بسم الله الرحمن الرحيم
MULTIPLE PREGNANCY

- Multiple pregnancy is defined as pregnancy of more than one fetus, vast majority are cases of twin.
- Twin is 97-98%
- Pregnancy with three or more fetuses are referred as (higher multiple)
- Rate of twins and higher-order multiple births increase by infertility therapy.
- Increase neonatal morbidity and mortality rates.
- Increase maternal complication with multiple gestations at least two fold.
Factors affecting it’s incidence

- Induction of ovulation (history of infertility treatment)
- Increase maternal age? Due to increase gonadotrophins production.
- Increases with parity.
- Heredity usually on maternal side.
- Race; more in africans
Maternal Physiological Adaptation

- Increase blood volume and cardiac output.
- Increase demand for iron and folic acid.
- Maternal respiratory difficulty.
- Excess fluid retention and edema.
- Increase attacks of supine hypotension.
**Diagnosis in early pregnancy**

- The diagnosis of multiple pregnancy may be suspected on history and clinical examination: a history of infertility treatment or severe hyperemesis in early pregnancy are suggestive.

- hx of infertility Rx.

- Suspicion may be further raised if the uterus if found to be large for dates.
Other causes of apparently abnormal uterine enlargement:

(a) Mistaken Dates — bleeding after conception being considered as a period.

(b) Polyhydramnios — rare in early pregnancy.
c) Fibroids—These tend to flatten and soften in pregnancy but may be irregular.
d) Hydatidiform mole
Urinary HCG is much elevated
e) Abdominal Cyst:
   It is usually possible to differentiate two masses.

f) Retention of Urine — 'Catheter will cure'. It may be associated with retroversion and incarceration of the uterus.

- Ultrasound examination in early pregnancy will differentiate these conditions and is the only method of diagnosing multiple pregnancy reliably.
Diagnosis in late pregnancy

- Uterus is more globular & larger than normal for date
- Polyhydramnion may present & is more common in monozygotic than dizygotic
- If there is no evidence of polyhydramnios, an apparent 'excess' of fetal parts may be noted. It may be difficult to define the lie of the fetuses but three fetal poles (head or breech) must be identified to be sure of the diagnosis.
- Fetal hearts may be heard (differ in rate by 10 beats)
- Clinical suspicion of twin pregnancy must always be confirmed by ultrasound, if this has not already been performed
Determination of zygosity

• Very important as most of the complications occur in monochorionic monozygotic twins.
• By 1st trimester u/s
• It is imp. Because difference in risk between dichorionic & monochorionic
• V shape (lambda sign), dichorionic
  T shape, monochorionic
(lambda sign),,,,..., dichorionic
monochorionic
In late pregnancy, assessment of chorionicity become less reliable as the chorion become thin and fuse with the amniotic memb.

& depend on

- Fetal sex
- No. of placentas
- Membrane characterestics

**Determination of zygozity After Birth:**

- By examination of the MEMBRANE, PLACENTA, SEX, BLOOD group.
- Examination of the newborn DNA and HLA may be needed in few cases.
Frequency of twins:

a- Monozygotic: 1:250
b- Dizygotic: 1:90 white USA
1:20 African

**Dizygotic**: It is a fertilization of two separate ovum.

**Monozygotic = Identical twins**: It is a single fertilized ovum that subsequently divides into two similar structures.
Dichorionic diamniotic (separate)

Dichorionic diamniotic (fused)
Monochorionic diamniotic

Monochorionic monoamniotic
Results from division of fertilized egg:

- 0-72 H. Diamniotic dichorionic.
- 4-8 days Diamniotic monochor.
- 9-12 days Monoamnio.monochor.
- >12 days Conjoined twins.
Conjoined twins.
COMPLICATIONS OF MULTIPLE PREGNANCY

The major complications are illustrated below but it must be remembered that the so-called minor complications of pregnancy such as heartburn, varicose veins, haemorrhoids and other pressure effects may all add to the mother's burden.

A] MATERNAL:
1. Anemia due to increase demand.
2. Increase incidence of PET(5 times).
4. Increase incidence of premature labour.
5. Increase incidence of CS. And operative delivery.
6. Increase incidence of placenta previa and abruptio placenta.
7. Increase incidence of atonic postpartum hemorrhage.
**Anaemia**
Iron deficiency and megaloblastic due to fetal demands

- **Placenta Praevia**
  Due to large placental site

- **Premature Labour**
  Due to bulk of pregnancy and polyhydramnios

- **Growth restriction or Intra-uterine Death**
  Due to placental insufficiency or ‘transfusion syndrome’

- **Pre-Eclampsia and Eclampsia**
  Cause unknown

- **Post partum Haemorrhage**
  Due to large placental site
B] FETAL:
1. Increase perinatal morbidity and mortality.
2. Prematurity with or without rupture of membrane.
3. Increase incidence of malpresentation.
4. Increase incidence of cord prolapse.

5. Higher incidence of IUGR.

6. Increase incidence of congenital anomalies.
Specific Complications in Monochorionic Twins

**TWIN-TWIN transfusion.**

- Results from vascular anastomosis between twins vessels at the placenta.
- Usually arterio (donor) venous (recipient).
- Occurs in 10% of monochorionic twins.
- Chronic shunt occurs, the donor bleeds into the recipient so one is pale with oligohydraminos while the other is polycythemic with hydranminose.

- If not treated death occurs in 80-100% of cases.
TWIN-TWIN transfusion.
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TWIN-TWIN transfusion
**Possible methods of treatment:**

- Repeated amniocentesis from recipient.
- Indomethacin.
- Fetoscopy and laser ablation of communicating vessels.
- The ideal management when this occurs in early pregnancy is unclear. When the onset is later in pregnancy, delivery is indicated in the interests of both babies.
Other Complications in Monochorionic Twins:

- Congenital malformation. Twice that of singleton.
- Umbilical cord anomalies. In 3 – 4 %.
- Conjoined twins. Rare 1:70000 deliveries.
- PNMR of monochorionic is 5 times that of dichorionic twins (120 VS 24/1000 births)
Management

1. Antenatal.
2. In Labor.
1) Antenatal Care

- Early diagnosis
- Adequate nutrition
- Frequent prenatal visit

- The aim is:
  - Prolongation of gestation age, increase fetal weight.
  - Improve PNM and morbidity.
  - Decrease incidence of maternal complications.
Antenatal Care

- Like care in fashion with attention to early identification of complications
- Iron and folic acid to avoid anemia.
- u/s to make early diagnosis
- Threatened abortion is more likely to proceed to inevitable.
- Detailed fetal assessment
Antenatal Care

Screening for fetal abnormality:

- Screening for trisomy 21 by maternal serum biochemistry is not reliable
- So optimal method is by u/s
- Knowledge of chorionicity is essential
- A discordinate weight difference of >25% is abnormal (IUGR).
- Weekly CTG from 36 weeks.
Increased Nuchal Translucency.
Monitoring of Fetal Growth & Well-being

- Measurement of symphysis fundal height maternal reporting of fetal movement is not reliable
- Principally u/s is used
- Each assessment should include (fetal measurements, activity, lie, amniotic fluid volume)
- In monochorionic, feature of TTRS should sought including (fetal size, activity, amniotic fluid volume, cardiac size)
- Doppler assessment & CTG
- 4-6 weekly u/s used in dichorionic
- Fortnightly in monochorionic
2) Labour & delivery:

- Trained obstetrical attendant.
- Available blood.
- Good access I.V live.
- CTG monitoring.
- Anesthetist → ER C-S
- Pediatrician for each fetus.
- Mode of delivery depend on presentation.
Malpresentations are common in twin pregnancy but in 75% of cases twin 1 presents by the vertex.
5% Vertex and Transverse
2% Breech and Transverse
0.5% Transverse and Transverse
The lie of the second baby is unimportant until the first is born.

Labour is usually straightforward though the higher incidence of malpresentation increases the risk of cord prolapse.

Both fetal hearts should be monitored, the first by a scalp electrode and the second externally, ideally using ultrasound cardiotocography.

Epidural analgesia is ideal, if available, as it permits any necessary intervention, especially with the second twin.

This should take place in an operating theatre with appropriate facilities and staff available. In addition to the obstetrician and midwives, an anaesthetist and paediatrician should be present.
Mode of delivery depend on presentation.

**Vertex- Vertex (45%)**
- Vaginal delivery, interval between twins not to exceed 20 minutes.

**Vertex- Breech (37%)**
Vaginal delivery by senior obstetrician
**Breech-Vertex (20%)**
- Safer to deliver by CS to avoid the rare interlocking twins (1:1000 twins).

**Breech-Breech (10%)**
- Usually by CS.
Active mx of 3\textsuperscript{rd} stage of labour is only begin at delivery of anterior shoulder of 2\textsuperscript{nd} baby

Rarely the first placenta is born before the second baby. Bleeding is not usually severe. The uterus is actively contracting and the reduction in size of the placental site and the pressure of the fetus on it helps to control the blood loss.
Other complications

1) Locked Twins

Locked twins is a very rare condition in which parts of one interlock with the other causing an impasse. It most commonly occurs with the first as breech and the second as a vertex.
Early recognition is essential as the condition has a high fetal mortality. The treatment is to push the lower head out of the pelvis to free the head of the first fetus and allow delivery. If displacement is not possible the first baby will die. A destructive procedure may be performed to allow delivery of the trunk and then the second twin.

The psychological sequelae to a destructive procedure (decapitation of twin 1) are significant.

Consequently, upon diagnosis caesarean section may be undertaken. If performed promptly this may also salvage twin 1.
2) Conjoined twins

Conjoined twins are due to imperfect separation of monozygotic twins. Vaginal delivery is possible particularly when delivery is preterm. Nevertheless most authorities would advocate elective caesarean section in a major paediatric/maternity unit.
Conjoined twins
Triplets and quadruplets have similar problems and difficulties. Premature labour is much commoner. The perinatal mortality rate is higher. Vaginal delivery is possible in triplet pregnancy although caesarean section remains the method of choice. Delivery by caesarean section is invariably the method of choice in quadruplet pregnancy.
Triplets or quadruplets
quadruplets
Triples
Sometimes a twin does not develop but becomes amorphous or shrivelled and flattened. This is called fetus papyraceous or compressus. It may be readily apparent or may be found wrapped in the membranes of the placenta.
Fetus Papyraceous
References:-
1) Ten teachers obstetrics 18th edition
2) ILLUstrated obstetrics textbook
3) internet