is replaced and the woman is still bleeding manage as PPH.
- A pap smear can be taken to rule out cancer
- Subsequent pregnancies are also at risk so let the woman attend clinic early and give history of uterine inversion.

Complications

1. Primary post partum haemorrhage
2. Infection
3. Anaemia
4. Shock
5. Gangrene formation
6. Paralytic illeus
7. Infertility

RUPTURED UTERUS

Definition:

This is a tear in the wall of the uterus.

It is one of the serious obstetrical emergency though can be prevented.

Types

- Complete rapture
- Incomplete rapture
- Dehiscence

I. Complete rupture

This is when the tear involves all the three layers of the uterus i.e. endometrium, myometrium, and perimetrium and sometimes plus peritoneum.

II. Incomplete rupture

This is the tear which involves endometrium and myometrium.

III. Dehiscence

This is when there is a tear involving the endometrium. In most cases this may go undiagnosed.

Predisposing factors

1. Polyhydrominous
2. Multiple pregnancy
3. Pregnancy occurring within 6 months after a CS (fresh scar)
4. Obstetric manipulation e.g. external cephalic version
5. Previous classical scar in labour
6. Malpresentation
7. Ignored labour.

4.4 Causes of ruptured uterus

1. Obstructed labour – shirodikar stitch in labour, cervical dystocia
1.2 Excessive use of oxytocin, especially in previous scar
2. Intra-uterine manipulation
3. Forceps deliveries and vacuum extraction
4. Multiparity
5. Trauma e.g. in accidents
6. Perforation of pregnant uterus leading to rapture during subsequent pregnancy

4.5 Signs and symptoms.

The signs are categorized in to two i.e. early and late signs and signs indicting rupture has occurred.

4.5.1 Early signs

- Scar pain and tenderness in previous scar mother
- Fresh per vaginal bleeding
- Cervix does not open despite effective contractions
- Increased pulse rate
- Previous strong contractions cease abruptly
- Presenting part is high despite strong contractions
- Early rapture of membranes
- Cervix appears like an “empty sleeve”
- Fetal heart deceleration

4.5.2 Late signs

- Dehydration
- Ketosis (excessive metabolism of protein)
- Severe pain
- Poor urinary output and could be blood stained
- Uterus is moulded around the fetus
- Formation of a bundles ring
- Contraction which do not relax in between contraction
- Vagina hot and dry
- Presenting part is high, wedged and immobile
- Excessive moulding
- Capput succedaneum
- Mother is exhausted and appeals for help

4.5.3 Signs indicating rupture

- Feeling of a sharp pain during rupture
- Mother feels something has given way fetal parts palpable in the abdomen
- Sudden collapse
- Contractions cease
- Fetal heart rate disappears.
- Fetal parts easily palpated of the abdomen and outside the uterus.

4.6 Management

- Call for help and resuscitate mother
- Elevate the feet of the mother
- Start on IV infusion of N/S
- Inform theatre and prepare for emergency CS
- Prepare the mother for C/S
- Inform and reassure her and relatives
- Take blood for GXM and at least 2 units ready
- Repair or hysterectomy done depending on the degree of tears
- Counsel her not to conceive before 2 years are over if no hysterectomy was done
- If hysterectomy was done counsel her not to expect another baby or menses.
- ct management of postnatal mother

4.7 COMPLICATIONS

4.7.1 Complications to the mother

1. Peritonitis
2. septicemia
3. urinary tract infection
4. renal failure
5. paralytic illeus
6. Anaemia
7. Amniotic fluid embolism

4.7.2 Complications to the baby

1. Birth asphyxia
2. still birth
3. neonatal death

4.8 Prevention

- encourage women to attend clinic
- discourage the community on use of herbs
- All mothers with risk factors to be referred to hospital
- Monitor labour by use of partograph
- Early recognition of signs of obstruction and rapture of uterus
- Diagnosis of contracted pelvis

5.0 AMNIOTIC FLUID EMBOLISM (AFE)

5.1 Definition.

This is a rare but potential catastrophic condition which occurs when amniotic fluid enters the maternal circulation via the uterus or placental site forming an embolus which obstructs one of the pulmonary arterioles or alveolar capillaries. Be on the lookout, you may lose a woman who was health and with no signs of pending complication.

Remember amniotic fluid is rich in thromboplastin

5.2 Pathophysiology

The body responds in two phases:-

1. Initial phase
2. Secondary phase

Initial phase (pulmonary phase)

There is going to be pulmonary vasospasms causing

a) Hypoxia
b) Hypertension
c) Cardiopulmonary collapse
- 50% of patients die during this phase

Secondary phase (hemorrhagic phase)

This phase will be characterized by:

a) Left ventricular failure
b) Pulmonary oedema
c) Coagulatory disorder which will be followed by massive hemorrhage.

5.3 Predisposing factors

- Placental abruption

- Perforation or ruptured uterus
- Precipitate labour
- Intra-uterine fetal manipulations
- Caesarian section
- Trauma
- Termination of pregnancy
- Manual removal of retained placenta
- Obstetrical procedures e.g. amniotic transfusion, internal podalic version etc.
- Over stimulation of the uterus by use of oxytocic drugs or prostaglandins
- Advanced age
- Associated with male fetus

5.4 Signs and symptoms

- Cardiopulmonary arrest
- Sudden onset of maternal respiratory distress syndrome
- Turtumus laboured breathing
- Maternal hypotension (sudden with loss of diastolic pressure)
- Uterine atony
- Collapse then followed by convulsions (seizures) with cyanosis
- Blood coagulation disorder
- Severe chest pain
- Pulmonary oedema
- Fetal brandycardia

5.5 Management - *Emergency action*

- Any of the above is indicative of an acute emergency as the mother is likely in a state of collapse.
- Shout for help from a senior person.
- Start resuscitation immediately
- Establish intravenous access.
- Rehydrate the mother with normal saline or ringers lactate
- Aim at early delivery of the baby if still inside
- Provide intensive care (nurse in ICU)
- Prop up the mother and administer oxygen
- Take blood for grouping and cross match
- Contact the anesthetist in case of GA and cardiac problem
- Administer aminophyline and hydrocortisone slowly to reduce bronchospasms
- Transfuse with fresh blood slowly and administer fibrinogen

- Specific management of the condition is life support and high level of oxygen is required
- Mothers who survive are likely to suffer a degree of neurological impairment
- In case the baby is born continue with immediate management.
- Apply AMSTL for third stage of labour.

5.6 Complications

5.6.1 to the mother

1. Disseminated intravascular coagulation (DIC)
2. Uterine atony
3. Acute renal failure
4. Hemorrhage
5. Anaemia
6. Maternal death

5.6.2 to the baby

1. Still birth

MATERNAL DISTRESS

6.1 Definition

It is a condition where there is **stress** and **strain** of labour and it has proved to be so much for the mother.

6.2 Mothers at risk

- Starvation
- Excessive pain
- Mother with severe anaemia
- Mother with malposition or malpresentation
- Women with TB
- Women on trial of labour
- Women severe or advanced HIV
- Women with pet/ eclampsia
- Women on induction of labour

- Women with DM

6.3 Signs and symptoms

- General weakness – women looks ill
- Ketone in urine (early sign).
- Restless – does not relax in between contractions
- Beads of sweat on upper lip or face
- All signs of dehydration
- Increased pulse rate, 90-120 b/min
- Increased respiration rate - >24b/minutes
- Vomiting - dark coloured vomitus
- Mother becomes anxious of the bowels with gas
- Elevated temperature 37.5.
- Hypotonic uterine contractions.
- Appeal for help.

6.4 Management during labour

- Call for medical help.
- Reassure the mother and the partner.
- Sedate the mother to provide adequate rest.
- Rehydrate with normal saline.
- Relieve pain if any.
- If in a health centre and the mother in 1st stage of labour refer the mother to the main hospital.
- If in 2nd stage of labour give normal saline or ringer,s lactate, rule out CPD, give a generous episiotomy and deliver the baby
- If in the hospital and the mother is exhausted and in1st stage prepare for c/s
- If in 2nd stage rule out malposition, malpresentation, CPD, abnormal lie and give a generous episiotomy and deliver.
- Assisted vaginal delivery (AVD) can be done to fasten 2nd stage of labour.

Third stage

- Apply AMSTL
- Continue rehydration.
- Check for uterine contraction.
- Observe the mother for pph secondary to inadequate uterine contraction.

6.5 Complications

- Prolonged labour and its associated complications

- Ketoacidiosis
- Fetal distress
- Birth asphyxia

6.6 Prevention

- Identify mothers at risk
- Rehydrate mothers in labour
- Sedate the mother during labour to relieve pain and ensure adequate rest
- Health educate the mother on nutrition during pregnancy during ANC visits.

FETAL COMPROMISE- NRFH

Definition

This is when the fetus suffers from lack of oxygen and becomes hypoxic

Causes

1. Antenatal causes
2. intra partum causes (mother in labour)

1- Antenatal causes

1. Pre-eclampsia
2. Eclampsia
3. Diabetes mellitus
4. Malaria
5. Tb
6. HIV/AIDS
7. Cardiac disease
8. Anemia
9. Ante partum haemorrhage
10. Sickle cell disease
11. Congenital abnormality
12. Oligohydromnious
13. Cord accidents

2- Intrapartum causes

a) Prolonged labour

b) Precipitate labour
c) Obstructed labour
d) abnormal uterine action
e) Big baby
f) Maternal distress
g) Shoulder dystocia
h) Cord accidents
i) Malpresentation
j) Malposition
k) Ante-partum haemorrhage

Diagnosis

The following parameters can be used by the health worker to arrive at a diagnosis of fetal distress.

- Fetal heart rate
- Passage of meconium
- Fetal movement

Fetal heart rate

- Tachycardia – FHR > 160b/min
- Brandycardia FHR <120b/min
- Fetal heart rate deceleration after a contraction followed by a delayed recovery over 20 minutes (late deceleration)
- Irregular fetal heart rate
- Abnormal range/ deviation of fetal heart rate.

Meconium

- Meconium stained liqour in cephalic presentation
  Note – light green meconium is not diagnostic

Fetal movement

- Abnormal fetal movement

MANAGEMENT

- Tell the mother the condition of the baby and possible complications
- Reassure her.

Antenatal

- Increase the frequency of visits
- Book in high risk clinic
- Obstetric scan can be done
- Try to prolong pregnancy
- Manage the predisposing condition effectively e.g. pet
- Put the mother of FKC. In case of reduced feral kicks she should come to the hospital.
- If the cause is a cord accident e.g. a true not in case it is still loose do not allow the mother to go into labour. Delivery will be by elective ceaserian section.
- Let her receive all other routine antenatal care services

During labour

- Change the position of the mother. It may improve circulation and correct fetal condition.
- If the mother was on syntocinon drip stop it until FHR returns normal
- Observe the fetal heart rate ¼ hourly and record
- If the contractions are too strong knock them off with tocolytics.
- Rehydrate the mother with normal saline or ringers lactate.
- Can administer oxygen by mask
- If in a health centre and mother is in 1st stage refer to the main hospital
- If you have rehydrated, the mother with 1 litre in 30 min and FHR remains abnormal prepare the mother for c/s
- If in 2nd stage rule out CPD, malpresentation, malposition, abnormal lie and quicken 2nd stage of labour by giving a generous episiotomy.
- Assisted vaginal delivery with vacuum can be done.
- Prepare for resuscitation
- Inform the nursery to expect an asphyxiated baby
- If after birth the newborn score is less than 7 observe the baby in nursery for 24 hours
- If membranes had ruptured early administer antibiotics prophylactically to prevent puerperal infection.
- Explain and counsel grieving parents if the baby has passed away

Precautions to avoid complications

- Advocate for clinic attendance
- R/O predisposing factors during antenatal period and labour
- Manage any maternal cause of fetal distress appropriately

- Remind mothers to observe fetal movements during pregnancy and report and abnormality.
- Monitor FHR ¼ hourly in case of meconium stained liquor
- Use partograph in the management of labour
- Test urine for acetone during labour and correct dehydration
- Prepare for quick delivery
- Prepare for resuscitation

Follow up

- If the baby is born with fetal distress regular check- up and prolonged follow up for 5 years is recommended
- Advice mother and partner on delivery of subsequent babies

Complication

- Still birth
- Asphyxia neonatorum
- Brain damage

SHOULDER DISTOCIA

Definition: Shoulder dystocia is a condition peculiar in second stage of labour when baby's head is delivered through vagina but shoulders fail to be delivered or anterior shoulder get stuck under the symphisis pubis.

"After delivery of the head the shoulders fail to be delivered"

Women considered being at risk

- *Diabetic women*
- *Women with higher body mass index (BMI)*
- *Previous history of shoulder dystocia*
- *Big baby*
- *Suspect where there is positive history of difficult deliveries*

Clinical presentation/Diagnosis

1. Failure of shoulders to be delivered after delivery of the fetal head
2. Turtle sign – involves appearance and retraction of fetal head
3. Hyperemia of the head
4. Chick closely light to the shoulder
5. Exaggerated chicks

MANAGEMENT

Note: Quick interventions are required or life of the fetus will be lost with a delay or more than 10 minutes.

- This is an obstetric emergency.
- Shout for help – "***shoulder dystocia***"
- Evaluate for need of an episiotomy.
- MCRoberts maneuver – thigh hyperflexion and abduction or rotation of the legs. This widens the pelvis and flattens the spine in the lower back (lumbar spine). This helps in increment of anterior posterior diameter of pelvis. This maneuver is uncomfortable so you need to inform the mother about it.
- Rubins maneuver – Apply pressure on the lower uterine segment above symphisis pubis targeting posterior aspect of anterior shoulder with pressure towards fetal chest. This is to dislodge the stuck shoulder then apply traction.
- Jacquemiers maneuver – Raising the head slowly, put two fingers behind the humerus of the posterior arm. Deliver hand anteriorly sweeping abdomen and face as though performing *reverse salute.*
- Wood's cock's crew maneuver – Apply pressure behind the anterior shoulder with two fingers, put other two fingers in front of the posterior shoulder. Perform internal rotation of the shoulder by rotating the shoulder 180° for the shoulder that was posterior to become anterior. The anterior shoulder can be de livered by applying pressure from behind the humerous.
- Roll of the mother to all 4s, from the level of the waist to go down, legs abducted a bit then with next contraction or without contraction that position is associated with increment of anterior posterior diameter of the pelvic outlet; perform delivery of the posterior shoulder. If it fails, try again internal rotation, most likely most of shoulder dystocia fails. Request mother to go back to the lithotomy position.
- Salvage maneuver – This involves posterior arm sling, # of clerical and Zaveili Maneuver, symphysiotomy.

Here you make sure the baby is born but they are also associated with trauma.

(i) Posterior arm sling – Get a cannula e.g. Na tube put it under axilla until you get unto axilla and tract. Support the baby and pull the baby slightly until you get the mid upper arm, release the sling and deliver the anterior and posterior arm.

If no sling;

Use two fingers, locate the axilla, put two fingers until mid upper arm and deliver the anterior and posterior shoulder. Risk you are likely to have a hip dislocation.

(ii) Fracture clavicle – Locate the center of the clerical and press, it might break or bend now the arm will collapse and allow you to deliver the anterior shoulder.

(iii) Zavelli maneuver – There you will have mother to be done caesarian section. Give the mother tocolytics e.g. $MgSO_4$ grasp the head of the fetus, restitute it and direct it back into the birth canal and deliver through caesarian section.

(iv) Symphysiotomy – Put a catheter to the mother urethra for identification

Apply local anesthesia, do an incision to the symphysis pubis to increase the anterior posterior diameter of the pelvic outlet and deliver the baby.

Cancel the mother about chronic pain associated with symphysiotomy.

Mnemonic **HELPPERS** can be used to simple remember the steps in the management of shoulder dystocia. It should be done stepwise.

H – **H**elp
E – **E**pisiotomy – Evaluate need for episiotomy
L – **L**egs (Mac Robert's)
P – **P**ressure (Rubin,s maneuver)
P – **P**osterior arm delivery (Jacquirmer,s maneuver)
E – Enter maneuver- (Wood's cork screw)
R – **R**oll the mother to all fours
S – **S**alvage maneuvers (arm sling, fracture clavicle, Zavanelle and symphisiotomy)

Complications

Maternal

- Trauma – Due to the Maneuvers and episiotomy or symphysiotomy
- Puerperal sepsis

Fetus

- Trauma – Due to fracture clavical
- Erb's palsy.
- birth asphyxia
- Fetal death

ABNORMAL LABOUR

MALPOSITIONS AND MALPRESENTATIONS

BREECH PRESENTATION

Def: This is when the fetus buttocks lie on the lower uterine segment after 34 weeks gestation.

TYPES OF BREECH

There are two types,

1. *complete*
2. *incomplete*
    - *Frank breech*
    - *Footling breech*
    - *Knee breech*

Complete breech

This is where fetus is presenting with buttocks with things and legs flexed adapting a complete normal flexed attitude. The presenting part consists of 2 buttocks, external genitalia and the feet.

Frank breech

This where the baby is presenting with bullocks things flexed and legs extended

Footling breech

This is where the fetus presents with the buttocks, with the thighs and legs extended.

Breech with knee presentation

A fetus that presenting with buttocks with thighs that is extended and legs flexed.

Causes

The causes are unknown

Predisposing factors

1. Prematurity

Before 34 weeks a fetus can present in cephalic or breech presentation hence causing breech presentation

2. Multiple pregnancy

Multiple pregnancy may cause inconveniences to the fetuses as they may try to fight for space. One or both may adopt breech presentation.

3. Intra uterine fetal death (IUFD)

Once the fetus loses life, it loses tone, hence falling into the lower uterine segment and can easily depend on the mother's position.

4. Placenta previa or abnormal placentation

The placenta occupies space hence not favoring the head in the lower uterine segment or in cases of cornuoplacentation.

5. Polyhydromnious

The baby is always in motions even at term.

6. Fetal congenital abnormalities e.g. hydrocephalus turning may be difficult.

7. Contracted pelvis

Contracted pelvis isn't favorable for cephalic presentation.

8. Oligohydromnous

Less amniotic fluid makes it difficult for the fetus to turn to head down first even before 34 weeks gestation.

9. Multiparity

The abdominal muscles for these women is laxy.

10. Type of breech

Frunk breech is difficult to turn because of its position.

Students practice the skill for breech delivery in skills lab

DIAGNOSIS

ANTENATALLY

Physical examination

i. Palpation-hard and round mass in the fundus and soft and irregular mass in the lower uterine segment.

ii. History taking-the mother experiencing a hard mass balloting in the epigastrium and kicks on the bladder.

iii. Auscultation-fetal heart rate heard above the umbilicus level.

iv. Ultra sound-fetal buttocks are seen at the lower uterine segment.

v. X-ray-It demonstrates fetal skeleton with skull at the fundus.

DURING LABOUR

Physical examination

It entails the following;

i) Abdominal palpation- palpation of hard regular mass at the fundus and soft irregular mass at the lower uterine segment.

ii) History taking

Previous history of breech.

iii) Auscultation

Auscultation of fetal heart above the umbilicus.

iv) Ultra-sound

v) X-ray

vi) On digital vaginal examination during labour the following can be elicited,

- Palpation of a soft irregular mass
- Palpation of fetal ischial -tuberosity in frank breech
- Palpation of testes in male fetus
- Grasping of the examining finger by anal sphincter
- Fresh meconium on examining finger - doesn't mean fetal distress
- Palpation of a foot or visibility of a foot or buttock on inspection

Positions in Breech

1. Presentation - buttocks

2. Presenting part - sacrum

3. Positions

*Right sacral lateral (RSL)

*Left sacral lateral (LSL)

*Left sacral anterior (LSA)

*Right sacral anterior (RSA)

*Direct sacral anterior (DSA)

*Direct sacral position (DSP)

*Right sacral posterior (RSP)

*Left sacral posterior (LSP)

Management of breech antenataly

1. Triage and investigation
2. History taking
3. Physical examination
4. Weighing; blood pressure
5. PMTCT
6. Net provision
7. Intermittent prophylactic treatment with sulphurdoxine pyremethymine
8. Iron supplements
9. Deworming
10. Immunization with tetanus toxoid
11. Antenatal profile
12. Advice mother on individual birth plan
13. Nutritional advice
14. Tell her that her baby is in breech.
15. Advice mother if getting services from a basic emergency obstetrical and newborn care health facility her delivery should be in a hospital that can offer comprehensive obstetrical care. If in a rural set up she can be educated about maternal shelters available in most hospitals.
16. Book for next visit

Management during first stage of labour' (basic emergency obstetric and newborn care facility)

In a basic health care health facility follow the **national guidelines** in management breech in labour i.e. not unless in second stage, delivery should by ceaserian section. Refer to a comprehensive care facility for CS.

Breech in 1st stage = ceaserian section √

i) Receive the mother and assess her

ii) Explain the condition to the mother

iii) Reassure her and relatives to allay anxiety

iv) Refer to a comprehensive care facility as per guidelines. Carry with you a delivery pack in case she delivers while on transit. No partograph.

Management during first stage of labour in a comprehensive facility

i) Admit

ii) Explain to the mother about the condition

iii) Reassure the woman and her partner to allay anxiety

iv) Take proper history

v) Perform physical examination.

No partograph

vi) Prepare for emergency ceaserian section.

vii) Inform other relevant departments about the presence of that woman in the hospital

Management of breech during 2nd stage of labour

- Admit
- Explain condition to the mother.
- Reassure the mother and relatives to allay anxiety.

- Prepare an assistant for the delivery.
- Prepare for resuscitation.
- Prepare delivery pack.
- Position the woman preferable in lithotomy and at the edge of the delivery couch.
- Monitor fetal heart rate after every contraction.
- Encourage mother to push with each contraction.
- Support the woman with IV fluid to prevent dehydration preferable normal saline.
- Assistant can back rub to relieve pain to the mother
- Always "***HANDS OFF BREECH***"
- Evaluate the need for episiotomy.
- Support the perineum with a pad when buttocks are engaging.
- Allow the buttocks to be born simultaneously, anterior buttock under the symphisis pubis and posterior buttock to sweep the perineum.
- Assist delivery of legs if not spontaneously delivered. If the legs are extended press on the popliteal fossa to help abduct them. One leg at a time.
- Allow the buttocks to restitute.
- Gently pull the cord slightly to avoid tension.
- Let the baby hang with its own weight
- Allow body to deliver itself.
- Allow the hands to deliver themselves spontaneously. However you can assist delivery of the hands one at a time. This is easily done when the hand are flexed.
- Absence of elbows at the chest and visibility of axxilla demonstrate extended arms, apply ***louset manoeuvre.***

LOUSET MANOEUVRE

It is a maoeuver used in the delivery of ***extended arms*** in breech presentation. It involves a combination of both **traction** and **rotational** movements.

Students from msambweni kmtc practice the skill for delivery of a baby with extended hands in breech - louset maouver

Steps:

- Cover the fetus with a clean warm towel.
- Hold the fetus by the iliac crest, thumbs on the sacrum and fingers supporting the symphysis pubis, hands encircling the waist.
- Apply traction to deliver the hands up to mid upper arm.
- Rotate the fetus 180 degrees for the arm that is posterior to become anterior.
- Deliver the arm that is now anterior by applying pressure o the humerus from anterior aspect downwards. The hand will sweep the face and abdomen as is being delivered.
- Rotate again 180 degree to the opposite direction for the hand that is now posterior to become anterior.
- Apply the same method you applied previously to deliver the hand to deliver this other one.
- Turn the fetal back upper most

➢ Allow baby to hang with its weight to bring the head down to the pelvic flow.

- Deliver head by use of either **Mauriceau-smellie-veit manoeuvre** OR **Burns Marshall's manoeuvre**
- Deliver the baby on the mother's abdomen

BURNS MARSHALL MANOEUVRE

A manoeuvre use to deliver the head to a fetus in breech presentation with head flexed.

Steps:

- Get hold of the baby with one hand by the ankle with its middle finger in between the legs and the other hand supporting the perineum.
- Apply steady traction.
- While on **steady traction** move the fetus upwards and towards **mother's abdomen.**
- Deliver the chin, face and sinciput.
- Allow the mother to relax.
- Clear the airway.
- With the next contraction deliver the vault and the baby onto the maternal abdomen.
- Continue with care of newborn.

MARICEOUS- SMELLIE – VEIT MANOEUVRE

A manoeuvre use to deliver the head to a fetus in breech presentation. It is mostly used to avoid unforeseen complications and for extended head.

Steps:

- The fetus is laid astride the arm with limbs lying on both sides with second and fourth fingers supporting the mandible while middle finger lying along the nasal palate.
- The other hand placed at the back of the fetus with second and third fingers supporting the shoulders while the middle finger applies pressure on the occiput to gently flex the fetal head towards chest.
- While on the position apply traction to deliver the head.
- Summersault the baby on to the maternal abdomen.
- Continue with care of the newborn.

Mauriceau smellie veit maneuver

THIRD STAGE OF LABOUR

- Apply AMSTL just like in any other labour.
- Confirm there are no tears sustained especially at the level of cervix.

MECHANISM OF LABOUR IN BREECH PRESENTATION

Presentation- Breech

Lie- longitudinal

Presenting part- Sacrum

Position- LSA

1. **Descent with compaction**

Decent takes place with increasing compaction leading to increase traction of the fetal limb.

2. **Internal rotation of buttocks**

The anterior buttock touches the pelvic floor first and rotates forward 1/8 of a circle along the right side of the pelvis to lie underneath the symphysis pubis.

3. **Lateral flexion**

With lateral flexion the anterior buttocks escape under the symphysis pubis, the posterior buttock sweeps the perineum.

4. Restitution

The anterior buttocks turn slightly to the mother's right side. This is to correct the twist made to the abdomen during the internal rotation of the buttocks.

5. Internal rotation of the shoulders

Shoulders enter the pelvis in the same left oblique diameter as the buttocks. The anterior shoulder touches the pelvic flow first and rotates 1/8 along the right side of the pelvis to lie under the symphisis pubis. The anterior shoulder is born followed by the posterior shoulder.

6. Internal rotation of the head

The head enters the pelvic with the suggital suture in the transverse diameter of the brim. The occiput rotates anteriorly along the left side of the pelvis to lie under the symphisis pubis.

7. External rotation of the body

At all most simultaneously with the shoulders the body turns externally so that the back is upper most.

8. Delivery of the head

The chin, face, sinciput sweeps the perineum and the head is born in a flexed attitude.

Health workers demonstrate delivery of a baby in breech presentation

COMPLICATIONS

Maternal

- prolonged labour
- trauma
- increased incidence to caesarian section

Fetal

- erb,s palsy
- fetal distress
- trapped head
- factures
- dislocation of shoulder
- trauma to internal organs
- damage to adrenals
- spinal cord damage
- inter -cranial haemorrhage
- fetal hypoxia
- premature separation of placenta
- cord prolapse
- fetal death

OCCCIPITO - POSTERIOR POSITION – OPP

This is when the occiput of the fetus is pointing posterior.

There are three positions namely:

- Left occipito posterior - LOP
- Right occipito posterior - ROP
- Direct occipito posterior – DOP

Predisposing f2actors

- Abnormal shaped pelvis
- Fetal abnormalities
- Abnormal uterine contractions

DIAGNOSIS

Antenatal

- saucer shaped abdomen
- impression of full bladder
- occiput and sinciput at same level
- clear fetal heart rate and at midline
- multiple fetal heart rate
- failure to palpate fetal back
- multiple fetal movements
- breech easily palpable
- obstetric scan can reveal OPP

During labour

I. On history

- urge to push early
- prolonged labour
- severe back pain
- early rupture of membranes

II. On physical examination

- ill fitting presenting part
- poor descent
- saucer shaped abdomen
- impression of full bladder
- clear fetal heart heard over a wider area
- multiple fetal limbs
- fetal back difficult to palpate

III. On digital vaginal examination

- occiput pointing posteriorly

- anterior fontanelle palpated interiorly, easily felt and lower than posterior fontannel
- pinna of the ear pointing posteriorly
- elongated bag of waters
- suggital suture is palpated adopting any oblique diameter of the pelvis

OUTCOME OF OPP

1. Prolonged labour/ long internal rotation/ Normal labour
2. Persistent OPP/ Short internal rotation/ face to pubis
3. Face presentation
4. Brow presentation
5. Fetal arrest – 3 types of arrest can occur depending of degree of deflexion of the fetal.

a. *deep transverse arrest* when there is mild deflexion

b. *oblique posterior arrest* with moderate deflexion

c. *Occipitosacral arrest* if there is greater/ severe deflexion

1, LONG INTERNAL ROTATION

This is a result of good uterine contractions and the attitude of the fetal head is one of full flexion. The occiput becomes the leading part and touches the pelvic flow first. It is then forced to rotate forward to lie under the symphysis pubis.

Mechanism of Labour in OPP – long internal rotation

Presentation- cephalic

Lie- longitudinal

Presenting part- vertex

Position- ROP

Engaging Diameters

1. Transverse diameter – *bi- parietals* which is 9.5cms

2. Anterior posterior diameter – either *sub- occipito frontal* (10cms) or *occipital fontal* 11cms depending on the degree of deflexion.

MECHANISM

1. **Descent with flexion**

With each contraction there is head with increasing flexion for the chin to touch the chest.

2. **Internal rotation of the head**

When the occiput touches the pelvic flow there is internal rotation of the head rotates 3/8 of a circle along the right side of the pelvis for the occiput to lie under the symphisis pubis.

This is long internal rotation giving rise to prolonged labour

3. **Internal rotation of shoulders**

The shoulder follow suit with 2/8 internal rotation for the anterior should that was on the right side of the pelvis to lie on the left side of the pelvis. This creates a twist at the neck.

4. **Crowning**

With increasing contraction the vault distends the vulva and crowning is said to be taking place. The vault becomes visible.

5. **Extension**

The sinciput, face and chin is born is born by extension of the fetal head.

6. **Restitution**

The occiput moves to the right side of the mother by 1/8 of a circle to undo the twist of the neck created internally. With the undoing of the twist restitution is said to take place.

7. **Internal rotation of the shoulders**

There is internal rotation of the shoulders along the left side of the pelvis forward for the anterior shoulder to lie under the symphisis pubis. Shoulders are aligned along with the anterior posterior diameter of the pelvis.

8. **External rotation of the head**

The internal rotation of the shoulders makes the head to move by a further 1/8 of a circle alongside the right side of the mother.

9. **Birth of the baby**

With the next contraction the baby is born by lateral flexion.

MANAGEMENT

Antenatal

- Encourage the mother to start ANC early.
- triage
- history taking
- physical examination
- antenatal profile
- provision of net
- IPT with SP
- tetanus toxoid administration
- mebendazole administration
- IFAS provision
- emtct
- health education – IBP and danger signs
- book for next visit
- reassure the mother

DURING LABOUR

- admit and reassure
- triage
- Take height and weight.

***Note**: OPP is not an indication for caesarian section.*

- History taking

Take proper history of the woman.

- Physical examination

Perform a thorough head to toe examination.

- Partograph

Monitor labour by use of partograph.

- Bladder care

Ensure the bladder is empty to allow for smooth descent of the presenting part.

- Pain management

Perform strong pain management as this mother experiences strong back ache. This can even mean use of drugs. However ensure safety of the fetus.

- nutritional support

Let the mother labour while having two intravenous access lines. Rehydrate the mother well. This because we expect delayed labour and hydration will prevent distress. Rehydrate the mother with normal saline or ringers lactate.

- health education

Insist that the mother should not bear down before full cervical dilation despite the fact that she may experience the urge due to pressure of the presenting part to the sacrum.

- exercise/ Lamaze

Allow the mother to change position and perform exercises as this may aid in the internal rotation of the head and reduce the duration of labour.

- support

Ensure you are available for the woman. The birth partner can also be present to offer support.

- infection prevention

Throughout the duration of labour ensure infection prevention measures are observed.

In case of prolonged rupture of membranes the mother should be given a sterile pad and receive antibiotic profilactically. However in case of early rupture of membranes restrict the mother in bed to avoid cord prolapsed.

- In case delay progress is due to inadequate uterine contractions, augmentation with sintocinon can be an intervention.
- monitoring

Monitor for situations that may frustrate normal progress of labour and lead to caesarian section. Some of these are,

1. *Poor uterine contractions.*
2. *Continued deflexion of the fetal head*
3. *non- reassuring fetal head rate (nrfh)*

***Note**: In case they appear delivery will be by caesarian section.*

- prepare for second stage

Make sure you prepare for second stage. Anticipate the possibility of baby being born with poor score and require resuscitation.

2. SHORT INTERNAL ROTATION – *FACE TO PUBIS*

- The commonest cause is inadequate uterine contractions.
- The attitude of the fetal is one of severe deflection.
- The sinciput is leading and touches the pelvic flow first.
- The sinciput rotates 1/8 of a circle to lie under the symphysis pubis.
- The occiput lies under the curve of the sacrum- ***occipitosacral*** position.
- The following factors will favor spontaneous vaginal delivery,
    i. *if contractions will become strong*

ii. if the size of the baby is average or small

iii. if the pelvis is adequate

- The contractions can be augmented with sintocinon if they are week and there is no contraindication.
- The baby is born as ***face to pubis***.

Steps in delivery of head in face to pubis.

The head will be delivered by lateral flexion.

- Support the head by the sinciput to maintain flexion for the brow and vault to be delivered upon the nape of the nose while also supporting the perineum.
- Once the vault is delivered grasp the bi- temporal with one hand.
- Extend the head to deliver the face and the chin under the symphysis pubis - ***FACE TO PUBIS***
- Clear airway and rule out cord round the neck.
- Allow for restitution to take place. (The head moves to the opposite direction from what it did during internal rotation to undo the twist made.) If it was LOP now facing right thigh, if ROP now facing left thigh.
- This will be followed by internal rotation of shoulders accompanied by the head turning a further 1/8.
- Hold the head by the parietals and deliver the shoulders by downward traction for the anterior shoulder and then upward traction for the posterior shoulder to sweep the perineum.
- With lateral flexion deliver the baby onto the mother's abdomen.

Complications

- Maternal distress
- fetal compromise
- Prolonged labour
- trauma – button hole tear

- birth asphyxia
- deep transverse arrest

3. DEEP TRANSVERSE ARREST

- This is one of the outcomes of OPP
- It occurs when the attitude of the fetal head is one of mild deflexion.
- the fetal head now presents with a longer anterior posterior diameter occipito- frontal 11.5 cms
- As the head tries to rotate it is challenged by the space provided by the interspinous diameter.
- as a result the fetal head makes an incomplete rotation and get stuck by ischial spines.

FACE PRESENTATION

Description

- When the attitude of the fetal head is one of full extension, the occiput is touching the fetal spine.
- Majority develop during labour from vertex presentation with the occiput posterior, this is termed as secondary face presentation.
- If it presents before labour though less common is termed as primary face presentation.

There are six positions in face presentation:

- Right and left mento anterior
- Right and left mento lateral
- Right and left mento posterior.

Causes

- Anterior obliquity of the uterus
- Contracted pelvis
- Polyhydromnious

- Congenital abnormalities.
- Prematurity
- Multiple gestation.

Diagnosis

- Vaginal examination.
- Ultra sound.

Differential diagnosis

- Breech
- Brow

Possible course and outcome

- ✓ Prolonged labour
- ✓ Mento anterior positions
- ✓ Mento posterior position
- ✓ Persistent mento posterior position
- ✓ Reversal of face to brow or vertex.

MECHANISM DURING LABOUR

- Descent
- Extension
- Internal rotation of the chin
- Flexion
- Restitution
- Internal rotation of the shoulders
- External rotation of the head
- Lateral flexion of the body.

MANAGEMENT

- Inform the doctor
- Re asure the woman
- Continue with vigilant maternal and fetal observation
- Confirm position on VE before continuing with management.
- If mento anterior and pelvis is adequate ct management.
- If mento posterior wait for rotation if it will occur. If not cs
- If mento posterior prepare for CS
- Care not to injure and eyes through VE.
- When membranes rupture rule out cord prolapse.
- Oxytocin may be used.
- Ct with general management of labour.
- If any position with a contracted pelvis prepare for cs.
- If presenting part is high despite good uterine contractions still prepare for cs.

COMPLICATIONS

- Prolonged labour
- Facial bruising
- Obstructed labour
- Cerebral hemorrhage
- Maternal trauma.

BROW PRESENTATION

- Fetal head is partially extended with the frontal bone, which is bordered by the anterior fontanella and the orbital ridge lying at the pelvic brim.
- The presenting diameter is mento vertical.

- The fetal head is midway between vertex and face.

Diagnosis

- The same as for face presentation except that the brow is usually temporary.

Diagnosis

- The diagnosis is not possible before onset of labour.
- On abdominal palpation, high head and appears big and does not descent despite good uterine contractions.
- On vaginal examination, the head is high and may be difficult to reach, the anterior fontanel is felt at one side of the pelvis and orbital ridge and root of the nose on the other side of the pelvis. The fetus may also present with a large capput.

Management

- The mother can be monitored for spontaneous delivery and delivery is possible in case of big pelvis and small fetus.
- Explain the condition to the woman and reassure.
- Closely monitor descent, fhr, position, cervical dilatation, contractions.
- Oxytocin use is contraindicated.
- In case these parameters are not favorable prepare for CS.

Complications

- As for face presentation and obstructed labour is more likely.

FACE PRESENTATION.

- This is when the fetus presents with cephalic but face.
- The attitude of the head is of **complete flexion.**
- The occiput of the head is in contact with the maternal spine.
- There is primary and secondary face presentation
- The leading part is **mentum** or **chin**

- The presenting diameters are sub- mentobregmatic 9.5 cms and bitemporal 8.2 cms

POSITIONS

- right, left or direct mento anterior
- right, left or direct mento posterior

PREDISPOSING FACTORS

- congenital abnormalities
- contracted pelvis
- anterior uterine of the uterus obliquity
- polyhydromnious

DIAGNOSIS

- fetus suckling presenting part
- no sutures
- no fontanelles
- fetal parts easily palpable
- clear fetal heart rate unless mento posterior

DURING LABOUR

- high head
- soft and irregular presenting part
- orbital ridge, eyes, nose and mouth palpable

MANAGEMENT DURING ANTENATAL PERIOD

- As of normal pregnancy

MANAGEMENT DURING LABOUR

- As of normal labour
- reassure the mother
- inform the doctor about the condition
- vigilant observations especially fhr.
- rule cord prolapse with rupture of membranes

MECHANISM OF LABOUR

1. Descend
2. Extension

3. Internal rotation of the head
4. Flexion
5. Restitution
6. Internal rotation of the shoulders
7. External rotation of the head
8. Lateral flexion

POSSIBLE COURSE AND OUTCOMES OF LABOUR

- Prolonged labour
- Mentoanterior positions
- Mentoposterior positions
- Persistent mento posterior position
- Reversal of face presentations

MANAGEMENT DURING PUERPERIUM

- As of normal puerperium

COMPLICATIONS

- Obstructed labour
- Cerebral haemorrhage
- Maternal trauma
- Facial bruising
- Cord prolapsed

PROLONGED LABOUR

Defination– Prolonged labour is said to be taking place when delivery does not occur after 12hrs of established labour.

CAUSES

The condition is caused by a combination of factors referred to as 3P's.

1. Passenger- fetus.
2. Passage- pelvis.
3. Power- contractions.

CAUSES IN 1ST STAGE

i. Poor uterine action- hypotonic, uncoordinated e.t.c.
ii. Pelvic abnormalities.
iii. Big baby.
iv. Malposition especially OPP.
v. Mal-presentation.
vi. Cervical dystocia and sternosis
vii. Full bladder.
viii. Drugs (sedatives and anesthesia)
ix. Immobility (restricting the mother in bed)
x. Psychological (fear and excitement).
xi. Formation of a contraction ring.

CAUSES IN 2ND STAGE

i. Rigid perineum.
ii. Big baby.
iii. Malposition.
iv. Mal-presentation.
v. Full bladder.
vi. Poor maternal effort.
vii. Hypotonic contraction.
viii. Cord round neck hence baby being held.

SIGNS & SYMPTOMS

i. Labour taking more than 12hrs of established phase.
ii. Early rapture of membranes.
iii. Mother exhausted.
iv. Signs of maternal dehydration.
   - Increased pulse rate.
   - Sweat on face and upper lip.
v. Uterine contractions become hypotonic with time.MK
vi. Uterus becomes tender on palpation.

vii. Foetal distress.
viii. Pain radiating on the back and to the thighs.

MNX

- Continue management of the mother as normal labor.
- Inform mother of condition.
- Reassure her all the time.
- Encourage her to empty bladder 2-4 hourly.
- Let her adopt most comfortable position or change position.
- Re-hydrate mother with N/S unless hypoglycemic then give 10% dextrose.
- Continue taking vital signs 2 – 4 hourly.
- If it is poor uterine contractions & pelvis adequate, baby in normal presentation and position, start mother on Syntocinon infusion 2.5 – 5 international units in 500mls normal saline unless contraindicated.
- Maintain input output chart of fluids.
- Administer buscopan in case of thick cervix.
- Test urine for ketones to exclude material dehydration.
- Observe FHR $^{1}/_{4}$ to $^{1}/_{2}$ hourly.
- Observe contractions at 15 – 30 minutes interval.
- If mother is in 2nd stage $^{R}/_{O}$ pelvic contraction, mal-presentation and mal-position before telling her to push.
- Prepare to give episiotomy incase of rigid perineum.
- In case of early rapture of membranes, cover the mother with broad spectrum antibiotics.
- If there is signs of obstruction, foetal distress, cervical dystocia, mal-presentation or no improvement prepare mother for ceaserian section.

COMPLICATIONS TO MOTHER

i. Rectocele
ii. Cystocele
iii. Vesico- vaginal fistula.
iv. Stress incontinence.
v. Ruptured uterus.
vi. Trauma and injuries.
vii. Prolapsed uterus.
viii. Infection (puerperal sepsis)
ix. PPH.
x. Risk of inverted uterus
xi. Increased chances of ceaserian section.

COMPLICATIONS TO FOETUS

i. Foetal distress.
ii. Severe asphyxia neonatorum.
iii. Intra cranial damage (cerebral palsy)
iv. Intracranial hemorrhage.
v. Cerebral palsy in long term

PREVENTION

i. Identify mothers at risk e.g. CPP, malpresentation, malposition.
ii. Take nutritional history on admission during labour
iii. Encourage bladder emptying during management of labour.
iv. Monitor labour by use of pantograph.
v. Re-hydrate mothers during labour.
vi. Encourage ambulation during labour when membranes still intact.

OBSTRUCTED LABOUR

Definition – labour is said to be obstructed when there is no advancement or descend of the presenting part despite good uterine contractions.

N/B: The problem is mainly on the passenger and passage and not the power.

DIAGNOSIS

i. Suggestive in short women
ii. History of contracted pelvis (CPD)
iii. During pregnancy when pelvic assessment is done at 36wks through vaginal examination, ultra sound, abdominal palpation.
iv. During labor through palpation (big head compared to pelvis), vaginal examination, X-ray of pelvis.

CAUSES

The cause may be maternal or fetal or both. These include:

i. Cephalo- pelvic disproportion.
ii. Mal-presentation
iii. malposition
iv. Foetal abnormalities.
v. Pelvic tumors, fibroid on lower uterine segment.
vi. Deep transverse arrest (baby in OPP).
vii. Contracted/ deformed pelvis
viii. Abnormal lie (transverse)
ix. Cervical dystocia.
x. Vaginal sternosis
xi. Circumcision scar.

SIGNS AND SYMPTOMS

The severity of the signs and symptoms increase with time. There are early and late signs.

1. Early signs

On physical examination

i. History of prolonged labour
ii. The presenting part fails to enter the pelvic bottom despite good contractions.
iii. Mother having a full bladder.
iv. A large bag of membranes.
v. A full rectum.

On vaginal examination.

i. Cervix dilates slowly.
ii. Cervix thick and edematous.
iii. Cervix hangs loose like an empty sleeve (coz presenting part isn't well applied into the cervix).
iv. Membranes if still intact may be "sausage shaped".
v. Early rapture of membranes.

2. Late signs

On physical examinations

i. Signs of dehydration
ii. Pulse rate above 90.
iii. Temperature above 37.2^0c
iv. Maternal ketosis.
v. Oliguria
vi. Signs of fetal distress

On abdominal palpation

i. Uterine doesn't relax in between contractions.
ii. Tender abdomen.

iii. The contractions may cease for a while due to uterine muscle exhaustion before returning with renewed vigor.
iv. Contractions become hypertonic.
v. It becomes molded around the foetus
vi. Bundles ring can be seen. It can be palpated. It rises nearer the umbilicus as lower uterine segment becomes longer and thinner.

On vaginal examination

i. The vagina is hot and dry.
ii. Formation of large Capput.
iii. Evidence of excessive moulding.

MNX

- As a skilled midwife, aim at detecting obstructed labor before onset of labor by doing a pelvic assessment.
- Detect CPD, mal-presentation with large baby early.
- Formulate an appropriate IBP for the mother.
- If mother is in labor, admit and prepare for c/s.
- Take blood for grouping and cross match
- Alert theatre staffs
- Fix an intravenous infusion for rehydration preferable normal saline.
- Fix an indwelling catheter and monitor input output.
- Start the mother on antibiotics prophylactically
- If mother is in 2nd stage and obstruction is in the mid cavity of the pelvis, forceps may be used to rotate the head or vacuum extraction may be done.
- If due to transverse arrest symphisiotomy may be done to increase the transverse diameter of pelvis.
- If baby is dead and obstructed, counsel the matter and embryology may be done i.e. craniotomy, viscerelectomy, decapitation or cleidoctomy

- Post operatively the mother is managed like any other post operative mother. Let the catheter remain in situ for 14 days. Monitor signs of complications.

COMPLICATIONS

Maternal

i. Ruptured uterus.
ii. Fistula formation
iii. Post partumhaemorrhage
iv. Foot drop
v. Puerperal sepsis
vi. Infertility
vii. Maternal death

Foetal

i. Asphyxia neonatorum
ii. Intra-cranial hemorrhage
iii. Respiratory distress syndrome
iv. Still birth

Prevention

i. Good nutrition
ii. ANC so that obstructed labour can be anticipated from mothers history
iii. Monitoring labor by skilled staff for affected referral
iv. Uses of pantograph
v. Referring to maternal shelter

PRECIPITATE LABOUR

Definition - Is abnormal rapid progress of labor and delivery. Labour that results in rapid expulsion of the foetus delivery may be attained within 3 hrs from the onset of labour.

CHARACTERISTICS

i. Uterine contractions are strong and frequent from the beginning.
ii. Resistance from the pelvic tissue is low.
iii. Common to multiparous women

RISK FACTORS

- Multiparity
- Large pelvis
- History of previous precipitate labour
- Strong contractions
- Well positioned fetus
- Poor administration of oxytocic drugs.

COMPLICATIONS

Maternal

i. Tears
ii. Retained placenta
iii. Inverted uterus
iv. Shock and collapse due to sudden relieve of pressure
v. PPH
vi. Amniotic fluid embolism
vii. Baby born at a wrong place

Foetal

i. Foetal hypoxia
ii. Cerebral damage
iii. Asphyxia neonatonum

iv. Injury as baby may be born in wrong place to the cerebral column, femur and clavicle.
v. Pneumothorax

Challenges

- Too quick labor and delivery.
- The staff might think the mother is still in 1st stage of labor.
- Contractions are too painful and you might think of a c/s.
- Might take you unaware and no time even to be accompanied by a birth partner.
- Might not have time to practice the birth technique that was taught.
- Might not reach the hospital to deliver.
- Might not have time for the midwife to prepare.
- Psychologically might make the mother feel discouraged and think that cant cope with labor and delivery.
- Precipitate labour tends to recur thus admit mother early in subsequent pregnancy.

TRIAL OF LABOUR

Definition: This is a test which is carried out during labour in cases of mild or moderate CPD since it is difficult to decide whether normal delivery is possible or not.

OUTCOME

Depend on four factors:-

i. Power (contractions)
ii. Passenger (foetus)
iii. Passage (pelvis)
iv. Flexion of the foetal head

Power

Uterine contractions must be effective strong to force or push out the baby through the pelvis.

Passenger

- Degree of moulding:

The degree of molding of the foetal head will determine its passage through the pelvis.

If the fetus is a post date, moulding will not be adequate and the presenting diameters will not change and the mother will not attain vaginal delivery.

- Flexion of fetal head:

The more flexed the fetal head, the more chances the mother is going to attain a vaginal delivery. This is as a result of reduction to the presenting diameters.

Passage

It will be determined by the "give" of pelvic joints and relaxation of pelvic floor muscles. If there is give of the pelvic joints, it will make them wide and increase the pelvic diameters.The normal increase of pelvic diameter is 1cm.

NOTE: These factors are not predictable until labor is established. Judgment is withheld as to whether c/s is necessary or the mother make through NSVD. This will be until the amount of progress of labor made over a period of time has been assessed.

Indications

i. Mild CPD
ii. Moderate CPD

Contraindications

i. Grass pelvic contraction
ii. Abnormal lie
iii. Elderly primigrarida
iv. Obstetrical and medical conditions to include PET, DM, hypertension, cardiac disease.
v. Cases of previous failed trial of labor.
vi. Presence of any malpresentation or malposition.
vii. Cases of previous scar with the following:
    - classical scar
    - breech presentation
    - no vaginal delivery
    - Reason for previous caesarean section was CPD.

Advantages

i. Prevents unnecessary elective c/s in case of minor degree of disposition.
ii. It prevents premature induction of labor in case of suspected disproportion.

Disadvantages

i. It may fall in the mother will naturally be demoralized, disappointed, create psychological trauma and may consider herself to be abnormal.
ii. Intrauterine infection usually due to repeated number of VE'S

Factors which influence prognosis

i. **Membranes**

In trial of labor early rapture of membranes prejudices the outlook of the mother and baby. It may complicate with cord prolapse, malpresentation, abnormal lie and intra uterine infection.

ii. **Foetal head**

Poor moulding will make the head not be able to pass through a border line pelvis. If malposition occurs in the case of labor, the prognosis of trial of labor is poor.

iii. **Maternal/Foetal distress**

Any onset of material distress will put to an end the trial of labor. Any foetal distress from either cord prolapse or any other cause will necessitate termination of trial of labor.

MNX

- A woman usually a primigravida is allowed to go to term coz onset of labor is likely to result in efficient uterine contractions and the mature foetus is able to withstand the stress of labor.
- Once CPD (mild or moderate) has been diagnosed let the mother knows it and should be admitted like any other.
- Do abdominal exam on admission to include the presentation of which must be vertex and position should be left occipito anterior. The head will not be engaged but its level in relation to the pelvic brim must be assured.
- The degree of flexion of the head and amount of overlap must be noted through V.E.
- The FHR is carefully monitored, recorded, interpreted and reported.

<u>During 1st stage</u>

- Take consent
- Continue with observations (maternal and foetal)
- Take blood for grouping and cross match for possible c/s
- Restrain anything per oral
- Administer IV 10% dextrose for energy.
- Monitor contractions $^1/_2$ hourly and note frequency, duration and strength.

- Report any abnormality to uterine contraction.
- Monitor any meconium stained liquor which might suggest FD.
- Mother might be prepared for c/s.
- Any abnormal up or down of FHR is reported.
- Note any excessive moulding of the foetal skull

Signs of good trial of labor

- Descent of the presenting part into the pelvis.
- Progressive cervical dilation.
- Progressive uterine contractions i.e. mild, moderate, strong.

Signs of failed trial of labor

- No descent of presenting part.
- Slow or no dilation of cervical os.
- Disordered uterine action e.g. in-coordinated uterine action.
- Signs of maternal and foetal distress.

N/B: when these signs are noted, stop trial of labor and prepare mother for c/s.

Conditions to report

i. Rapture of membranes.
ii. Color of amniotic fluid.
iii. Period of labor in hrs.
iv. Unsatisfactory advance when contractions are good e.g. head still high despite good uterine contractions.
v. Early signs of FD & MD.
vi. Any change of vertex presentation to either brow or face.

TRIAL OF SCAR

- Is a test of labor carried out in cases of mother having had one previous c/s scar.

- It should be conducted in health facilities where theatre facilities are available in case it fails.

MNX

- Admit mother
- Explain the condition and reassure her
- Take history of the previous scar e.g. when and why it was done.
- Do physical examination to confirm the presence of the scar.
- Palpate the abdomen to get the lie, presentation and position.
- Do a V.E. to confirm the mother is in labor and also to rule out CPD. If pelvis is adequate allow the mother to go into spontaneous delivery.
- During labor, closely monitor maternal condition, foetal condition and progress of labor. $^{1}/_{2}$hourly.
- If mother is in pain and anxious, analgesics and sedatives may be given.
- Withhold food and start on IV infusion of 10% dextrose.
- Let mother be prepared for c/s incase it fails.
- Observe and check for any tenderness on scar.
- Note any P.V bleeding
- In case it fails explain to mother what is going to happen and take her for c/s
- On 4th ANC visit $^{R}/_{0}$ CPD.
- Tell mother to avoid issues of external cephalic version.

Warning signs

i. Pain and tenderness on scar especially on palpation.
ii. P.V bleeding however slight it is.
iii. Blood in urine.

Contraindications

i. CPD
ii. More than one scar minus a vaginal delivery

iii. Classical c/s scar

CEPHALOPELVIC DISPROPORTION (CPD)

This is a disparity between the foetal head and the maternal pelvis. It is reached when the foetal head has been declared big to fit through the maternal pelvis.

CAUSES

i. Big baby – heredity
   - D.M mothers
   - Past mature baby
   - Multi paras women (later births are big)
   - Feeding habits
   - Congenital abnormality e.g. hydrocephalus.

ii. Abnormal foetal position and presentation
   - OPP
   - Face
   - Brow

iii. Abnormal strapped pelvis
   - Previous accidents
   - Small/Contracted pelvis
   - Congenital dislocation of hip
   - Childhood diseases e.g. osteomylitis, rickets, TB

Pre-disposing factors

i. Diet
ii. Accidents
iii. Illness pertaining to bone problems

Signs and symptoms

i. History

Based on the history of accident from mother e.g. history of prolonged labor, difficult labor, history of accident, history of not having good diet.

ii. P.E

Short woman

Shoesize< 3" below.

iii. V.E.

- Overlap of foetal head over the pelvic brim.
- Prominent promontory of sacrum.
- Prominent ischial spines
- Reduced pubic arch

Degrees of disproportion

1. Minor degree
2. Moderate degree
3. Major degree

MINOR DEGREE

The head doesn't engage or pass through the pelvic brim. It may be possible to push it through the brim.

The anterior parietal bone is in level with the anterior border of the symphysis pubis.

MODERATE DEGREE

The head slightly overlaps the anterior edge of symphysis pubis and the head can't be made to engage at the pelvic brim.

MAJOR DEGREE

This is pronounced as buldging of the head over the anterior edge of symphysis pubis.

Diagnosis

- Is diagnosed in established labor
- Can't be diagnosed before 36wks of gestation.

i. It maybe suspected in woman with pendulous abdomen
ii. Through V.E, the degree of overlap of the head over the pelvic brim at the symphysis pubis.
iii. Through internal pelvic assessment (adequacy) – promoting of sacrum not tipped, well curved hallow of sacrum, non prominentischial spines and intertuberous diameter accommodating four knuckles.
iv. X-ray pelvimentory (to look for pelvic diameters)
v. It may be suspected in short primi gravid women

MNX

- Admit mother
- Assess pelvis for adequacy and degree of disproportion.
- Take observations both maternal and foetal.
- If in a health center refer to hospital
- Mothers with minor degree of CPD are prescribed trial of labor with the aim of achieving normal vaginal delivery since there is molding and pelvic joints and muscles are relaxed and vaginal delivery is likely to occur.
- In moderate CPD you can expect a spontaneous vertex delivery but it depends with molding, degree of pelvic joints and muscles relaxation
- Since mid wife isn't completely sure that the mother will deliver by SVD, give trial of labor and be vigilant with maternal and foetal vitals.
- If trial of labor fails prepare the mother for c/s.
- In major degree of CPP, the mother isn't given trial of labor but taken to c/s

- During the trial of labor the foetal condition is assessed continuously $^1/_4$ hourly (should be present)
- Record and report any me conium stained liquor (indicate FD)
- Note the descent of the foetal head since it is an indication of good progress of labor.
- On V.E. assess the degree of molding not only caput formation and report.
- Assess maternal vitals and uterine contractions
- Administer analgesics
- Provide other n/c e.g. back rubbing, ambulation, re-hydration, diet bladder emptying.
- Prepare to receive an asphyxiated baby and have resuscitation tray ready.

ABNORMAL UTERINE ACTION

Definition – this is dysfunction of uterine muscles caused by neuromuscular disharmony which manifest itself as follows:-

i. Hypotonic uterine action
ii. Uncoordinated uterine action
iii. Cervical dystocia

- Uterine action is said to be inefficient when the contraction don't efficiently dilate the cervix.
- Progress of labor becomes slow and labor prolonged.
- The parts of uterus don't function in harmony in each other.

HYPOTONIC UTERINE ACTION

- Contractions weak, short and frequent
- Results to slow dilation of cervix or no dilation.
- Can either b' primary or secondary.

- In primary occurs from onset of labor and secondary occurs previously following normal labor.
- Cause of hypotonic primary contractions is not known and commonly found in primi's
- The cause for secondary hypotonic uterine action.
- Over distortion of uterus.
- Maternal dehydration.
- CPD.
- Drugs i.e. anesthesia $MgSO_4$
- Mal-presentation
- Hypoplasia (uterus not well developed)
- Full bladder/rectum.
- Anemia
- Myoma

Effects of hypotonic uterine action

i. Prolonged labor
ii. Fetal distress
iii. Maternal distress.
iv. High risk of infection.
v. Primary PPH.

MNX

- Reassure mother
- Perform a V.E two exclude disproportion /mal-presentation of which might require c/s.
- In absence of CPD, stimulate good uterine contractions by giving enemia, emptying bladder, rupturing membranes and starting syntocinon drip with multi paraous 2.5-3 I-U in N/S. Primi 51-U in N/S.
- Do vigilant Observations both material and foetal.

- In case of maternal distress/ foetal distress before full cervical dilation terminates labor by c/s.
- Bear in mind the possibility of primary PPH and if the mother was on sytocinon drip, let it run for 1hr after 3rd stage of labor.
- See if the other management as normal labor.

In-Coordinated uterine contraction

Found in four varieties:-

a) Hypotonic lower uterine segment
b) Collic uterus
c) Constriction ring
d) False labor

In each of these types, there is alteration in the uterine polarity and often an increase in resting period.

The cervix dilates slowly despite frequent painful contractions.

Hypertonic uterine contractions

- The two uterine poles don't function rhythmically fundal dominancy is lost and contractions start or last longer in the lower uterus.
- Cervix fails to dilate due to this, woman become distressed and experience pain particularly at the back which is continuous.

Constriction ring dystocia

- Localized spasms of a ring muscle fibre which usually occur at the fraction of the upper and lower uterine segment.
- Rare stimulation but may arise in stage of labor.

CAUSES

i. Hypertonic colic uterine action.
ii. Mishandling of uterus.
iii. Infra uterine manipulation e.g. internal cephalic version.
iv. Improper use of syntocinon.
v. No advance in presenting part.
vi. Constriction ring may be felt on exam.

MNX

- Rule out CPD.
- Do vigilant maternal and foetal observations if no CPD.
- Start mother on 10% dextrose with 5 1.u of syntocinon.
- Analgesics e.g. pethidine if the mother is less than 5cm.
- Monitor input/output.
- Give buscopan 40mg 1m and 40mg 1v.
- Terminate labor by c/s in case of MD and FD.

INDUCTION OF LABOUR

Definition: This is when uterine contractions are started artificially to bring about onset of labour.

Predisposing factors

1. Severe pre – eclampsia and eclampsia

   In cases of disease progression the life of the mother may become threatened. If the woman fits the pregnancy is supposed to be terminated within 12 hrs. Induction of labour may be indicated.

2. Post datism

   In this case the fetus has overstayed in the uterus. Complications may arise with further stay e.g. hypoxia, difficult labour e.t.c. The best option becomes induction of labour to discontinue the pregnancy.

3. Diabetes mellitus

Pregnancy can interfere with control of diabetes mellitus. Where the condition is threatening maternal mortality pregnancy can be terminated through induction.

4. Request

Although not very common the woman can request termination of pregnancy upon prior discussion with the doctor. she should be term and viable reasons why she feels pregnancy should be terminated.

5. Rhesus incompatibility

In this situation the cbaby is at risk. The woman is at n equal risk of sensitivity. If pregnancy reaches term it is advisable to terminate it and remove exposure to risks if the pregnancy is allowed to progress.

6. Infra uterine fetal death

Where the death of the fetus has occurred in the uterus, there will be urgent need to remove the dead fetus. The continued stay of the fetus in the uterus may lead to a macerated fetus. Once the fetus is macerated then increased risk of complications e.g. amniotic fluid embolism, coagulation disorders and eventually puerperal sepsis may occur.

7. Loss of babies at term

Women with history of loosing babies at term may require close monitoring of their pregnancy and prescribed induction of labour. This can be an intervention to the management of the bad obstetric history they are experiencing.

8. chronic hypertension

The mother may have pre- conseptional hypertension. If her condition is becoming unmanageable as a result of pregnancy then induction of labour can be considered to reduce the risk of her life being threatened.

9. premature rupture of membranes

Once the membranes rupture spontaneously without labour it is important to terminate labour. This will be to prevent serious complications from occurring to include hypoxia, infections e.t.c.

10. severe intra uterine growth restriction

Once it is realized that the growth of the fetus in the uterus is getting compromised as the pregnancy progresses it may be important to consider

terminating the pregnancy. This may allow delivery of a live baby that may have been lost if it continued to stay in the uterus.

Contraindication

- Contracted Pelvis
- Malpresentation
- Previous Scar
- Prematurity
- Abnormal Lie
- Abnormal fetal heart rate
- Maternal cardiac disease
- Major degree of placenta previa
- Acute genital herpes infection
- Vas previa
- Invasive cervical carcinoma
- Cephalo pelvic disproportion - CPD

Types of induction of labour:

1. Medical induction
2. Surgical induction

Surgical induction

This involves procedures to include:

- Membranous sweep

This is when the midwife inserts fingers into the birth canal and to the cervix. The midwife tries to separate the membranes from the sides of the uterus near the cervix. This promotes production of hormones that bring about onset of labour.

- Amniotomy

This is the artificial rupture of membrane to release amniotic fluid.

- Extra amniotic saline infusion (EASI)

A folleys catheter is inserted into the cervix and the distal end dilated with at least 30 mls of normal saline. the remaining part of the catheter pulled and secured with the inner aspect of the thigh. This applies pressure to the cervix and promotes production of prostaglandins that bring about onset of labour.

Medical induction

This is when drugs are used to bring about onset of uterine contraction to deliver the baby.

Drugs commonly used include:

- Misoprostal - Cytotec
- Oxytocin – Sytocinon

Misoprostal

Insert quarter tablet, 50mgs of misoprostal endo- cervical 6hrly for 24 hours. After 24 hours if no contractions are established consider a failed induction. in case the mother is draining vaginally it can be administered sublingual 25 mgs 6hrly for 24 hrs.

Oxytocin

Start the woman on sintocinon drip of 5 i.u. in 500 mls of normal saline to run at 10 drops per minute.

Increase the drop by 10 every 30 minutes to a maximum of 60 drops per minute.

if no established contractions by the end of the 60 drops increase the dose of sintocinon by 2.5 i.u. and now you are starting with7.5 i.u. at 10 drops per minute. Increase the number of drops by 10 every 30minutes to a maximum of 60 drops.

if the contractions are not established add the amount of sintocinon by 2.5 i.u. now start at 10iu at 10 drops per minute and increase by 10 drops per minute to a maximum of 60 drops. If no established contractions consider as failed induction of labour.

BISHOP'S SCORE

To predict the success rate of the induction of labour the woman has to be evaluated. The evaluation is done using the bishop's score.

The higher the score the higher the chances of success.

	Points				Sub score
	0	1	2	3	
Cervical dilation	Closed	1 -2 cms	3 -4 cms	5- 6 cmc	
Consistency of the cervix	firm	medium	soft		
Cervical effacement	0- 30 %	40 – 50%	60 -70%	80%	
Position of the cervix	posterior	mid	Anterior		
Station of the presenting part	-3	-2	-1,0	+1,+2	
	Bishop's score				

Pre - procedure management

- Admit
- Explain to the mother the need for induction of labour
- Let the mother stay nil per oral for at least six hours before induction.
- The mother should sign consent for surgery in case of any complication.
- Blood for grouping and cross match is taken.
- The woman is fixed two large bow cannulas.

Management of the woman during induction of labour

- Admit the mother
- Explain the procedure and the indication and reassure
- Take proper history
- Perform physical examination
- Bladder care- empty bladder after every two hours- rest urine for ketone, protein and albumin
- Adequate nutrition- rehydrate the woman with normal saline

- Ambulation- in case membranes have been ruptures allow the mother to stay with a pad and do not ambulate
- Support – ensure the mother is supported by either staying with the birth partner or ant birth companion.
- Pain management – use the pharmacological and non – pharmacological methods of relieve of pain.
- Partograph – start the woman on a partograph to monitor labour if she is in established phase.
- Infection prevention- observe infection prevention all the management of labour.
- Since complications can arise inform other departments e.g. theatre, newborn unit, laboratory e.t.c.
- in case rupture of membranes happened six hours ago and mother has not delivered, start her of broad spectrum antibiotics profilactically, preferable parenteral cephalosporin's 2 grams start as bolus.
- Monitor and regulate sintocinon dosage and fluid as prescribed.
- Discontinue the sintocinon drip if the mother has strong contractions
- Prepare for delivery if you anticipate normal labour and delivery.

Complications

- Fluid intoxication
- Failed induction
- Cord prolapsed
- Abnormal uterine contractions
- fetal hypoxia
- Amniotic fluid embolism
- Ruptured uterus
- Puerperal sepsis

ASSISTED VAGINAL DELIVERY - AVD

- It is the use of equipment in assisting vaginal delivery (AVD).
- The equipment has a cap and a central traction chain connected to a vacuum machine.
- Both metallic and rubber cups are available.
- most common AVD kits are;

  Bird malstrom

  Kiwi
- The preferred new rubber cup is shaped to the contour of the baby's head. This allows the cup to be placed further back on the baby's head to maintain flexion, reduce presenting diameters of head and facilitate delivery.

Indications

- Women with severe anaemia
- Women with diabetes
- Fetal compromise - nrfh
- Maternal distress
- Women with cardiac disease
- cord prolapsed in second stage of labour
- Delayed second twin

Prerequisites/ conditions necessary

- *Term – gestation 36 complete weeks or above*
- *Full cervical dilatation*
- *Fetus in cephalic presentation*
- *Membranes should have ruptured*

- *Fresh still birth not macerated*
- *Descent at 1/5 or less*
- *Mother should be conscious and cooperative*
- *Contractions should be present*
- *Equipment should be working*
- *Midwife should be skilled*

Procedure

- Explain procedure to mother and relatives
- Prepare assembly equipment.
- Ensure mother has emptied bladder.
- Glove
- Clean the vulva aseptically
- Drape the mother.
- Evaluate need for episiotomy. indication may include tight perineum and not because of the equipment because of its size as compared to fetal head.
- With one hand, take and cup and insert it gently sideways into birth canal
- Position at the skull. The centre of the cup should be 2 -3 cms anterior to the posterior fontanelle. This is known as the ***flexion point***
- Hold cap into position avoiding fontanelles and sutures
- Create vacuum up to 0.2 Kpa.

- Run a finger round the cup to rule out any maternal soft tissue trapped.
- Pump to create vacuum to maximum of 0.8 Kpa.
- Run a finger again round the cup to rule out any maternal soft tissue trapped.
- Position one finger on the cap and another on fetal skull to detect early signs of cup slippage and descent of presenting part.
- Note the time of onset
- Ask mother to signal onset of contraction.
- Encourage mother to push with every contraction.
- Pulls with each contraction.
- The direction of the pull should follow the anatomy of birth canal and perpendicular to the cup.
- Rest in between contraction
- Monitor fetal well being
- When the fetal head is support the perineum
- Once the junction between the jaw and the neck is visible release vacuum to detach the cup and remove the equipment.
- Flex fetal head to deliver sinciput, face as the chin to sweeps the perineum.
- After delivery of the fetal head, clear airway.
- Rule out cord round the neck
- Wait for restitution

- Deliver the baby on to maternal abdomen
- Continue with immediate care of the newborn
- thorough first examination of the newborn should be done to rule out trauma
- Observe baby for 12- 24 hours.
- Counsel the mother in case of presence of ***chignon.*** It disappears as days go by.
- In case of any tear to the birth canal manage.

Health workers from Mombasa county in a training session practice the skill for AVD

When do we say the procedure has failed and abandon?

I. *If the cap* ***slips off twice*** *with good application and traction.*

II. *If after 3 pulls to descent of presenting part or the fetus is not deliver or near to be delivered*

III. *After 20 minutes with the procedure.*

Abandon the procedure and think of an alternative.

Complications

FETAL

- Capput succedenum
- Cephalohaematoma
- scalp abrasions or lacerations
- Chignon formation.
- jaundice
- Risk of infection.
- intracranial bleeding

Note – Metalic cup has higher risk to the complications as compared to flexible cup

Mother.

- Infections.
- Trauma - Lower genital trct injuries
- Psychological

Advantages of AVD

- ✓ Requires less training
- ✓ Clean cut rules available
- ✓ Reduces number of ceaserian sections.
- ✓ Can be performed at any level of health facility

- ✓ Doctors, Clinical officers and Nurses can perform the procedure

In summary

Remember A, B, C, D, E, F, G, H, I, J approach

- **A** - Address the mother.
- **B** - Bladder care.
- **C** - Cervical should be full dilated.
- **D** - Descent i.e. fetal head should be 1/5 descended or at station 0
- **E** - Equipment should be working
- **F** - Flexion. Fetal head must be well flexed
- **G** - Gentle- Be gentle during procedure.
- **H** - Hault- Stop traction in between contractions.
- **I** - Incision- check need for episiotomy.
- **J -** Jaw. If jaw is seen release vacuum and deliver normally.

OBSTETRICAL OPERATIONS/ PROCEDURES

CAESARIAN SECTION - CS

A procedure carried out where fetus, placenta and membranes are delivered through an incision made through the abdominal wall and uterus.

It is usually done on lower uterine segment because it is less muscular, inactive and heals faster and has low incidence of uterine rupture in subsequent pregnancies.

It is one of the services offered by comprehensive emergency obstetrical and newborn care facilities (cemonc) in prevention of maternal and newborn deaths.

Types of C/S

1. **Elective c/s**
2. **Emergency c/s**

Elective caesarian section

Operation is planned. Problem is identified antenatally prior to onset of labour

Definite indications for Emergency ceaserian section.

- Cephalo pelvic disportion
- Major degree of placenta praevia.
- High order multiple pregnancy.

Possible indication include

- Breech presentation
- DM
- APH
- Medical conditions that warrant exclusion of maternal effort
- Moderate/severe PET
- IUGR
- Certain fetal abnormalities e.g. hydrocephalus.
- IUFD
- Client's choice
- Presence of active genital warts

Emergency c/s

It is done when adverse condition develops during pregnancy or labour. It is done to save lives of either mother or baby or both.

Indications.

- APH
- Uterine rapture
- Severe PET/Eclampsia in labour

- Failure to progress in labour and fetal compromise if delivery isn't imminent.
- Maternal distress.
- Fetal distress
- Cervical dystocia
- Malpresentation
- CPD diagnosed in labour
- Presence of active genital warts
- Retained twin
- Cord prolapse in 1nd stage

Methods of c/s

- Bikini incision (lower uterine segment
- Classical/vertical incision.

BIKINI INCISION

It is commonly used method. it is associated with less muscularity thus less *activity, hemorrhage* and *faster healing*.

Abdomen is opened below umbilicus; incision follows the following anatomical layers

Skin - fat layer- rectus sheath- muscle (rectus abdominis)- abdominal peritoneum- uterine peritoneum- uterine muscle

Advantages.

- Minimal bleeding
- Good healing
- Less muscular
- Less active

- Scar not likely to rupture in subsequent pregnancies
- Trial of scar can be done.
- Cosmetic

Challenges

- Requires a more experienced doctor
- Injury of urinary bladder.

Classical incision

It is incision of the uterus transversely on upper uterine segment. It is longitudinal and made at midline of uterus. It is done only when;

- Implantation of placenta on lower uterine anterior wall of uterus.
- Fetal shoulders have impacted on maternal pelvis.

Disadvantages

1. Excessive bleeding

2. Contra indicated for trial of scar.

Pre-operative preparation for Elective- C/S

- Admit 2 days prior for adequate preparation if elective.
- Reassure the mother and relatives.
- Take maternal observations to obtain baseline data.
- Monitor FHR and rule out complications.
- Obtained informed signed concert.
- Inform theatre and other departments to include laboratory. At least two units of blood should be ready.
- Change the woman to theatre gown.
- Put an identification band to the woman
- Remove jewellery and put in safe place

- Do investigation e.g. urinalysis, GXM, Hb level, clotting and rhesus factors.
- In case of eclampsia do urea and electrolytes.
- Starve 6-8 hrs prior to operation or nil per oral from time the decision for caesarian section was reached in case of emergency.
- Fix IV line for administration of drugs and fluids.
- Preload the woman with at least two liters of fluids preferable normal saline or ringers lactate.
- Administer prophylactic antibiotics e.g. 2 gms ceftriaxone start.
- Shave only the incision site where necessary. it can still be done in theatre wherever is convenient.
- Delay catheterization and can be done in theatre just prior to the procedure.
- Explain to the mother what is expected of her during post natal care.
- Always ensure the indication for the caesarian section is still present.
- Prepare to receive the baby.

Post operative care.

- Ensure the mother is conscious upon receiving.
- Confirm from the theatre notes what has been done to the patient.
- Read and understand the post operative care for the patient.
- Inspect incision site for bleeding.
- Monitor vitals ¼ hourly for first 1hrs then ½ hrly next 1 hr then 4 hourly if caesarian section was done under GA. In case it was under spinal anesthesia observe vital signs ½ hrly until effects of anesthesia wear off.
- Nurse in left-lateral position to reduce risk of airway obstruction.
- Administer antibiotics as prescribed to prevent infection.
- Administer analgesics as prescribed to relieve pain e.g. pethidine.
- Administer antiemitics as prescribed.

- Initiate ambulation as early as possible to promote quick healing and reduce risk for DVT.
- NPO till bowel sound resume for the one who had general anesthesia. In the meantime continue with intravenous fluids. In case it was done under spinal anesthesia oral feeding can commence immediately unless she was subjected to additional anesthesia.
- Administer fluids as prescribed for the first 24 hrs.
- Remove catheter after 6 hrs if under spinal anesthesia or when able to ambulate if caesarian section was done under general anesthesia or 14 days in case of obstructed labour or fear of injury to the bladder.
- Ensure adequate rest.
- Teach on exercises e.g. breathing deeply and let her perform.
- Monitor input- output for risk of circulatory overload
- Let mother report any complication e.g. haematuria, fever, bleeding from incision site.
- Initiate breastfeeding as early as possible.
- COD on third day POD and ROS on 7^{th} day POD.
- Discharge through Mch/fp and GOPC.
- Heath educate on hygiene and wound care.

Complications

- PPH.
- Pulmonary embolism due to GA effects
- DVT related to immobility
- Infection
- RDS due to GA
- Rupture 2^0 scar.
- Gaping.
- Paralytic illeus.

- Stress.

CERVICAL CEALAGE

It's passing of a support tape/stitch around cervix to close it.

Indications

- Cervical incompetency
- Cervical tear

Causes of cervix incompetence

- Congenital
- Uterine abnormality
- Exposure to drugs.
- Trauma from D&C
- Laceration sustained during last labour.

Contraindication to stitch.

- PV bleeding
- Infection
- Contractions.

Types of cervical stitches

(1) **Mc Donald.** Not permanent. Removed between 30- 37 weeks gestation for SVD.

(2) **Shirodikar.** Mostly permanent. Delivery this ceaserian section. It's at internal OS.

(3) **Abdominal stitch.** Done beyond internet OS mostly permanent.

(4) **Herner.** Done when incompetency is diagnosed in late pregnancy.

(5) **Last.** Done prior to pregnancy incase where adhesive cervix trauma or anatomical effect is permanent.

Procedure.

- McDonald stitch should be inserted at 14 – 16 weeks after last abortion.
- Lithotomy position is used.
- Vagina and cervix are washed under direct vision after passage of Sims speculum.
- Can be done under G.A or L.A.
- Traction in opposite direction with ring placed on the direction and posterior cervical lips.
- A suture is passed round the cervix and taking bites in all 4 quadrants of cervix.

Post procedure

- Strict bed rest.
- AB after 24hrs.
- Monitor for signs of labour
- Watch for signs of premature labour.
- Advice for regular
- Admit at 37 weeks.
- Counsel to avoid strenuous Activity.

Risks.

- Haemorrhage
- Cervical infection
- Premature labour
- Cervical displacement
- PROM
- Cervical rapture

- Injury to cervix or bladder.
- Chorio-amnionitis
- Cervical dystocia

AMNIOCENTESIS.

Definition: It is the trans- abdominal insertion of a fine needle into the amniotic fluid cavity under continuous U/S guidance to aspirate amniotic fluid.

It is usually done after 15 weeks gestation.

Indications.

- Detect genetic/chromosome problems
- Detect sex of baby.
- Detect rheumatic heart disease
- Detect neural defects.
- Bilirubin levels in case of rhesus incompatibilities

Indications in late pregnancy.

1. Assess fetal lung maturity

2. Polyhydrominous

3. Assess level of bilirubin increase of RH incompatibility

4. Infections

Procedure

- ✓ Explain procedure
- ✓ Tell indications
- ✓ Reassure
- ✓ U/S is done and placenta localized and pool of amniotic fluid
- ✓ Advice women to empty bladder
- ✓ Aseptically clean, dry and swab skin with antiseptic solution

- ✓ The needle is inserted though abdomen wall into uterine cavity
- ✓ Local anaesthesia given and 15ms of amniotic fluid aspirated
- ✓ If RH incompatibility is present antihaemoglobin is given
- ✓ Contents are examined
- ✓ Mother is advised to rest for the first 24hrs and reduce physical exercise

Side effect/ minor disorders.

- ✓ Anxiety
- ✓ Nausea
- ✓ Tachycardia
- ✓ Muscle cramps on abdomen

Risk factors to mother

- ✓ PPROM
- ✓ Rhesus incompatibility
- ✓ APH
- ✓ AFE (amniotic fluid embolism)
- ✓ Infection
- ✓ Preterm labour
- ✓ Onset of labour

Risk factors associated to baby

- ➢ Trauma
- ➢ Abortion
- ➢ Prematurity
- ➢ Fatal death

Complications

- ➢ Leakage of amniotic fluid at site Induce miscarriage

- Infection if not done aseptically
- Spontaneous rupture of membranes

EMBRYOTOMY

It is a destructive operation designed to reduce part of fetus and allow for vaginal delivery, usually done on dead and glossy abnormal fetus and consist of 4 procedures

1. **Craniotomy**

Includes introduction of forceps into the fatal skull to release CSF and brain tissues thus skull reduces in size as the bones collapse and the diameter educes; The child can be born.

Indications

- **Impacted shoulder presentation**
- Delayed second stage and dad baby
- Fetus and gross abnormality
- Double leaded monster
- Locked twins
- Impacted brown
- Hydrocephaly (LUFD)

Procedure

Assistant presses on the abdomen downwards on the head
A perforation is carefully passed on the skull through a suture or fontanelle. The opening is enlarged closing the handle. Delivery completed by obstetric forceps.

With breech, drain hydrocephaly by passing a straight metal cannula upto the spinal cord.

2. **Decapitation**

Cutting is done to separate the head from the trunk and is indicated in case of impacted shoulder presentation and fetus is dead and incase of locked twins and double headed monster.

Its gently positioned by the fetus neck where the hook is pressed using the left hand while the right hand guard the maternal tissues from trauma

By combination of swinging and gentle traction the hand is cut and body delivered by pulling the arm.

3. **Cleidoctomy**

It involves cutting of the clavicle bone of shoulders to reduce the width of the shoulders on case of excessively large babies, CPD impacted shoulders.

The instrument used is a cleidoctomy scissors.

4. **Evisceration**

Done to reduce bulky in the abdomen mostly in case of abdomen mass.

MANAGEMENT OF A MOTHER IN LABOUR UNDERGOING EMBRYOTOMY

- Explain procedure
- Psychological prepare the mother according to procedure.
- Correct dehydration and ketoacidosis with IV fluids
- Bladder care and shave public hair
- Prepare for c/s incase preparation fails
- Nurse mother in a single room away from babies
- Suppress lactation by advising on tight brassier.
- Observe lochia
- Daily exam of the mother
- Do HB before discharge

- Discharge the GOPC.

PERINEAL TEARS

Are lacerations or trauma involving theperineum and vilva following delivery. Can be prevented by giving an episiotomy.

Classifications

1st Degree - involves vagina muscles and skin of premium (fourchette only)

2nd degree – involves fourchette and perineal muscle

3rd degree - 2nd degree + anal sphincter muscle

4th degree – all above extend to rectal mucosa.

PREDISPOSING FACTORS.

- ✓ Rigid premium especially in primigravidas
- ✓ Previous tears
- ✓ Malposition in which large diameters extent premium
- ✓ Large babies
- ✓ Android pelvis i.e. narrow pelvic arch
- ✓ Instrumental deliveries
- ✓ Delivery of after coming head in breed delivery.

Principals of repair

1. use minimal suture material
2. Aim at achieving haemostasis
3. Minimal knots
4. Relieve pain
5. Avoid creating dead space

6. Infection prevention
7. Profilactic antibiotics administration
8. Maintain anatomical structure.

Management

- Follow principals of perineal tear repair
- 1st and 2nd degree are repaired under LA in labour ward while 3rd and 4th degree are repaired under GA in theatre to prevent infection and permanent damage.

Post repair care.

- Provide balanced diet
- Give suppositories to soften stool
- advice to clean with warm saline water
- Give antibiotics
- Advice to maintain good personal hygiene
- Advice delay of sexual intercourse till healing takes place
- Avoid saline sits
- Avoid very hot water or too much salt s may interfere with healing process.
- If absorbable suture was used inform the mother that there will be removal of stitches.
- in case the wound opens, leave it for 3months before 2nd repair
- Debridement may be done in case of severe infection and necrosis.
- If repair is successful, subsequent delivers should be normal.

Complication of tears

- ✓ Burning sensation of mituration
- ✓ Incontinence
- ✓ Infections bleeding
- ✓ Fistula

SYMPHYSIOTOMY

A surgical procedure in which the symphysis pubis is incised to widen the pelvis allowing increase in anterior- posterior when there is a mechanical problem

It is a surgical incision to separate symphysis pubis to enlarge the pelvic let out to aid delivery.

It results in a temporally increase of the pelvis diameter up to 2cm by surgically divided the ligaments of symphisis public under local anaesthesia

Procedure is carried out in combination and vagina extraction

Indications

- ✓ Tripped head of a breech presentation
- ✓ Shoulder dystocia which does it deserve routine manuvoure
- ✓ Obstructed labour at full cervix dilatation when there is no option for c/s

Advantages

No scar to uterus hence no risk of uterine rapture

Demerits

- ➢ Uterine and bladder injury due to abduction of thighs more than 45^0 from midline

- Infection
- Pain
- Long term waking difficulties

NB: should be carried out only when there is no other safe alternative

The procedure should be repeated during subsequent deliveries due to gait problems and continuous pain

Post operative care

- ✓ Analgesics to relieve pain
- ✓ Apply elastic strapping from one iliac crest to the other to stabilize the symphysis pubis / reduce pain
- ✓ Leave strapping in situ for 10 days. < 5days (likely hood of oedema)
- ✓ Encourage woman to drink plenty of fluids to ensure good urinary output
- ✓ Encourage bed rest for 4 days after discharge
- ✓ Offer total nursing care
- ✓ Encourage to start walking assistance if needed to.
- ✓ Insert urinary catheter to empty bladder.

Contraindications

Dead fetus

Incomplete dilatation of cervix

Malposition

Non – longitudinal lie

ABNORMAL PREGNANCY

INTRA-UTERINE GROWTH RETARDATION (IUGR)

Content

- Define IUGR
- Describe pre-disposing factors
- Classification IUGR
- Describe Diagnosis of IUGR
- Describe the Management of IUGR
- Describe Complications OF IUGR
- Describe Preventive measures to IUGR.

Definition. This refers to a condition where there is poor growth of the fetus while in the uterus. The baby is weighing less than 90% of expected normal weight per gestational age.

This is usually followed by normal fetal growth potential during the 1st and 2nd trimester but during the 3rd trimester, the growth becomes severely reduced by unfavorable extra fetal and fetal factors

PRE-DISPOSING FACTORS

i. **Maternal factors**
- PET
- Uncontrolled diabetes mellitus
- Chronic hypertension

- Maternal malnutrition
- High altitudes
- Recurrent malaria infection
- Anaemia
- HIV. TB, SCD
- Young and elderly mothers

Risk factors

- Alcohol abuse
- Clotting disorders
- Drug addiction
- Kidney disease
- Poor nutrition
- Smoking
- Poor socio- economic status

ii. Fetal factors

- Congenital malformation e.g. esophageal atresia
- Genetic disorder e.g. down's syndrome
- Fetal infection e.g. herpes simplex, rubella
- Multiple pregnancy

iii. Placental factors

- Placental abruption
- Abnormal placentation.
- Abdominal cord insertion
- Chorioamnionitis
- Single umbilical artery
- Too small placenta
- Oligohydromnous

Classification

- **Symmetric**
- **Asymmetric**

Diagnosis

Note- Ensure the gestational age is established.

- Fundal height that does not coincide with gestational age.

- Reduced maternal weight
- Reduced amount of amniotic fluid- amniotic fluid index
- Bi parietal diameter
- Head circumference
- Abdominal circumference
- Reduced femur length.

INVESTIGATIONS

- Ultrasound
- Alpha fetal protein to rule out fetal abnormalities
- Amniocentesis
- Specific investigation
- Human placenta lactogen (if reduced) to check for placental sufficiency

Management

- Antenatally
- Management of this condition is individualized for each woman
- Ensure adequate rest
- Book the woman most frequently
- Educate the mother on FKC.
- Observe fetal conditions every visit
- Serial u/sounds can be done
- If there is evidence of symmetrical type, amniocentesis can be done.
- If condition cannot allow home management admit.
- Ensure the mother stays in hospital for management
- Monitor pregnancy by checking fetal heart, f. size, amount of liquor, maternal weight and girth
- Teach and give fetal kick chart to monitor fetal movements
- Make a definite decision on when and how to deliver the baby
- In the management, include, pediatrician, obstetrician etc
- During delivery choose the best method of delivery
- It the fetus is in greater danger, deliver by elective c/s
- Some can be delivered by induction – do bishops score
- Fetal maturity should be weighed against severity of IUGR before induction
- Before induction, do a bishop score (when the cervix is well effaced, well dilated, soft, cervix is anteriorly) the induction will be good if the presenting part will be attached

COMPLICATIONS

- Neonatal asphyxia
- Hypoglycemia

- cerebral haemorrhage
- Intra-uterine fetal hypoxia
- Prematurity with its complications
- IUFD
- Delayed milestone

PREVENTION

- Most genetic factors are not preventable
- Prenatal women should avoid close contact in infected individuals with rubella, cytomegalovirus e.tc.
- Non prenatal women should be tested for rubella and if susceptible should be immunized.
- Pregnant women should avoid alcohol and smoking
- Good management of hypertension, PET and chronic renal disease
- Correct maternal anaemia
- Ensure adequate maternal nutrition

INTRA UTERINE FETAL DEATH (IUFD)

Objectives

- Define IUFD
- Describe the Causes of IUFD
- Describe the Diagnosis of IUFD
- Describe management of IUFD
- Describe Complications
- Describe Preventive measures

Definition

It is the death of the fetus that occurs for no apparent reason in a normal uncomplicated pregnancy in 20 weeks gestation and the fetus weighs 350 gms and above.

Causes

- Maternal
- fetal
- placental

Maternal

- prolonged pregnancy
- maternal conditions e.g. poorly controlled diabetes mellitus, severe anaemia, acute severe maternal hypertension, pet, sickle cell disease, malaria
- acute or severe maternal hypotension
- uterine rupture
- massage
- External cephalic version
- Trauma on the abdomen
- Obesity
- Advanced maternal age
- History of IUFD
- Smoking
- Alcoholism
- Infections
- Rhesus incompatibity
- Maternal death

fetal causes

- Multiple pregnancy e.g. monozygomous twins
- Congenital abnormality
- Genetic abnormalities e.g. down syndrome
- infections
- Intra uterine growth retardation
- Prom
- Retained second twin.

Placental causes

- Placental abnormalities
- Cord accidents
- Placenta abruption, previa

Diagnosis

- History taking- mother complains of no fetal movements
- Fetal heart rate absent on fetal scope, Doppler and uls.
- Abdominal palpation- fundus not increasing in size, baby on lower side of the abdomen and in transverse lie.
- X- ray- demonstrates overlapping skull bones, oedema of the skull and gas bubbles, hyper-flexion of the spine.
- Maternal weight decreases.
- Breast softening
- Brownish vaginal discharge
- Pregnancy test becomes negative with time.
- Mother complains of feeling baby moving with change of position

Management

Let the mother know of the condition.

Take a good detailed history.

If not sure of the diagnosis book after 2- 4 weeks

Admit the mother and reassure her

Do abdominal palpation to confirm with the above findings

Send the mother for u/s and will reveal,

- Abnormal fetal head
- Overlapping fetal skull
- Edematous skull

Arrange for early induction of labour
If in labour manage as normal labour and avoid rupture of membranes.

If not in labour, plan for induction and before induction check blood clotting time.

Start the woman on antibiotics prophylactically

Woman to avoid sex 4- 6 weeks

Advice the woman on family planning

Give psychological and emotional support to the woman

Prevention

- Discourage massage
- Give SP for malaria prevention
- Early diagnosis of anaemia and treatment
- Encourage ANC visits
- Screen and manage conditions/ diseases antenatally e.g. venereal diseases.

Complications

- Puerperal sepsis
- DIC
- Amniotic embolism
- PPH
- psychological

PYELONEPHRITIS IN PREGNANCY

Definition: This is an ascending UTI that has reached the pelvis of the kidney. It occurs mostly common between 16 – 20 week of gestation.

It is inflammation of kidney cortex and medulla.

Predisposing factors

- Pregnancy

- Previous history of sexual transmitted infection.
- Poor hygiene
- Stasis of urine
- Primiparity
- Other conditions e.g. HIV/AIDS

Risk factors

- Structural abnormalities of kidney/ urinary tract
- constitutional factors e.g. DM, HIV/AIDS/TB
- multiple sexual partners
- unprotected sexual intercourse
- failure to attend clinic
- poor personal hygiene

Clinical presentation

- Pyrexia
- Tachycardia
- Nausea and vomiting
- Dysuria
- Dull headache
- Cloudy urine
- desire to pass urine frequently
- suprapubic pain – pain and tenderness on franks
- foul smelling urine

Causative organisms

- e. colii
- pseudomonas fecalis
- viruses
- streptococcus fecalis

- normal flora of skin

Diagnosis

- Histoy
- Physical examination
- Urine dipstick
- Mid stream specimen of urine
- HVS for culture and sensitivity

Management

Admit

Monitor vital signs

Rehydrate the mother with i.v. fluids due to fever and nausea and vomiting

Start the mother on antibiotics

- *Recommended treatment should go up to delivery after onset of treatment.*
- *Ceftriaxone i.v. 1gm od for 10 – 14 days*

Or

- *Erythromycin 500mgs/Ampicillin/ amoxyl 500 QID plus flagyl 400mgs for 10- 14 days*
- *Nitrofurantion*
- *iv fluids*

Closely monitor input output monitoring.

If the cause is sexual tract infection involve the partner in management

Administer oral laxatives and antispasmodics.

Monitor onset of labour.

Repeat tests for urine 2 weeks after completion of treatment then motherly till onset of labour.

Encourage the mother to take a balanced diet rich in protein.

Health educate on hygiene, exercises, rest, diet, etc.

Continue with general nursing care.

Continue with management of the woman as an antenatal.

Complications

- Renal failure
- Abortions
- Premature labour
- Puerperal sepsis
- Shock
- DVT
- Acute respiratory distress syndrome

TWIN PREGNANCY

Definition: It's the presence of more than one fetus in the uterus at the same time.

Types

1. Monozygotic
2. Dizygotic

Monozygotic twins

Develop from fusion of one ovum and one spermatozoa. After fertilization it splits into two.

Characteristics of monozygotic twins

- *Identical*

- Same sex
- Same gene
- Same blood group
- Same physical features
- Share the same placenta and chorion
- Share the same circulatory system
- Finger and palm prints are identical
- Congenital malformations are identical

Dizygotic twins

Develop from fertilization of two different ova and two different sperms.

Characteristics

- They are not alike. Are two different persons.
- May or may not be of the same sex
- Physical and mental characteristic are different.
- Its genetical and runs in family
- Has separate placenta and chorion
- Do not share the same circulation system
- Common to elderly or multiporous women

Diagnosis of twin pregnancy.

Diagnosis can be done through,

1. History taking
2. Physical examination
3. Laboratory findings
4. Ultrasonic examination

Note: a combination of findings may be required for one to make a diagnosis.

1. **History**

- History of multiple pregnancy
- Bleeding
- Exaggerated problems of pregnancy
- Exaggerated pressure symptoms
- Multiple and constant fetal movements
- Excessive weight gain

2. **Physical examination**

I. Inspection

- Uterus may be big, round and broad.
- Fetal movements seen over a wider area.
- A fresh striae gravidarum may be present.

II. Abdominal palpation

- Multiple fetal parts
- Small head per gestation
- Fundal height greater than expected
- Palpation of fundus above level of umbilicus after delivery of first baby.

III. Auscultation

- Two fetal heart rates. (2 fetal hearts heard at the same time taken by 2 midwives at a distance of 10 cms or more apart and with a difference of 10 beats.)

IV. Vaginal examination

- Palpation of a fetal part or an intact amniotic sac after delivery of the first baby.

3. Laboratory findings

- Raised alpha- fetal protein level
- Increased HCGH
- Elevated glucose level in blood
- Elevated anemia level

4. Ultrasonic examination

- demonstration of 2 fetal sacs in early pregnancy
- demonstration of 2 fetal skeletons

Possible presentations

- Vertex/ vertex
- Vertex/ breech
- Breech/ vertex
- Breech/ breech
- Vertex/ transverse
- Vertex / transverse
- Breech/ transvers

MANAGEMENT ANTENATALLY

- Take history of the mother
- Reassure
- Follow FANC guidelines
- Early diagnosis of twins is important in order to prevent problems or manage associated with twin pregnancy.
- Book the mother for ANC and high risk clinic for close observations.
- Her management should be multidisplinary e.g. midwives, radiographers, e.t.c.
- Prepare and assist in carrying out investigations like BP and rhesus factor, urinalysis.
- Repeated abdominal obstetrical scans can be done to rule out presence of any congenital abnormalities.
- Administer drugs such as iron suppliments to prevent anaemia.
- Educate on the importance of extra rest at home to prevent complications such as early rupture of membranes, premature labour e.t.c.
- Reduce pressure activities after 28 weeks of gestation.
- Avoid strenuous activities e.g. walking long distances
- Advice the mother on hygiene to prevent infections
- Educate on danger signs during pregnancy
- Avoid un prescribed drugs
- Advice the woman to avoid alcohol and smoking.
- Counsel her on exaggerated minor disorders of pregnancy.
- Counsel her to expect two babies and about their care – parenting.
- Advise her on hospital delivery. let her consider delivering in a comprehensive care facility.

- Ct with general management of an antenatal woman.
    - History
    - Physical exam
    - Height and weight measurement
    - Antenatal profile
    - Deforming
    - ifas
    - IPT with sp
    - Tetanus toxoid administration
    - Provision of net
    - EMTCT services
    - Health education
    - Book for next visit

Management during first stage of labour.

- Admit and reassure the mother about the twin pregnancy and possible complications.
- Fix two large bore cannullas.
- Take blood sample for investigations e.g. grouping and cross match.
- Rehydrate the mother with normal saline
- Do physical examination- palpate to confirm lie and presentation

If first twin is breech delivery is by ceaserian section

Or

If both fetus are presenting with cephalic delivery is by ceaserian section.

Or

If the woman is a primi and in first stage of labour delivery is by ceaserian section.

- Closely monitor the labour by use of partograph
- Encourage the mother to empty her bladder every 2 hours. Test urine for ketone, albumin e.t.c.
- Encourage ambulation if membranes are still intact. if on bed to avoid adopting the right lateral position.
- In case of mild contractions rupture membranes and administer syntocinon.
- Avoid sedation.
- Manage pain appropriately e.g. paracetamol 500 mgs – 1gram start, back rubbing, e.t.c.
- Observe infection prevention throughout labour
- Insist the woman breathe through the mouth with every contraction
- The birth partner can be present to provide support
- Teach the mother on what is expected of her during second stage of labour e.g. push with every contraction
- Prepare two delivery packs
- Prepare for second stage of labour

Management during second stage of labour

- Confirm second stage through vaginal examination
- Inform other staffs
- Monitor fatal heart closely
- Prepare for resuscitation
- Encourage mother to push with every contraction
- Deliver the first baby and hand over to the assistant for further management
- Let first twin be labeled as *first twin.*

Withhold administration of syntocinon

- Palpate the abdomen to a certain the lie and presentation and engagement of the second twin.
- If there is an abnormal lie perform either ***internal podalic or external cephalic version.***

  With ***internal podalic version*** *done when membranes are ruptured. Insert one hand and grasp the fetus by the feet at the level of the ankle. Pull the legs towards the lower uterine segment and deliver as breech presentation.*

  For ***external cephalic version*** *done when membranes are intact. Palpate the abdomen to locate the head and the buttocks. Apply downward traction to the fetal occiput following the direction of the cord. Direct the fetal head to the pelvis. The other hand will be direction the buttocks to the fundus.*

- Check FHR
- Perform vaginal examination to check if membranes are ruptured or intact. If intact rupture membranes.

- Assess contractions - in case contractions are reduced as it is common after delivery of the first baby augument with syntocinon.
- Encourage the mother to push with every contraction
- Second twin must be delivered with 45 minutes or otherwise if signs of maternal or fetal distress appear prepare the woman for emergency ceaserian section.
- Once second twin is delivered on maternal abdomen, and clamping and cutting of the cord done hand over to the assistant and baby labeled *second twin.*
- *Congratulate the mother.*
- *continue with immediate care of the baby*

Third stage of labour

- palpate the abdomen to rule out other undiagnosed fetus. The fundus should be palpated below the level of the umbilicus.
- Continue with Active Management of Third Stage of Labour (AMSTL) as per guidelines.
- Give syntocinon. If mother was on syntocinon drip let it run for the next 1 hr.

Serves as Prophylactic management for pph.

- While supporting the uterus hold the two cords simultaneously and deliver the placenta.
- Examine placenta
- strengthen AMSTL
- Massage the abdomen after every 15 minutes
- Advice the mother to empty bladder immediately then after every 2 hours
- Perform a thorough 1st examination of the fetus to rule out congenital abnormalities.
- Ct management of the baby depending on the condition.

Management postnatally.

- Just like any postnatal mother
- Reassure her about caring for two babies.
- Let the mother take balanced diet to boost her nutritional status
- Give health messages
- Management might be directed by children's, condition.
- Follow targeted post partum care strategy and policy.
- Advise on long term methods of family planning for women with desired family size.

Babies after delivery

- If light for dates check sugars
- If asphyxiated resuscitate
- If premature manage as case of prematurity.
- for congenital abnormalities refer appropriately
- otherwise continue with routine management of the baby.

Complications/ effects associated with twin pregnancy

- Exaggeration of minor disorders e.g. vomiting, high levels of HCG hormone.
- Anaemia due to high fetal demand (iron, folic, vit B12 deficiency)
- Polyhydromnious in monochorionic.
- Congenital disorders e.g. congenital cardiac diseases, down syndrome e.t.c.
- Increased pressure symptoms
- Predisposes to conditions like Pre- eclampsia is common
- Premature labour due to over distention of abdomen.
- Premature rupture of membranes due to pressure in the uterus

- Retained twin due to relaxation of the uterus
- Prematurity due to premature labour
- Cord prolapsed with second twin
- Intra uterine growth restriction associated with competition for nutrition
- PPH due to uterus exhaustion especially atonic uterus.
- Prolonged labour – due to malpresentation and poor uterine action
- psychological effect (positive/ negative)

RHESUS INCOMPATIBILITY

Rhesus factor is a protein bound in red blood cells. When you have that protein you are termed as **rhesus positive**. When you don't have it you are considered **rhesus negative**. Naturally majority of the population is rhesus positive.

When the woman is rhesus negative there is likelihood that the husband could be rhesus positive.

Risk develops when the woman is rhesus negative and is carrying a baby who happens to be rhesus positive.

Risk factors

- Abortion
- Miscarriage
- Ante partum hemorrhage
- Amniocentesis
- Trauma
- Chorionic villi aspiration

Diagnosis

- Serum bilirubin level
- Rhesus factor
- Hemolytic process
- Antibodies (direct and indirect coombs)

Prevention

Always aim at prevention.

- Prenatally take a blood sample from the mother and check if the mother has developed antibodies against rhesus positive blood.
- Antenatally test the husband to confirm whether rhesus positive or negative. if the husband is rhesus positive then the mother is at risk. in case the rhesus factor of the husband remains unknown consider the woman at risk since the greater population is usually rhesus positive.
- Administer anti- D profilactically at 28- 32 weeks gestation. This is due to the higher risk of fetal and maternal blood mixing associated to the events of the placenta at this time.
- Administer anti- D profilactically at 36 – 40 weeks gestation. It is advisable an ***indirect coombs*** test is done before administration to rule out sensitivity.
- A great risk is associated with delivery process. Ensure anti- D is administered within 72 weeks after the birth of the baby. However it is advisable a ***direct coombs*** can be done before administration for confirm presence of maternal antibodies. A blood sample can be taken to confirm the rhesus factor of the newborn, if negative the mother carries no risk so administration of the anti D can be withdrawn.

Care of baby after birth

- Continue monitoring the baby.
- Blood works can be done to include:

- hb level
- bilirubin level

- Rule out asphyxia neonatorum
- Rule out kernicterus associated with high bilirubin levels.

Complications

- Abortions
- Miscarriages
- Anaemia
- Jaundice
- Birth asphyxia

- Infertility
- Hydrops fetalis
- IUFD
- Still birth

PREMATURE RUPTURE OF MEMBRANES

Definition: This is a condition occurring during pregnancy where there is rupture of the membrane at least 1 hour before onset of labour.

It can occur before at term and posses less risk to the fetus. If it occurs before 37 complete weeks of gestation it is called preterm premature rupture of membranes (PPROM).

Classification

1. Premature rupture of membranes (PROM)

This is a condition occurring during pregnancy where there is rupture of the membrane at least 1 hour before onset of labour.

2. Preterm premature rupture of membranes (PPROM)

Membranes have ruptured before 37 complete weeks gestation.

3. Prolonged premature rupture of membranes (Prolonged PROM)

Membranes have ruptured and 24 hours have elapsed without onset of labour.

4. Pre- viable premature rupture of membranes (Pre- viable PROM)

Membranes have ruptured when the baby can not survive once born.

Risk factors

- ✓ Infections

- ✓ Polyhydromnious
- ✓ multiple pregnancy
- ✓ cervical incompetence
- ✓ previous history of prom
- ✓ Psychological problems
- ✓ Amniocentesis
- ✓ being underweight
- ✓ low socioeconomic status
- ✓ Illicit drug use and smoking
- ✓ Any condition that increase Bp e.g. PET

Diagnosis

1. **Take proper history from mother**
2. **On speculum exam**

Fluid is seen coming from cervix or forming a pool in the posterior fornix

A gush of fluid after mother cough

3. **Nitrazine test**

Nitrazine paper or speculum blade attached to fluid color is yellow - blue alkalinity

4. **Ferning test**

Spread some fluid on a slide and let it dryon microscope amniotic fluid forms crystals

5. **Abdominal U/S** reveals Oligohydromnous
6. **Abdominal palpation** reveals decreased fundal height
7. **Do litmus test**
8. Give a pad and later examine presence of amniotic fluid

Differential diagnosis

- ➢ Urinary incontinence.
- ➢ Sweating associated with pregnancy.

- Normal vaginal discharge during pregnancy.
- Increasing cervical discharge.
- Semen.
- Douch.
- Loss of mucus plug.
- Vesico- vaginal fistula.

Students from MTC Kilifi campus in a discussion during a class session.

MANAGEMENT

- Admit.
- Reassure.
- Provide adequate rest
- Do a speculum to confirm a pool of fluid.
- Avoid digital vaginal to decrease risk of infection.
- Monitor FHR closely
- Administer antibiotics to treat existing infection or profillactically.
- If mother is below 37weeks hospitalize.
- Abdominal scan to assess fetal growth and complications of oligohydromnious e.g. hypoxia.
- Do weekly RWBC to R/O infection

- In case of signs of labour, administer drugs like salbutamol 4mg to prolong pregnancy.
- Administer dexamethasone for lung maturity.
- If membranes ruptured before 24weeks, fetus is likely to succumb to problem of oligohydromnious or preterm birth: Termination of pregnancy is done
- If pregnant more than 32weeks gestation, fetus appears compromised e.g. hypoxia, intervene, labour is confirmed let it progress OR induce OR c/s
- Monitor vital especially FHR
- Observe amniotic fluid to R/o meconium
- In case of infection or IUFD induction is done
- Encourage personal hygiene i.e. change of pads
- If prom happens after 37weeks start the mother on antibiotics, manage for induction of labour and don't wait for spontaneous labour

Prevention

- antenatal profile
- rest
- management of condition e.g. pet, hypertension
- early diagnosis and treatment of UTI
- avoid smoking and illicit drugs

Complications to the mother

- Infections
- Amniotic fluid embolism
- Psychological problems

To the fetus

- Malpresentation
- Prematurity

- Cord compression
- Cord prolapse
- Opthalmia neonatorum
- IUF hypoxia
- IUFD

PRE ECLAMPSIA

Definition

It is a condition occurring during pregnancy >20 weeks gestation characterized by high blood pressure and protein in urine.

AETIOLOGY

It is associated with

- Toxicity produced by placenta for the first time
- Over distension of the abdomen
- Immunological changes as the fetus is developing

The three events make the condition affect multi system and multi organ. The blood vessels become Leakey. Fluids now tend to shift from intravascular to extra vascular space.

Predisposing Factors

1. Primigravida
2. Primipartenity
3. previous positive family or personal history of pet
4. Medical conditions e.g. diabetes, mellitus, hypertension, renal disease, URTI in advanced stage
5. elderly primigravida >35 years
6. young primigravida <18 years of age
7. Multiple pregnancy
8. Hydatidiform mole
9. Hydropsfetalis
10. Polyhydromnious
11. Rhesus incompartibity
12. Obese mothers

Classification

a) *Mild pet* – **Pre- eclampsia without signs**
   Bp 140/90mmhg, protein ++ and gestation >20 weeks
b) *Severe pet* – **Pre- eclampsia with signs**
   Bp 160/110mmhg, protein +++ or blood pressure as for mild but with any sign of severity ad gestation >20 weeks
c) *Eclampsia*
   High blood pressure, protein in urine, gestation >20 weeks and presence of fits.

Signs of severity in PET

a) *Sudden sharp rise in Bp*
b) *Diminished urinary output*
c) *Hypereflexia*
d) *Clonus*
e) *Blurred vision*
f) *Increase in proteinuria*
g) *Thrombocytopenea*
h) *Severe and persistent frontal headache*
i) *Nausea & vomiting*
j) *Epigastric pain*

Effects of PET to pregnancy

1. *Placenta abruption*
2. *Intrauterine growth restriction*
3. *Prematurity*
4. *Intra uterine fetal hypoxia*
5. *Low birth weight*
6. *Damage to vital organs e.g. kidney, eye brain heart etc.*
7. *Intra uterine fetal death*

Effects of PET to the woman

1. brain hypoxia
2. cerebral vascular accident
3. brain heriation
4. cerebral oedema
5. head injury
6. temporary blindness
7. pulmonary oedema
8. liver oedema
9. liver failure
10. liver rupture
11. kidney failure
12. HELLP syndrome

NOTE: All women at risk of developing pet can receive **aspirin** throughout pregnancy to reduce the chances of developing pet.

Mild pet – Pre eclampsia withost signs

It is a condition occurring during pregnancy >20 weeks gestation characterized by high blood pressure of 140/90mmgh and protein in urine ++.

Management of mild PET

Note: All women at risk of developing pet should receive daily aspirin 150mgs. Research has shown that aspirin reduces the chances of developing pet.

a) Book the mother in high risk clinic
b) Schedule her on 2 weekly visits to the antenatal clinic
c) Take Bp and record
d) take weight and height
e) perform physical examination
f) Test urine for protein
g) Take fetal heart (between 120-160)
h) Measure the abdomen in order to detect abnormal fundal height.
i) Prescribe to the mother some mild sedatives e.g. phenobarbitone (30-60mg) to assist her acquire enough rest
j) Advice the mother on high protein diet
k) Advice the mother on rest at home

l) Advice the mother on fetal activity and any reduced activity she should come to the clinic. Reinforce this by teaching the mother on maintenance of fetal kick count (FKC) chart.
m) Advice the mother on signs of severe PET e.g. severe headache, epigastric pain. if she notices any she should come to the clinic.
n) Advice the mother to come for admission when pregnancy reaches 38 weeks gestation
o) Give the mother antihypertensive aldomet 250- 750mgs three times or twice a day and nifedipine 20 mgs twice a day.
p) Ensure the mother receives the other routine antenatal care services e.g.
    - physical examination
    - provision of treated net
    - deworming
    - antenatal profile
    - administration of tetanus toxoid
    - administration of haematenics - IFAS
    - emtct
    - administration of sulfadoxine pymerathymine - sp
    - health education
    - book for next

q) On the day the woman comes for next visit apart from routine ante natal care services ensure the following is done
    - fetal heart rate monitoring to rule out fetal hypoxia
    - Fundal height measurement to rule out IUGR
    - Protein in urine
    - Blood pressure measurement
    - Drug compliance
    - Check signs of severity
    - FKC record

SEVERE PET – Pre- eclampsia with signs

This is a condition occurring during pregnancy >20 weeks gestation characterized by high blood pressure of 160/110mmgh and protein in urine +++.

Principles of management

a) Control of blood pressure
b) Prevention of convulsions
c) delivery option

Management of severe PET

a) Admit the mother in a quiet room in a facility capable to offer comprehensive emergency obstetrical and newborn care (if in a health centre refer)
b) Ensure mother gets enough bed rest with a 24 hour nursing coverage.
c) Reassure the mother
d) call for help from senior member present
e) Give the mother some sedatives e.g. phenobarbitone 30-60mg
f) The aim of management is to prevent convulsion, control Bp and prevent maternal and fetal death.
g) Management of blood pressure.
    - Administer intravenous hydrallazine 5mgs as bolus slowly over 5 minutes. Repeat the dose every 30 minutes to a maximum of 20mgs. Aim at achieving a diastolic blood pressure of 90mmgh.
    - Once the diastolic is 90mmgh administer oral aldomet 250 – 750 mgs and nifedipine to prevent rebound high blood pressure.
    - Other drugs to include labetalol can be administered.

Example of how hydrallazine administration,

Time	Bp reading	dose	Remarks
10 am	160/120	5mgs	Check bp before next dose
10.30 am	150/110	5mgs	Monitor bp
11 00 am	140/90	Don't give	Start oral antihypertensive. monitor bp
11.30 am	-	-	-

Know how to prepare hydrallazine and administer.

Step 1: Dilute hydrallazine with 2 mls of water for injection.

Step 2: Use 20 mls syringe. Add 18 mls of the same diluent to the 2 mls to get a bigger volume of 20 ml.

Step 3: Divide 20 the mls into 4 parts. 5 mls is equal to 5 mgs.

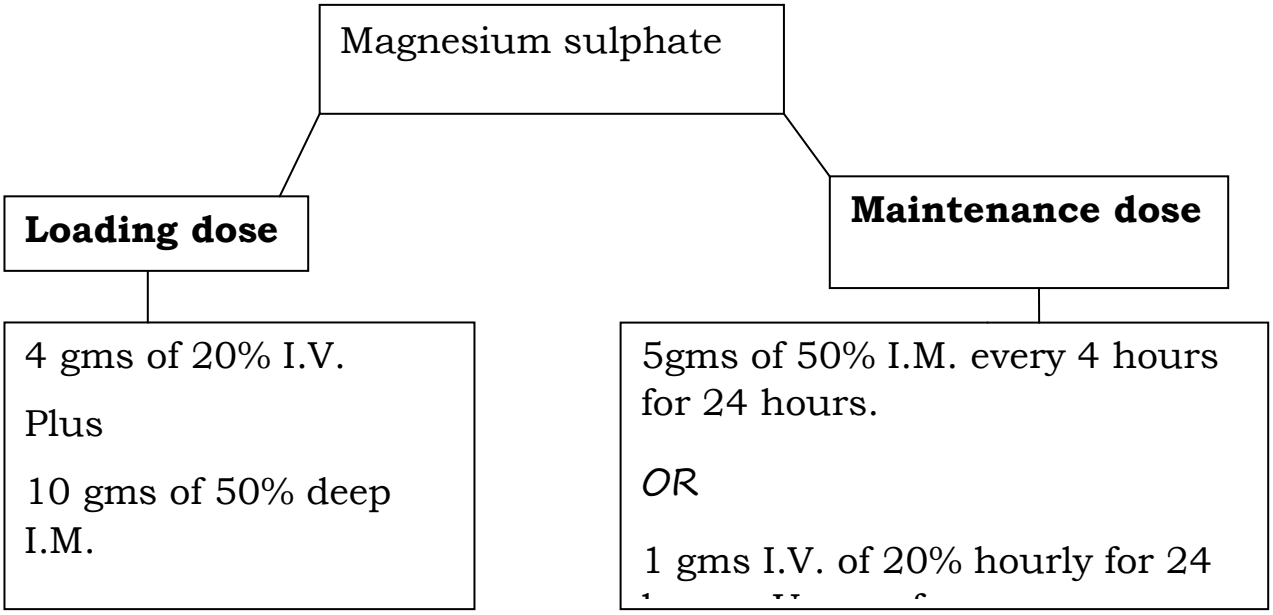
step 4: Administer 5 mgs every 30 minutes until bp falls

h) prevention of fits
    - the drug of choice is ***magnesium sulphate*** – mgso4
    - comes in two concentrations 20% and 50%
    - administer loadig dose and maintenance dose
    - **Loading dose** - 4 gms of 20% intravenously slowly over 10 – 15 minutes plus 10gms of 50% deep intra muscularly (administer 5

gms on each buttock). Add 1- 2 mls of lignocain to each 5 gms (2 mls if you have 1% or 1 ml if administering 2% lignocain).

NOTE; in case you miss intravenous access administer only the 10gns of 50% intramuscularly as loading dose.

- **Maintenance dose –** administer 5 gms of 50% mgso4 every 4 hours for 24 hrs. Or 1gm 20% mgso4 per hour intravenously of for 24 hours. **Note**- For the intravenous route ensure you use a pump.
- In case the woman fits in the course of treatment administer as bolus 2 – 4gms of 20% mgso4 according to body weight (<70 kgs give 2gms and > 70 kgs give 4 gms)



NOTE: in case of a fit while on mgso2, administer 2 – 4 gms as bolus of 20% 1.v. depending on the weight of the mother.

< 70 kgs give 2gms. >70 kgs give 4gms

How to convert magnesium sulphate from 50% concentration to 20% concentration

Withdraw	concentration	Add water for injection *OR* normal saline	Current volume	Current concentration
8mls	4gms of 50%	12mls	20mls	20%mgso2
4mls	2gms of 50%	6mls	10mls	20%mgso2
2mls	1gms of 50%	3mls	5mls	20%mgso2

- Put in place a mgso2 monitoring chart
- Magnesium sulphate administration should be continued for 24 hours after
    - *Being started*
    - *Delivery*

      OR
    - *fit/ convulsions*
- Monitor signs of magnesium toxicity which include
    - *diminished urinary output*
    - *dark colored urine*
    - *rapid pulse rate*
    - *reduced respiratory rate <16 breathe/min*
    - *increased fetal heart rate*
    - *positive clonus sign*
    - *absence of deep tendon reflex – absence of patella reflex*
- In case of evidence of toxicity stop mgso4 and administer intravenous 1 gms of 10% **calcium gluconate** which is 10 mls slowly over 10 minutes.

A health workers practice on each other on how to check for a deep tendon reflex.

i) fluid management

- Manage the woman dry to prevent complications.
- Restrict fluid intake to 1ml/kg bwt/ hour **OR** 80mls per hour **OR** 1 ltr in 24 hours.
- Strictly monitor input output. Retention of 1lts of fluids can be dangerous.

j) Monitor blood pressure and fetal heart rate 4 hourly. Increase the frequency depending on the condition.
k) Fix a catheter to monitor/maintain input and output.
l) Advice the mother to take a balanced diet
m) Give the mother a fetal kick chart to monitor fetal movements and keep record as the fetus may die in the uterus.
n) Do daily weighing.
o) Advice the mother to maintain personal hygiene
p) Do daily abdominal palpation
q) Continue general care for antenatal mothers
r) investigations – carry out the following investigations

- *grouping and cross-match*
- *bilirubin level*
- *liver enzymes*
- *clotting time*
- *clotting factors*
- *hemoglobin level*

s) Perform a daily head to toe examination.
t) Observe signs of onset of labour and impending eclampsia.
u) If the condition is unstable aim at delivering the baby as fast as possible.
v) Mode of delivery will be determined by condition of the patient which may be induction of labour or ceaserian section

Management during induction

- Reassure the mother
- Observe the general management of a mother on induction of labour
- Strictly monitor input and output
- Continue with administration of magnesium sulphate
- Prepare resuscitative blood and equipments
- Carry out the necessary investigations.
- Rule out DIC
- Prepare the delivery room which is supposed to be warm

- Maintain observations on the partogragh to early detect maternal and fetal compromise.
- When the mother progresses well and reaches 2nd stage give a generous episiotomy and if possible assisted vaginal delivery with vacuum extraction to fasten 2nd stage of labour.
- After delivery syntocinon drip should run for at least 1 hour, to help effective uterine contraction to prevent primary post partum haemorrhage
- Magnesium sulphate continued for the next 24 hours.
- When the baby is born, after the immediate resuscitation in h/w refer the baby to baby care unit

Management during peurperium

- Puerperal pet is also common.
- Provide specific and basic care during peurperium until discharge this include:-
- Close observation of Bp
- Continue with magnesium sulphate for the next 24 hours.
- Nurse the mother in a quiet room
- Maintain fluid input and output chart.
- Test urine for protein daily
- Maintain personal hygiene
- Initiate breastfeeding early
- Carry out 1st postnatal care services
- If the mother improves discharge through MCH/FP for follow up
- If the Bp is high discharge through medical outpatient clinic for follow up

Complications of severe PET

1. Eclampsia
2. Placenta abruption
3. Cerebral haemorrhage
4. Cerebral oedema
5. Cerebral hypoxia
6. Pulmonary oedema
7. Brain herniation
8. Acute renal failure
9. Intra uterine growth restriction
10. Intra uterine death
11. Neonatal death
12. Prematurity
13. Impaired liver function- HELLP syndrome
14. Visual disturbances to include temporary blindness.

ECLAMPSIA

This is a condition in pregnancy >20 weeks gestation characterized by high blood pressure, protein in urine, and presence of fits.

Varieties

1. Anti-parturm eclampsia – mother develops fits before onset of labour. This usually has 20% of the cases
2. Intra-parturm eclampsia – mother fitting with onset of labour. This usually has 45% of the cases
3. Post-parturm eclampsia – fits take place after delivery of the baby within 1st 24 hours. Usually prevalence is almost 35% of all cases.

AETIOLOGY

The onset is almost sudden with very high blood pressure especially the diastolic

- In rare occasions eclampsia may occur in the absence of warning signs.
- These include:-
  a) Nausea and vomiting
  b) Blurred vision
  c) Severe frontal headache
  d) epigastric pain
  e) drowness
  f) sharp rising blood pressure

STAGES OF AN ECLAMPTIC FIT

The eclamptic fit is classified into 4 stages

a) *Premonitory stage*
b) *Tonic stage*
c) *Chlonic stage*
d) *Coma*

Premonitory stage

It lasts about 10-20 seconds and patient may fall unconscious, rolls her eyes and the head drawn on one side and may have twitching of the muscles of the face and hands.

Tonic stage

Lasts about 10-20 seconds, muscles go into spasm and become rigid, the teeth and fists are clenched, eyes staring in one direction and the feet are inverted with the toes flexed and the patient gets respiratory arrest.

Chronic stage

It last for about 60-90 seconds, muscles relax and contract alternatively. There is great jerking movements and the patient may be thrown out of bed if not protected and taken care of. The alternate opening and closing of the jaws may make the patient bite the tongue. There is increased frothy saliva which may be blood stained indicating trauma to the tongue.

The face is congested and horrible distorted, breathing will be noisy and forceful. Convulsions will subside gradually.

Coma

- Patient soon goes into coma or deep sleep, she becomes deeply unconscious and breathing continues to be noisy and rapid.
- Coma stage may be followed by one or two fits before the patients recovers.

Differential diagnosis

- Cerebral malaria
- Epilepsy
- Meningitis

Effects of eclamptic fit to the pregnancy

1. Placental abruption
2. Onset of labour
3. Intra uterine fetal hypoxia
4. Intrauterine fetal death
5. Post partum haemorrhage

Management during a fit

1. Call for help
2. Reassure relatives
3. Ensure clear airway
4. Do not leave woman alone
5. Guard the mother to protect her from injury and remove harmful objects near her
6. Do not restrain the mother.
7. Ensure privacy
8. Turn the mother's head on one side for drainage of saliva and suction
9. Administer oxygen if necessary by facemask
10. Start the woman on magnesium sulphate, $MgSO_4$, dosage as for severe pet.
11. Monitor for signs of magnesium toxicity.
12. If the woman is on magnesium sulphate and is still convulsing administer diazepam. Start with 5mgs slowly as a bolus up to 10 mgs and closely monitor maternal respiratory rate. Do not withhold mgso4 administration.
13. Control administration of fluids. **Manage the woman dry.**
14. Record frequency, duration and parts affected by convulsions
15. Delivery of the baby should be within ***12 hours maximum.***

If in a health centre

1. Transfer the patient in a hospital after sedating heavily
2. Carry with you oxygen, delivery pack containing sterile gloves, forceps, mouth guard, syringes and needles, patients notes and record

If in a hospital

1. Aim at delivery the fetus as quickly as possible since the fetus is already in great danger. Do not take more than 12 hours before the baby is delivered with whatever option.
2. Prepare a quiet room with all resuscitative drugs and equipment
3. Position the patient with the head tilted on one side and maintain a clear airway
4. Sanction the mouth if necessary
5. Administer hydralazine to control Bp
6. Administer MgSO4 as prescribed.
7. Give antibiotics prolaphylactical e.g. ampicillin 500mgs QID

8. The mother might be into labour spontaneously following the fits, if not induction of labour is commenced assisted by vacuum extraction during 2nd stage.
9. Have an indwelling catheter in situ (in place)
10. Continue checking vital signs including Bp and fetal heart rate if baby is still alive.
11. Perform physical examination to assess improvement of oedema
12. Continue maintaining personal hygiene to prevent infection
13. When labour progress well & baby us delivered receive baby in warm room and after the initial resuscitation in labour ward transfer baby to baby care unit for further management.

Management after delivery

1. Continue with magnesium sulphate dose.
2. Monitor Bp closely
3. Maintain heavy sedation for the first 48 hours
4. Nurse in a quiet room to prevent occurrence of another fit
5. Maintain input, output chart to assess improvement of kidneys
6. maintain personal hygiene.
7. Offer the other routine post natal care services.
8. In case of impaired vision or temporary blindness reassure the mother.
9. When condition improves discharge through MCH/FP clinic but when Bp persists to be high discharge through medical outpatient clinic for follow up.
10. Note in the discharge summary that the mother had eclampsia.

Complications

1. Cerebral haemorrhage
2. Cerebral hypoxia
3. Cerebral oedema
4. Acute renal failure
5. Liver damage
6. Pulmonary oedema
7. Inhalation pneumonia
8. Congenital cardiac failure
9. Permanent hypertension
10. head injury
11. Still birth
12. Neonatal death
13. maternal death

ANTE-PARTUM HAEMORRHAGE – APH

Definition - This is bleeding from the birth canal during pregnancy after 20th week of gestation and before labour.

This places the life of mother and the fetus at great risk.

Effects on Fetus

(i) Fetal compromise
(ii) Still birth
(iii) neonatal death

Effects on mother

(i) Shock
(ii) Anaemia
(iii) Disseminated Intravascular Coagulation
(iv) Increased risk to ceaserian section
(v) Maternal death

Predisposing factors

a) Any conditions increasing blood pressure e.g. PET
b) Following external cephalic version
c) Trauma
d) Polyhydrominous
e) Anaemia especially folic acid deficiency
f) Multiparity
g) Infection
h) Shock
i) Ruptured uterus

Classifications of APH

j) Extra placental bleeding – This is the bleeding from the sides and not on the placental surface (bleeding not associated with placenta)
ii) Placental bleeding – It is the bleeding from the placental surface i.e. due to placenta previa or abruption

Management of APH (MILD)

- Admit mother in a quiet room and provide complete bed rest.
- Provide mother with pads and preserve all soaked pads for doctors assessment
- At about 37 weeks gestation do surfactant test to confirm lung maturity of the unborn baby
- Take blood for extra and Hb level
-]administer sedatives e.g. phenorbarbitone to enhance complete rest and relaxation
- Maintain nutritional status by giving a diet rich in proteins, iron plenty of vitamins, carbohydrates and fluids
- Maintain personal hygiene by performing a daily bed birth, vulva toilet & treat pressure areas
- Do T,P,R and Bp ¼ hourly
- Prepare to receive the newborn i.e.

(i) Prepare resuscitative drugs and equipment
(ii) A warm room or incubator
(iii) After resuscitation refer to baby care unit for further management

Management of severe APH

- Resuscitate the mother if she is I shock
- Take blood GXM and order blood Hb level
- Set up an intravenous infusion as soon as possible to treat shock
- Give sedatives or analgesics if necessary
- Administer oxygen by mask to increase oxygen concentration both the maternal and fetal circulation
- Insert an indwelling catheter to monitor the woman's output
- If its in a dispensary, refer mother to a hospital

PLACENTA PRAVIA

It is bleeding from separation of a placenta that is partially or wholly implanted in the lower uterine segment.

It places mother and fetus at high risk and leads to obstetric emergency.

Degrees of placenta previa

Type 1 - 1st degree

- The majority of the placenta is on the upper segment. Part of the placenta is on the lower uterine margin. Also referred to as *lateral placenta previa.*
- Blood loss is usually mild and the mother and fetus are in good condition

Type 2 - 2nd degree

- The placenta is partially located in the lower segment near the internal cervical OS. Also referred to as mar**ginal placenta preavia.**
- Blood loss moderate although maternal and fetal condition can vary. Fetal hypoxia is more likely to present than maternal shock

Type 3 - 3rd degree

- The placenta is located over the internal cervical OS but not centrally.
- It is also referred to as **complete placenta praevia.**
- Bleeding is likely to be severe in late pregnancy and vaginal delivery is impossible because the placenta precedes the fetus

Type 4 - 4th degree

- Placenta is located centrally over the internal cervical OS. Also referred to as **total placenta praevia.**

Predisposing factors to placenta praevia

1. **Multiparity.**

This is as a result of the fertilized ovum searching of a new site for implantation. the mare the number previous pregnancies the higher the risk of the present pregnancy taking place at the lower uterine segment.

2. **Multiple pregnancy.**

In this case the pregnancy is carrying more than one fetus. Two scenarios may contribute to the placenta appearing on the lower uterine segment. The size of the placenta may be bigger OR the each fetus may be having its own placenta. This increases the chances of the placenta utilizing the lower uterine segment.

3. **Abnormalities of placenta e.g. bi-patitte**

A placental abnormality like **placenta bi- patitte** where the placenta is split to two or three as in **placenta tri- patitte** the one part may attach on the lower uterine segment.

4. **Presence of fibroids**

The area within the uterus where a fibroid is present may not offer a good site for implantation. If the fibroid is fundal there are higher chances for the placenta to be previa. The more the fibroids et higher the risk.

5. **Previous history of surgery**

In case the woman had any surgery that involved the uterus e.g. myomectomy, ceaserian section e.t.c. the site heals with formation of fibrous tissue. This may discourage implantation leading to placenta previa if the incision is fundal. If it so happens that placenta still attaches itself to a place like this the risk of *retained placenta* develops.

6. **Age especially under 20 uterus not well developed**

The uterine cavity is not well developed. This increases the chances of the uterus encroaching the lower segment.

7. **Smoking**

Smoking predisposes the body to many conditions placenta previa being among them.

Clinical features of placenta praevia

- Bleeding is painless
- Bleeding usually occurs at rest or sleep
- Onset is gradual.
- Blood is bright red in colour
- Blood flows with a trickle
- Positive history of intermittent bleeding during pregnancy
- Abdomen not tender on palpation.
- Presenting part is high
- Malpresentation are common i.e. Oblique
- Fetal parts easily palpable.
- FHR is usually present
- Lower uterine pole feels empty OR a soft mass can be felt on palpation.
- The amount of blood loss corresponds to mother's condition.

Diagnosis

- Clinical features
- Abdominal scan
- Speculum examination

Management of placenta praevia

- Management will depend on the following:
  - Amount of blood loss
  - Maturity of fetus
  - Condition of mother and fetus.
  - Stage of pregnancy
- Admit the mother and offer complete bed rest until bleeding stops
- if in a health facility that cannot offer emergency obstetrical and newborn care refer the woman to such a facility.
- 3 days after bleeding stops do speculum examination after bleeding stops to rule out accidental causes
- Check the Hb level of the mother
- Placental function is monitored by means of fetal kick chart and antenatal
- Ultra sound and scans are done to observe the position of the placenta in relation to the cervical OS as the lower segment grows. **NOTE**: *Majority of placentas that were on the lower uterine segment usually migrate by 28 week of gestation.*
- in case the pregnancy is going to be discontinued preterm consider administering steroids to the mother, dethamethasone to ensure lung maturity.
- if the mother is rhesus negative ad you suspect rhesus iso-immunization, the woman should receive rhesus immune globulins. Not unless it is confirmed the husband is rhesus negative.
- Closely monitor fetal well being.
- Blood should be taken for full count, cross matching and clothing studies
- An intravenous infusion should be in progress and several units of blood may be transfused with woman's consent
- An anaesthetist will be present in helping the woman to make a decision on use of general or regional anesthesia
- Midwife should comfort and encourage the mother since she may feel anxious in preparation for theatre
- Patient should be mentally and physically support.
- After delivery of the baby amstl to prevent pph
- Mother should be given prophylactic antibiotics.
- Start the woman on haematenics
- Record on her mother booklet that she had aph.

Complication of placenta praevia

- Haemorrhage
- Anesthetic and surgical complications
- intra uterine fetal growth restriction.
- Retained placenta

- Placenta accrete
- Air embolism
- Fetal hypoxia
- Fetal death
- Maternal death

PLACENTA ABRUPTION

It is bleeding during pregnancy due to premature separation of a normally situated placenta occurring after 20th week of pregnancy and prior to 3rd stage of labour.
It is characterized by formation of *retro- placental clot*
Predisposing factors to placenta abruption

- Trauma
- Obstretical manovours
- Uterine massage
- Drugs
- Short cord
- Polyhydrominous
- Severe anaemia
- Pet
- Cardiac disease
- Hypertension
- Renal disease

Types of placenta abruption

i) Revealed accidental haemorrhage

- Its most common

- Blood escape through uterus the cervix and vagina

- Bleeding may be slight or severe

- There is low urine output with proteinuria

ii) Concealed accidental haemorrhage

- Most severe but least common
- No vagina bleeding
- Formation of retro- placental clot between the uterine walls and placenta

iii) Combined accidental haemorrhage

- Presence of both revealed or concealed haemorrhage
- The patient may be in shock

Clinical features of placental abruption

- Amount of bleeding may not equal to mothers condition.
- Bleeding accompanied with pain.
- Patient looks ill and anxious
- Mother is in shock i.e. weak pulse
- Abdomen tender on palpation and guarding.
- Fetal parts are difficult to palpate
- Fetal heart sounds are absent in severe cases
- There might be history of trauma or fall
- Low urine output
- Raised fundal height
- Blood is dark red with clots
- Bleeding is in gushes
- Mother may be edematous
- Malpresentation is not common.

Management of placenta abruption

- If in a health centre refer mother to hospital
- Start on intravenous therapy prior to transfusion
- Admit mother in a delivery site
- This is an obstetric emergency.
- Prepare the mother for emergency ceaserian section.
- Midwife should comfort and encourage the mother by attending to her needs
- Give a suitable analgesic e.g. pethidine 100-150mg to alleviate pain
- Give plasma expanders if blood is not ready for transfusion
- The woman should lie on her side in order to prevent vena cava and compression by the gravid status.
- If bleeding is much, or in shock resuscitate by rapid collection of hypovolaemia
- Take vital signs ¼ hourly
- Insert an indwelling catheter to assess urinary output
- Urine should be tested for protein
- Record fluid intake accurately
- If bleeding continues and comprised fetal heart rate is present, caesarian section may be required
- Midwife should give the woman psychological support because of her shocked

- Rupture of membranes is beneficial as can assist in minimizing haemorrhage. In case this is done the woman can be started on oxytocin infusion to hasten labour.
- Perform a speculum examination if bleeding is from uterus
- Continue with abdominal palpations transfuse mother
- Prepare to do resuscitation for the asphyxiated baby and transfer the baby to baby care unit. I case the baby is not alive counsel the mother to expect a dead fetus.
- Assess cervical dilation if mother is in labour and deliver baby if condition allows
- Examination under anesthesia is done in theatre
- Check blood clotting time.
- In case of blood clotting disorders then consider managing also as a case of DIC.

Complications of placenta abruption

- Blood coagulatory disorder
- PPH
- Acute renal failure
- Anterior pituitary necrosis/shehaan,s syndrome
- Anaemia
- Puerperal sepsis
- Amniotic fluid embolism
- Intra uterine fetal hypoxia
- Intra uterine fetal growth restriction

Similarities of placenta praevia and abruption

1. Both affect the placenta
2. both appear after 20^{th} week gestation

Characteristical differences between placenta preavia and placenta abruption

Placenta preavia	**Placenta abruption**
Bleeding is form placental site due to premature separation of the placenta which lies wholly or partly lies in lower uterine segment	Bleeding from early separation of placenta which lies normally in the fundus.
Painless.	Painful

Can even at occur at rest or asleep	Can be positive history of trauma or fall
Positive history intermittent bleeding	No history of intermittent bleeding
Blood is bright red	Blood is dark red
Bleeding may be continuous and in a trickle	Bleeding may be in gashes
No signs of pre-eclampsia may be present	Signs of pre-eclampsia may be present
Fetus may be alive	Fetus is usually dead
Uterus is soft and non tender	Uterus is hard and tender and guarding
Fetal parts are easily palpable	Fetal parts are not palpable
Uterine size correspond to gestation	Uterine size may be larger does not correspond to gestation.
Urinary output is normal	Urinary output is low
Fetal movements are normal	Fetal movements decreases
All bleeding seen	May be concealed
FHR can easily be heard if alive	FHR not easily heard if alive
Presenting part is high	Presenting part may be engaged
Blood loss equals to mothers condition	Blood loss may not be equals mothers condition
Malpresentation are common	Malpresentations not common.

General management of APH

- If in a health centre always refer all pregnant women bleeding to the hospital
- Ensure there is running IV fluid of saline before transferring the patient

- A health worker should accompany the woman to the hospital
- Always admit the patient even if bleeding is not apparent or severe
- Take careful history, any associated pain, history of bleeding earlier in pregnancy or history of trauma
- Note the amount and character of bleeding.
- The specific management will depend on
    - Onset of spontaneous labour
    - Condition of the fetus
    - Cause of APH and severity
    - Gestation
    - If the bleeding is continuous or not

Management of mild APH

- Admit patient in the ward
- Provide complete bed rest and observe her closely
- Prepare and assist in taking investigation in view to prolonged pregnancy e.g. blood group and cross match
- Do a speculum examination
- Preserve soiled pads for assessment
- Order a placentography (x-ray to visual placental position
- Before 37 weeks gestation you can do a surfactant test to confirm fetal lung maturity
- Prepare the patient for examination under anesthesia
- Administer drugs e.g. sedatives phenobarbitone 30-60 mgs to ensure complete rest and relaxation
- Maintain nutritional status of the mother by giving a diet rich in protein, iron, vitamins and fluids
- Maintain hygiene by performing bed bath daily
- Mouth wash 6 hours
- Vulva toiled PRN and treat pressure areas
- Take vital signs observations and report any abnormality
- The doctor will determine mode of delivery.
- During delivery prepare to receive the new bon that is;

a) Resuscitate drugs and equipments
b) A warm room
c) An incubator ready
d) Inform newborn care unit just in case you might need to refer the newborn for further management.

Management of severe APH

- Admit the mother
- Call for help
- Inform other departments

- reassure the mother and relatives
- Prepare for resuscitation.
- Prepare an observation tray
- Ensure a clear airway and give oxygen by mask
- Monitor vital signs and FHR ¼ hourly
- Keep the patient warm
- Take blood for grouping and cross match and transfuse patient
- Start IV fluids, N/S
- Put in indwelling or self retaining catheter
- Monitor input output by maintaining a correct fluid chart
- Test urine for albumin, acetone and sugar
- If the patient is for examination and anesthesia and possible caesarian section prepare her.
- Prepare her for emergency caesarian section or hysterectomy.
- Prepare to receive an asphyxiated baby.

Maternal complications.

- Shock
- Renal failure
- Sheehan's syndrome
- Coagulation disorders
- Anaemia
- Sepsis
- maternal death

Baby

- Intra uterine growth restriction
- Prematurity
- Fetal hypoxia
- Intra uterine fetal death
- Asphyxia neonatorum
- Still birth
- Neonatal death

TWIN PREGNANCY

Definition: This is when there is presence of more than one fetus in the uterus

Causes

The cause is unknown.

Predisposing factors/women at risk

1. Personal history
2. Family history
3. Multiparity
4. People who used fertility drugs

Presentation

1. Cephalic/ Breech presentation
2. Breech/cephalic presentation
3. Cephalic/cephalic presentation
4. Breech/breech presentation

Diagnosis

On physical examination

a) Inspection- Over distended abdomen
   - Abdomen is oval and not global
   - Visibility of multiple fetal movements of the abdomen at term
b) Palpation- Multiple fetal poles
   - Higher fundal height as compared to gestation
   - Multiple fetal parts are palpation
   - 1st palpation of fundal height above the umbilicus after delivery of 1st twin, querry and diagnose 2 twin
   - Reduce fetal head side compared to gestation age
c) Auscultation- follow rule of 10.
   - 2 fetal heart rate distance of 10cm a part and taken the same time at difference 10 beats per min
d) Investigations- increased level of H.C.G hormone querry multiple pregnancy
   - Increased level of AFP <Apha fetal protein present in the body of human being during pregnancy fetal congenital abnormelities
e) History – Personal history of previous multiple pregnancies
   - Family history of previous multiple pregnancies
   - History of exaggerated pressure symptoms
   - History of exaggerated minor disorders
f) Radiography – Demonstartion of two amniotic sacs from the eight week of gestation
   - Visibility of more than one twin in the uterus on the 12th week (U/LS)
   - Visibility of more than one skeleton by X-ray from the 16th week

Effects of multiple pregnancy

Maternal

- Anaemia
- Polyhydromonous
- PPH
- Increased minor disorders
- Pre- mature labour
- PET
- Gestational disbetics
- Hyperemia gravidarum

fetus

- Congenital abnormalities
- Prematurity
- IUGR
- **IUFD**
- Intrauterine fetal transfusion

Types of multiple pregnancy

1. *Monozygotic*
2. *Dizygotic*

Monozygotic

Are babies as a result of fertilization of one sperm one ovum.

Separation to form 2 babies occur very early during embryology.

Characteristics

1. Same physical characteristics
2. Same mental characteristics
3. Same blood group
4. Same sex
5. Share fetal circulation
6. Share same amniotic sac
7. The same figure prints
8. Very prone to congenital abnormalities

Dyzygotic

Result from fertilization of different ovam with different sperms

1. Different physical characteristics
2. Different or same metal characteristics
3. Same sex or different sex
4. Same or different blood groups
5. Do not share the same circulations
6. Do not share the amniotic sac
7. Lower risk to congenital abnormalities
8. Different ova different sperm

Management antenataly for the twin

1. Registration 8 triage
2. Taking height 8 weight
3. History taking
4. Physical examination
5. Antenatal profile
6. PMTCT
7. Deworming
8. IFAS
9. provision of net
10. Tetanus toxoid
11. Provision of SP
12. Health education
13. Book for next visit

Specific management

1. Administration of IFAS
2. Nutrition
3. Strengthen individual birth plan
4. Increase the frequency of visiting to 2 wkly

Management during labour

1. Admit
2. Reassure
3. Taking history
4. Performing physical examinations
5. Start partogragh
6. Pain management
7. Empty bladder

8. Maintain nutritional status – rehydrate
9. Offer support

Specific management

1. IV line
   - Investigations
   - IV fluids
2. Record 1st heard fetal heart rate. Partograph will have one line
3. Record both fetal heart rate
   - one with a red pen
   - One with a black pen
   - Partograph will have two lines

Management during second stage

1. Inform the mother
2. Position the mother
3. Prepare an assistant
4. Prepare the equipment
5. Prepare yourself
6. Encourage the mother to push for every contraction
7. Prepare the environment
8. Take fetal heart rate after every contraction
9. Monitor contractions

Delivery of the first twin

1. Perform ve and confirm the presentation, raptures membranes if not raptured
2. If presentation cephalic support the perineum and encourage the mother to push with every contraction
3. Raise the heed slightly and clear the air way and check for cord around the neck
4. Allow the baby to restitute
5. Hold the baby's head by the temperal and do a downward fraction to deliver the anterior shoulder up to the mid upper arm, then upward fraction to deliver posterior shoulder up to the mid arm.
6. Deliver the baby by lateral flexion onto the mother's abdomen

7. Wipe the baby, clear airway, clamp and cut the cord and show the sex of the baby to the mother and hand over the baby to the assistance for immediate management which include,
   - Keep the baby warm
   - Administer vitamin K
   - Administer tetracycline
   - If the mother PMTC is R, give nevirapine depending unto the weight of the baby
   - Score the baby at 5 and 10 minutes, back to breastfeed
   - Label the baby as first twin and inspect

NOTE: Withhold administration of syntocinon

Delivery of second twin

1. Palpate the mother's abdomen to confirm second twin. The fundus will be above the umbilicus.
   Also palpate to confirm the lie and presentation if in transverse perform external cephalic version, rotate the baby follow its face until engagement take place.
2. Do V.E, rapture the membranes,
3. In case contractions have done down administer 5 I.U cyntocinon IV in 500ml pf NIS to run 10 drops per minute.
4. Deliver the baby using the normal procedure as mentioned above.
5. Label as *second twin.*
6. In case the fetus is in transverse lie perform either ***podalic or cephalic*** version.

   Podallic version

   Insert your hand inside the vagina canal unto the uterus get hold of the fetal legs by the pedals. Pull down the legs and deliver baby as breech. Wipe the baby, clamp and cut the cord and hand over the assistant follow the above procedure and label as second twin.

   Cephalic version

- One hand applies traction on the fetal head abdominally through the occiput directing it into the pelvis.
- The other hand applies an upward traction of the buttocks to position them at the fundus. Baby if born cephalic.

Third stage of labour

7. Palpate to rule out another twin, if not administer 10 I.U cyntocinon and deliver the placental at once with (CCT) controlled cord traction (amstl).
8. Start 20 I.U cyntocinon IV on 500ml normal saline to run for one hour.

prophylactic management of pph

Peurperium

- Thorough first examination of the baby should be done to rule out congenital abnormalities.
- Just like for any other mother.
- Strengthen family planning education
- Counsel on parenting

Students from KMTC kilifi in skills lab being demonstrated a skill on implant insertion

Essential hypertension

This is where there is elevation of blood pressure over 140/90 mmhg present in two or more occasions prior to 20 week gestation which is not due to pathogenically condition e.g. renal disease like chronic nephritis.

NB- essential hypertension should not be confused with high BP in PET as PET usually occurs after 20 week of gestation accompanied by protein in urine.

ATIELOGY

80 % of the essential hypertension cases will give a positive history personal history or family history of hypertension.

Other causes could be stress situations e.g. divorce, or unwanted pregnancy.

Parthophysiology

- High blood pressure can lead to mother developing PET with all its signs and symptoms.
- May lead to cerebral haemorrhage causing vascular accidents which can cause death to the mother.
- It may affect the life of the fetus in the uterus and the fetus may be born as a light for dates.
- This may also cause placental abruption.

Predisposing factors

- Family history of hypertension
- Any history of toxaemia in the previous pregnancies.

Effects of essential hypertension to the pregnancy

- Increased maternal morbidity e.g. placental abruption, PET.
- High BP may cause acute renal failure leading to oliguria and final coma.

To the fetus

- Intra uterine growth retardation.
- Intra uterine fetal death
- Prematurity.

Affects of pregnancy on essential hypertension.

The blood pressure may increase during pregnancy and after 20 weeks and signs of PET may appear.

Signs and symptoms

- Persistent frontal headache
- Oedema of lower limbs in severe cases
- High systolic pressure of 140 and a diastolic of above 90
- Visual disturbance due to retinopathy and diplopia

Management

Objective

- Is to control the blood pressure and prevent PET from occurring.
- To obtain a good supply of oxygen to the fetus especially during placental formation period.

Note:

If the fetus fails to grow adequately and the mother's condition deteriorates induction of labour can be done even before term.

Management will depend on the severity of the essential hypertension.

Management of mild essential hypertension

In this category the blood pressure is usually not above 150/90 . if this bop is recorded during the antenatal visit the midwife should refer the mother to the obstetrician for evaluation and investigation.

The mother can be managed as an outpatient for it is possible for her to get enough r3est at home. This can be achieved with administration of a mild sedative to make her rest and allay anxiety. She should attend weeks ANC clinic.

During each visit the mother should be monitored blood pressure and physical examination done.

Advice the mother on diet i.e. high protein and low fat an d salt.

Advice the mother on fetal kick count at home

Can report to the clinic in case of any abnormality e.g. reduced fetal movements.

Weekly investigations of urine for urinalysis, culture and sensitivity, renal function, blood for urea and electrolyte can be done

Management of severe hypertension

Admit the mother I the antenatal room in quiet place.

Reassure the mother

Observe vital signs 4 hourly

Provide a balanced diet high in protein with low sodium

Weigh the mother daily

Do physical examination daily to rule out oedema and IUGR

Monitor input and output

Put the mother on drugs e.g. antihypertensive

Encourage rest

Continue with general nursing care

Do surfactant test at 36- 37 weeks to confirm fetal lung maturity and with appositive test6 the mother can be prescribed induction of labour.

Prepare to receive a baby with a poor score.

Assist second stage with a generous episiotomy.

Management during puerperium

- ✓ Continue 4 hourly observation especially BP.
- ✓ Continue with daily physical examination and assess for oedema.
- ✓ Ct with sedatives for rest.
- ✓ Ct a balanced diet.
- ✓ Maintain good personal h7ygiene.
- ✓ Keep the baby warm.
- ✓ Ct with general care of a mother in puerperium.
- ✓ If the condition improves discharge the mother through MCH/FP and if the high BP persists through medical clinic.

Complications

- PET
- Renal failure
- Cerebral haemorrhage
- IUGR
- Still birth
- IUFD
- neonatal death

MALARIA IN PREGNANCY - MIP

It is a parasitic infection of the genus plasmodium which is spread by mosquito. The plasmodium species responsible is plasmodium falciparum.

It is one of the diseases of public health interest on Kenya.

It is a major cause of maternal morbidity and mortality accounting to 10% of maternal deaths.

By preventing malaria in pregnancy will save approximately 25000 lives each year.

Pregnant women who are at higher risk of contacting malaria

I. Women in their 1st and 2nd trimester
II. HIV infected
III. Visitors from no or low malaria zone

Kenya has 4 malaria epidemiological zones:

1. **Endemic**
2. **Seasonal transmission**
3. **Epidemic**

4. Low risk malaria areas

Endemic – Transmission is intense throughout the year e.g. coast, around Lake Victoria and Western region.

Seasonal transmission – Arid and semi arid areas. North and south eastern. Periods of transmission are short but intense especially when it rains.

Epidemic – Mostly found in the highlands. Others refer to it as highlands malaria.

Low risk malaria areas – Here they may experience imported malaria. This includes highlands of central region and Nairobi.

Facts about malaria in pregnancy.

- Pregnant woman **suffer malaria easily** compared to non pregnant women – lower immunity against malaria.
- Many pregnant women may have malaria parasites but **no symptoms**.
- Pregnancy makes woman lose their **ability to fight** malaria infection
- Blood slide for mrdt may be **negative despite malaria** parasite being present as they tend to hide in placenta.
- Malaria parasites may **weaken placenta** affecting the passage of nutrients and oxygen to the unborn baby lowering down its normal growth in terms of weight gain.

Students from KMTC Kilifi campus engage in a group discussion

Effects of malaria to mother

- Premature labour
- Anaemia and febrile illness due to heterolysis
- DIC
- Maternal death.

Effects of malaria to the unborn baby.

- Miscarriage
- Abortion
- Prematurity
- Stillbirth
- Intra uterine growth restriction
- Intra uterine fetal hypoxia
- IUFD
- Low birth weight
- Congenital infections
- Congenital malaria

Classification of malaria

Uncomplicated malaria – There is organ involvement

Complicated malaria – No organ involvement

Clinical features for uncomplicated malaria.

- Headache
- Fever
- Chills
- Profuse sweating
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pains
- Spleenomegally
- Diarrhea
- muscle or joint pains
- Back ache.
- false labour
- Enlarged spleen
- Presence of peripheral paracetaemia.

Clinical features for uncomplicated malaria.

- Presence of peripheral paracetaemia.
- prostration
- altered level of consciousness
- cerebral malaria
- respiratory distress
- convulsions
- shock – Septiceamia
- abnormal bleeding- DIC

- jaundice
- black water fever
- acute renal failure
- severe anaemia - <5gms/dl
- hypogyceamia < 2.2 mmol/l
- hyperlactataemia

Diagnosis

- Clinical features
- MrDT for malaria
- Note - All pregnant woman with fever or history of fever should be investigated for malaria.
- Where a woman with fever but cannot be done either malaria test as microscopic or RDT and all other causes of fever have been eliminated should be considered to be as a case of malaria and treatment started.

National guidelines on prevention of MIP.

The government has put into measures to ensure that malaria is prevented during pregnancy. This is in line with world health organization recommendations. These measures are;

i. *Administration of IPT with SP- sulphurdoxine pyremethymine.*
ii. *Provision of LLTN*
iii. *Prompt diagnosis and treatment of MIP*
iv. *Public health measures e.g. health education.*

Administration of SP as IPT.

- Should be administered after quickening and after every 4 weeks till 40 weeks. Late dosing may be beneficial for woman presenting themselves late in pregnancy.
- Should be given as DOT.
- A minimum of 2 doses should be administered at interval of at least 4 weeks.
- High dose of folic acid tablets to be administered 2 weeks after SP. Low dose folic acid can be administered together with SP.
- HIV positive women on prophylaxis with daily clotrimoxazole should not be given SP.
- HIV positive pregnant women taking antiretroviral therapy who are not on cotrimoxazole should receive SP.
- Women who are known HIV positive or with unknown status and residing in area with high prevalence of HIV should receive at least 3 doses of SP.
- SP should not be given to women who are allergic to sulphur.
- If allergic to SP strengthen malaria preventive measures.
- Should be used with ITN, haematenics and deworming.

Long lasting insecticidal nets

- All pregnant women from malaria endemic areas should sleep under lltn.
- It is given free of charge in government health facilities during the first anc visit.
- Teach the women on how to hand the net.
- Encourage the woman to sleep under the net each and every night.

Side effects

- Hypoglycemia.
- Hypertension
- Tinnitus, deafness, visual disturbances
- Skin rushes

- Fever and dyspnoea
- GIT disturbances i.e. nausea and vomiting.

Management of MIP

- ✓ Admit or manage as outpatient depending on the condition.
- ✓ Reassure
- ✓ Administer paracetamol 1 gm
- ✓ Provide net
- ✓ Give oral iron tabs, stop folic for one week and thereafter
- ✓ Take adequate oral fluid

Uncomplicated malaria

1st trimester

- ❖ Oral quinine 600mgs three times a day for 7 days.

Note- Don't with hold artemether- lumefantrine (AL) or any other drug if quinine is not available. However safety of the other drugs in 1st trimester to the fetus is not known. However the woman can lose life if left untreated.

Treatment in 2nd and 3rd Trimester

- ❖ Administer full dose of AL

Supportive care

- Prevent hypoglycemia
- monitor fetal condition
- treat anaemia
- antipyretics

Management of complicated/ severe malaria.

Once diagnosis of complicated or severe malaria is made, this is a ***medical emergency***. The life of both the mother and her baby are in danger.

Pre- referral management

- Treatment of pregnant woman with complicated malaria should be started in bemonc facilities even when waiting for referral.
- Administer I.M. or I.V. artesunate 2.4mg/kg or I.M. quinine 20mg/kg to a maximum of 1200mg a loading dose or I.M. artemether 160mg start.
- A heath care provider should accompany the Patient to the next level of care.
- Patients with altered level of consciousness should receive parenteral antibiotics (ceftriaxone) alongside antimalarials.

Supportive care

- Admit and reassure
- Rx can be quinine or artesunate.
- Antipyretics are administered.
- Monitor vital signs of the both the mother and the fetus
- Monitor input and input
- Expose the patient in case of fever.
- Ensure provision of balanced diet if patient can take orally. This takes care of the hypoglycemia especially for those on oral quinine.
- Monitor FHR and mother's level of consciousness.
- Monitor blood glucose level as it may fall. Quinine administration is associated with hypoglycemia.
- If on quinine administered in a drip ensure the drug is not exposed to direct light.
- Treatment for anaemia
- Monitor signs of labour

Administer artesunate – As first line

- Establish if initial dose has been given, if not administer IV artesunate 2.4 mg/kg.

- 12 hours from commencement of initial dose, start administering maintenance dose of artesunate 1.2 Mg/kg followed by 1.2 mg/kg OD till patient can take orally.
- Once the patient is able to take oral administer a full dose of oral quinine.

If artesunate is not available administer quinine - As second line treatment.

- Establish if loading dose has been given; if not administer a loading dose of 20mg/kg IV in 5% dextrose as infusion.
- Give maintenance dose 8hrs from commencement of initial dose at 10mg/kg in dextrose solution
- Repeat 10mg/kg every 8hrs until Patient can take orally.
- When patient is able to take orally change to AL. Administer complete dose of AL.
- A maximum of 3mls should be used in each site of injection, if it exceeds another site should be used.

Treatment during 2nd trimester and 3rd trimester

- As for 1st trimester

ANAEMIA IN PREGNACY

Anaemia is defined as reduction in oxygen carrying capacity (*hb*) of < 11 g/dl.

Severe anaemia is Hb of < 7g/dl.

Severe anaemia can cause maternal death.

a pregnant woman with Hb of < 7g/dl is considered severely anaemic.

Pathophysiology.

Many factors interfere with normal RBC reproduction.

This includes,

- Deficiency of specific nutrients in the diet or
- From inability of the body to absorb nutrients.
- Dugs that interfere with absorption of nutrients e.g. anti convulsant interfere with folic acid absorption.
- Excessive loss of RBC in hemorrhage
- Excessive destruction of RBS from infection and inherited conditions e.g. SCD produce abnormal HB and leading to haemolysis of RBC
- Pregnancy - During pregnancy blood volume increase. Increase in the plasma volume is greater than increase in the number of RBCs making blood less viscous and a fewer RBC in blood reducing concentration of hemoglobin leading to a condition known as **physiological anemia** in pregnancy.

CAUSES

1. Blood loss from *aph*
2. Pregnancy itself**.** Multiple pregnancy, frequent minor disorders e.g. pica, hyperemesis, and physiological haemodilution.
3. Poor absorption may be due to drugs, hookworms and malaria.
4. Infestation:- hookworms suck blood and prevent nutrients absorption.
5. Malaria
6. Iron and folate deficiency (due to poor dietary intake)
7. Vitamin B12 deficiency
8. Increased demand due to pregnancy
9. Hookworm infestation (increases blood loss)
10. Bone marrow suppression

11. Advanced HIV infection

Note: Iron deficiency anaemia is the most common cause of anaemia in pregnancy. > 90% Of the cases.

Risk factors.

- ❖ Young primigravidas.
- ❖ Poor socio-economic status.
- ❖ Pre pregnancy anaemia
- ❖ Multiple pregnancy
- ❖ Frequency of pregnancy.
- ❖ Chronic diseases e.g. HIV, Sickle cell.
- ❖ Not attending health care.
- ❖ excessive vomiting due to morning sickness
- ❖ Smoking

Classification of anaemia in pregnancy.

Mild anaemia – Hb 8-10.5gldl

Moderate anaemia – Hb 7-8 gm/dl.

Severe anaemia – Hb < 7gldl.

Types of anemia during pregnancy

- *Iron deficiency anemia*
- *Folic acid deficiency anemia*
- *Vitamin B12 deficiency anemia*

Effects of pregnancy in anaemia

- ✓ Worsen due to haemodilution
- ✓ There is increase morbidity and mortality in severe cases.
- ✓ Minor disorders of pregnancy may mislead diagnosis of anaemia.

- ✓ Minor disorders of pregnancy e.g. pica, vomiting may interfere with management of anaemia.

Students engage in a group discussions

Effects of anaemia to the mother

- ✓ Poor maternal health.
- ✓ Risk of abortion.
- ✓ Reduced resistance to infection.
- ✓ Worsening of minor disorders e.g. pica.
- ✓ APH (placenta abruption).
- ✓ Premature labour.
- ✓ Prolonged labour (hypotonic uterus)
- ✓ Predisposes to PPH.
- ✓ Predispose or worsen cardiac failure.
- ✓ Predisposes mother to thrombo- embolic disorder e.g. DVT.
- ✓ Maternal death.

Effects of anemia fetus.

- ➢ Prematurity
- ➢ Intra uterine growth restriction
- ➢ intra uterine fetal hypoxia
- ➢ intra uterine fetal death
- ➢ Low birth weight
- ➢ Increased neonatal morbidity and mortality.

- Congenital abnormalities.

Signs and symptoms

- Pallor
- Fatigue
- Paleness of mucous membrane
- Awareness of fast heartbeats (palpitations)
- Tiredness
- Breathlessness
- Poor cap refill
- increased respiratory rate
- Headache
- Dizziness
- Pica
- Lethargy
- Prominent neck vein
- Feeling of pins and needles on hand
- Oedema of lower limbs
- Spoon shaped nails incase of iron deficiency
- Numbness.
- Postural hypotension.

Diagnosis.

Through:

- *Through history taking*
- *Physical examination.*
- *Laboratory tests*
- *Blood culture.*

THREE approaches in management of anaemia in pregnancy

1. *PREVENTION of anaemia*
2. *Early DETECTION of anaemia*
3. *Early TREATMENT of anaemia*

Prevention of anaemia in pregnancy.

Anaemia in pregnancy can be prevented. This is best done in mch/fp when the woman comes for routine antenatal care services. The following measures measures are done:

- *Pre - consceptional care services*
- *All pregnant women to receive sp top prevent malaria.*
- *All pregnant women to sleep under treated insecticides net.*
- *All pregnant women to receive haematenics.*
- *All pregnant women to receive mebendazole.*
- *Advice on a balanced diet rich in iron*
- *Avoid milk products which discourage absorption of iron.*
- *Routine physical examination.*
- *ANC profile*

Principles of management.

- *Raise Hb.*
- *Eradicate the cause.*
- *Prevent complications.* The mother can be managed as an outpatient.

- Triage
- Height and measurement

- Take detailed history

Management of *mild anaemia* – Hb 8 – 10.5g/dl

- Perform physical examination
- Antenatal profile
- Advice on taking *oral haematenics*. Talk about compliance and factors hindering malabsorption.
- Administer SP according to guidelines to prevent malaria which can aggravate anaemia.
- Let the mother sleep under insecticide treated net to prevent her from mosquito bites hence prevent malaria.
- Administer mebendazole to prevent hookworm infestation.
- Eliminate cause of anaemia
- Provide mother with health education on diet rich in vitamin C, ferrous folic acid and how to prepare meals.
- Book her to the high risk clinic.
- Increase the frequency of visits.
- Advice on ANC attendance.
- Re- check Hb on 4th visit.
- Manage according to FANC.
- Continue with antenatal follow up.

Management of *severe anaemia Hb < 7g/dl*

- If in a basic obstetric health care facility refer the mother to a comprehensive care facility.
- Admit the mother to antenatal ward
- Provide complete bed rest.
- Maintain nutritional status
- Establish intra venous access and take blood sample for grouping and cross match.

- Prepare to transfuse mother with packed cell to avoid cardiac overload.
- Monitor vital signs Control vitals i.e. TPRBP 4hourly + FHR.
- Prop up mother if dipnoec and administer oxygen PRN.
- Do daily P.E to detect abnormalities.
- Transfuse with whole blood and monitor vitals during labour.
- Administer antibiotics with evidence of infection.
- Review lab results i.e. Bs for malaria.
- In case the mother has malaria parasites treat the mother as a case of complicated malaria.
- Identify cause and manage.
- Assess Hb weekly.
- Educate mother on the condition.
- Observe for signs of labour.

Management during labour

- Admit.
- Reassure the mother and relatives.
- Take proper history.
- Vital observations of maternal and fetal condition.
- Perform physical examination.
- Take blood sample for investigations.
- Arrange for transfusion.
- Monitor mother while on transfusion.
- Monitor labour by use of partograph.
- Augument labour with sintocinon 2.5 – 5 i.u. in 500mls of normal saline in case of poor uterine contractions
- Let the mother adopt position of choice. Prop up position can be adopted if the mother is presenting with dyspnoa.
- Administer oxygen by mask to improve saturations
- Avoid cardiac overload
- Second stage can be supported with assisted vaginal delivery – AVD

- An episiotomy can be administered to shorten second stage of labour.
- Anticipate an asphyxiated baby.
- Strengthen active management of third stage.
- Severe anaemia with congestive cardiac failure, avoid the use of ergometrine.
- Administer sintocinon 20 i.u. in 500mls of normal saline as to prevent atonic uterus.
- Encourage early breastfeeding to encourage uterine contractions
- Oserve aseptic measures.
- Counsel the mother nonfamily planning.

Postnatal

-Encourage on follow up.

- Encourage the mother to practice personal hygiene.

- Encourage the mother to take a balanced diet rich in iron.

- Let the mother continue with haematenics

- Let the mother be counseled on family planning.

- Address the cause of anemia and manage it.

CARDIAC DISEASE IN PREGNANCY

It refers to disorders that affect the heart muscles, valves or blood vessels.
Also referred to as impairment of the heart.
This condition impairs the ability of the heart to supply tissue with oxygen.

Predisposing factors

- ✓ Anaemia
- ✓ Smoking
- ✓ Alcohol

- ✓ Obesity
- ✓ hypertension
- ✓ obesity
- ✓ hyperlipidaemia
- ✓ Upper respiratory tract infection
- ✓ Urinary tract infection
- ✓ Diabetes mellitus
- ✓ Lack of exercise
- ✓ Age
- ✓ Pregnancy

Common causes

- Congenital abnormalities
- Rheumatic heart disease
- Cardiomyopathies
- Coronary artery disease
- Endocarditis
- Ischaemic heart disease

Classification

- ✓ *Grade 1*
- ✓ *Grade 2*
- ✓ *Grade 3*
- ✓ *Grade 4*

Grade 1

The woman presets with *no signs and symptoms* of cardiac disease. The woman only has a foci.

The woman gets to know about the condition from the health worker upon routine physical examination at the clinic.

Grade 2

The woman presents with signs and symptoms of cardiac disease only after *performing strenuous worker*.

Grade 3

The woman presents with signs and symptoms of cardiac disease after just *performing normal duties*.

Grade 4

The woman presents with signs and symptoms of cardiac disease *even at rest*.

Diagnosis

- *History*
- *Chest x- ray*
- *ECG*
- *Echocardiogram*
- *Clotting studies*
- *Full blood count*

Effects to the pregnancy

- Premature labour
- Recto placental bleeding
- Premature rupture of membranes

- Prolonged labour

Effects to the fetus

- Spontaneous abortion
- Fetal hypoxia
- Intra uterine growth restriction - IUGR
- Prematurity
- Intra uterine fetal death - IUFD
- Inheritance of the condition

Pre-conception advice and care

Advice any woman with a known cardiac disease to seek medical advice from the cardiologist before conception.

Counseling on maternal and fetal risks should be done before conception. This allows the woman to make a choice for conception.

General health advice should be given by the midwife with regards to diet, weight, exercise, rest, prevention of anaemia, avoidance of tobacco alcohol and drugs.

Surgical intervention can be done by the cardiologist e.g. mitral valvotomy.

Antenatal care

Aims

- ✓ Maintain state of hemodynamic state
- ✓ Prevent complications
- ✓ minimize additional load
- ✓ monitor for deterioration
- ✓ Provide physical and psychological support

Management antenatally

- Pregnant woman with heart disease should be managed in a comprehensive emergency obstetrical and newborn care facility.
- Management is by multidisplinary team.

- Grade 1 and 2 of the heart disease can be managed in an outpatient and book for hospital delivery.
- Let the mother be booked at high risk joint clinic run by a cardiologist and obstetrician every 2 weekly until 30 weeks gestation then weekly thereafter till delivery.
- On each visit grading of the disease is done.
- Evaluate fetal condition during each visit.
- Do an abdominal ultra sound to confirm gestational age and congenital abnormalities.
- Assess for fetal growth and amniotic fluid volume
- Monitor fetal heart rate
- Teach the mother on fetal kick chart to rule out fetal compromise.
- Advice the mother on adequate rest.
- Counsel and monitor on weight gain.
- Let the mother report any signs of infection early.
- Advice on diet.
- Handle any dental condition appropriately.
- Prophylactic antibiotics in case of risk of endocarditis.
- include routine antenatal care management i.e.
    - *height and weight measurement*
    - *history taking*
    - *physical examination*
    - *antenatal profile*
    - *provision of insecticide treated net*
    - *administration of sp*
    - *administration of mebendazole*
    - *administration of ifas*

- *administration of tetanus toxoid*
- *emtct*
- *health education – ibp & danger signs and her cardiac condition.*
- *book for next visit – for the cardiac disease increase the frequency.*

Management during first stage of labour

- Admit the mother in a cardiac bed
- Reassure the mother
- Take proper history
- Perform physical examination
- Monitor labour by use of partograph
- Manage pain
- Observe infection prevention
- Provide support
- Breathe through the mouth during a contraction
- Empty bladder 2 hourly and test urine
- Administer antihypertensive
- Administer diuretics
- Prepare for second stage of labour

INFECTION PREVENTION.

Infection prevention is one of the key components in provision of care. Transmission of infection despite provision of skilled service in order to save life can be the cause of morbidity and mortality. **REMEMBER** sepsis is the second leading cause of maternal mortality worldwide.

Sources of infection in maternal care.

- Repeated vaginal examinations
- Improper waste disposal
- Dirty delivery couch
- Improper cord care
- Dirty baby care unit
- Relatives
- Not washing hands
- Unsterilized equipments

Ways of preventing infection.

1. Hand washing with soap and water.

Hand washing is very key. It eliminates most of the micro organisms. Hand washing is a skill of which all health service providers should appreciate. Before attending to the next patient it is advisable one should be able to wash their hands with soap and water. Always follow the steps of proper hand washing. Hand scrub can be done in case of performing surgical operations.

NOTE - where a health service provider is using sanitizer instead of hand wash then after **every four c**lients with the sanitizer hand washing should be done.

2. Aseptic technique

3. Proper waste segregation and disposal

All waste should be disposed where it belongs. Use the following chart for more information.

Type of Container	**Red bucket**	**Yellow bucket**	**Black bucket**	**white bucket**	**Purple bucket**	**Bed pan**	**Sharp container**
Description of waste	Body tissues	Highly Infectious	General waste	Food	Radio-active material	Stool	Sharps
Example of waste	Extracted tooth, amputated limb,	Used gloves, used vaginal pack, hair, used brannular, used swab, used NG tube.	Glove wrapper, Fluid bottles, fluid giving set,	Banana peels, remaining ugali, chapatti, muhogo, fish.	x- ray films. Ct scan films	Human stool	Used needle, surgical blade,

4. High level disinfection and sterilization

- High level disinfection

This is the standard process where once equipments are used and contaminated they should undergo a process of preparation to make them sterile again.

Step one – Prepare three buckets for chlorine, soapy water and clean water

Step two – Reconstitute chlorine at 0.5 % concentration

Step three – Immense used equipments in chlorine for 10 minutes

Step four – Remove equipments from chlorine and dip equipments in soapy water.

Step five – Rinse equipments in clean water.

- Sterilization

- Put the equipments in an autoclave
- Plastic equipments are put in cidex for 20 minutes. Thereafter rinse with distilled water or normal saline and pack them in a sterile container.
- Strenuous solution can be used.

NOTE: all sterile equipments have a shelf life of 14 days.

5. Health education

Teach the clients on infection prevention.

Mr. Deche course director, faculty and participants after EmONC training.

TO BE COMPLETED

1. **cervical dystocia**
2. **diabetes in pregnancy**
3. **cardiac disease in pregnancy**

   asthma in pregnancy