Multiple Gestation
OR
Multiple Fetal Pregnancy

Dr. Ayman Hussien Shaamash
MBBCH, MSc., MD. (Egypt)
Professor of OB./Gyn.
Faculty of Medicine.
King Khalid University
Contents:

1- Definition, Incidence and epidemiology.
2- Etiology of multiple fetuses.
3- Types of twins:-
   a- Determination of zygosity.
   b- Risk of zygosity:
      * Risk of fetuses.
      * Maternal complications.
      * Problems of monochorionic twins
4- Management of twins:-
   a- Antenatal.
   b- In labor.
1- Definition, Incidence and epidemiology.

- Definition – Multiple pregnancy consists of 2 or more fetuses.
- Twins make up 97-98% of multiple pregnancies.
- Twin pregnancy is 2 to 3% of all pregnancies.
- Twin pregnancies are: Dizygotic and Monozygotic
- Frequency of twins:
  - a- Monozygotic: 1:250 (constant rate)
  - b- Dizygotic: 1:90 white USA
    1:20 African
    (variable rate)
DIZYGOTIC TWINS

Non Identical Twins

- Most common represents 2/3 of cases.
- Fertilization of more than one egg by more than one sperm.
- Non identical, may be of different sex.
- Two chorion and two amnion (Dichorionic Diamniotic).
- Placentae may be separate or fused.
Aetiology of dizygotic twins

- Race (African is highest 1:20 in Nigeria)
- Familial (mother important than father)
- Increasing parity
- Age (peak at 35-37 years of age)
- Ovulation induction is the most important (10% with clomide and 30% with gonadotrophins).
- IVF and Embryo transfer
- None of the above apply to MONOZYGOTIC TWINS.
Identical twins (same sex, ): It is a single fertilized ovum that divides into two similar structures.

- Constant incidence of 1:250 births.
- Constitutes 1/3 of twins.
- NOT affected by factors of dizygotic twins.
Results from division of fertilized egg:

1. 0-3 days: Dichorionic / Diamniotic.
2. 4-8 days: Monochorionic/Diamniotic.
3. 9-12 days: Monochorionic/Monoamnion.
4. >12 days: Conjoined twins.

- 70% are monochorionic/ diamniotic.
- 30% are dichorionic / diamniotic.
Early or late split of monozygotic twins

The earlier splitting of the single zygote occurs, the more independently the twins will develop.
Determination of zygosity and chorionicity

- **Zygosity** refers to genetic work up of the pregnancy (one or tow ova).
- **Chorionicity** indicate the membrane composition of the pregnancy (the chorion and amnion)
- Very important as most of the complications occur in Monozygotic / Monochorionic twins.
During Early pregnancy by USS

- Very accurate in the first trimester, two sacs, presence of thick chorion between amniotic membrane.
9 weeks abortus of a dizygotic twin
During 2\textsuperscript{nd} and 3\textsuperscript{rd} trimesters pregnancy by USS

- Less accurate in the second trimester (thin chorion and fuse with amniotic membrane).
- Lambda sign in early USS for dizygotic twins
- Different sex indicates dizygotic twins
- Separate placentas indicates dizygotic twins
Y or T sign (dizygotic or monozygotic)
Diagnosis of Multiple Fetuses

I. History.
II. Clinical Examination.
III. D.D.
IV. Investigations.
✓ +ve family history on maternal side.
✓ +ve history of ovulation induction.
✓ Exaggerated symptoms of pregnancy.
✓ Marked edema of lower limb.
✓ Discrepancy between date and uterine size.
✓ Palpation of many fetal parts.
Deferential diagnosis: (large uterus for date)

1. Inaccurate menstrual history
2. Multiple fetuses.
3. Hydramnios.
5. Uterine myomas.
6. A closely attached adnexal mass.
7. Fetal macrosomia (late in pregnancy)
8. Fetal Anomalies
3Ds & 4Ds USS

Twins!
Complications Associated with Multiple Gestation

(80% of twin pregnancies)

<table>
<thead>
<tr>
<th>Maternal</th>
<th>Utero-placental</th>
<th>Fetal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperemesis gravidarum</td>
<td>↑ PROM/PTL</td>
<td>Prematurity*</td>
</tr>
<tr>
<td>GDM</td>
<td>Polyhydramnios</td>
<td>IUGR</td>
</tr>
<tr>
<td>Gestational HTN</td>
<td>Placenta previa</td>
<td>Malpresentation</td>
</tr>
<tr>
<td>Anemia</td>
<td>Placental abruption</td>
<td>Congenital anomalies</td>
</tr>
<tr>
<td>↑ physiological stress on all systems</td>
<td>PPH (uterine atony)</td>
<td>Twin-twin transfusion</td>
</tr>
<tr>
<td>↑ compressive symptoms</td>
<td>Umbilical cord prolapse</td>
<td>↑ perinatal morbidity and mortality</td>
</tr>
<tr>
<td>C/S</td>
<td>Cord anomalies</td>
<td>Twin interlocking</td>
</tr>
<tr>
<td></td>
<td>(velamentous insertion, 2 vessel cord)</td>
<td>(Twin A breech, twin B vertex)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single fetal demise</td>
</tr>
</tbody>
</table>

*Most common cause of perinatal mortality in multiple gestation*
Complications Associated with Multiple Gestation

- All medical disorders - Hyperemesis, Anaemia, PET, Diabetes, PTL-polyhydramnios, are increased
- Perinatal mortality - increases 6 fold
- Death of one fetus - In Dizygotic - pregnancy continues. Monozygotic - immediate complication in the other twin - death or brain damage - neurodevelopmental handicap
- Fetal abnormalities - in dizygotic 2 fold & monozygotic 4 fold increase
- Chromosomal defects
- Complications unique to monochorionic twins
1. Twin-twin transfusion syndrome (TTTS)
2. Consequences of fetal death of one twin
3. Discordant growth and malformations
4. 2 % of risk of cord entanglement
6. Umbilical cord anomalies. In 3 – 4 %.
7. Conjoined twins. Rare 1:70000 deli varies. The majority are thoracopagus.
8. PNMR of monochorionic is 5 times that of dichorionic twins (120 VS 24/1000 births)
Twin-Twin transfusion syndrome (TTTS)

- 15% of monochorionic twins.
- Early onset ≥ 80% PNMR.
- It is acute or chronic (AV Fistula)
- There is imbalance blood flow:
  A-donor → hypoperfused, IUGR, oligohydramnios, anemic.
  B-recipient → hyperperfused, large, polycythemic.
- Treated by laser ablation of anastomosis
A Discordant twin due to severe transfusion syndrome

**Dx:**

1. *In-utero*: ≥ 25% difference in fetal weight.
2. *Postnatal*: ≥ 5g/dl difference in hematocrite.
Conjoined twins → Siamese twins

* Anterior (thoracopagus).
* Posterior (pygopagus).
  • Cephalic (craniopagus).
* Caudal (ischopagus).
Conjoined twins → Siamese twins
INTRAUTERINE DFATH OF ONE TWIN

- Early in pregnancy usually no risk.
- *In 2\textsuperscript{nd} or 3\textsuperscript{rd} trimester*:
  - Increase risk of DIC.
  - Increase risk of thrombosis in the alive one.
  - The risk is much higher in monochorionic than in dichorionic twins.
  - The alive baby should be delivered by 32-34 weeks in monochorionic twins.
AIMS OF MANAGEMENT

1. Prolongation of gestation age, increase fetal weight.
2. Improve PNM and morbidity.
3. Decrease incidence of maternal complications.
Antenatal Management

- **Early diagnosis** (mainly by ultra sound)

- **Adequate nutrition**
  1. Caloric consumption increased by 300 Kcal /day.
  2. Iron 60-100 mg per day.
  3. Folic acid 1mg per day.

- **Frequent prenatal visit**
  1. Observe maternal and fetal complications
  2. Frequent USS → fetal growth, congenital anomalies, amniotic fluid.
  3. BPP & NST
  4. Doppler if discordant fetal growth
Risk of preterm labor and delivery

- It is the most common complication
  - Morbidity & mortality
    - 60% of twins $\rightarrow$ at 35 weeks.
    - 90% of triplets $\rightarrow$ at 32 weeks.
    - 100% quadruplets $\rightarrow$ at 29–30 wk

- Prophylactic use of
- Fetal fibronectin (at 24-28 weeks if high associated with increase risk of PTD < 32 wk).
MANAGEMENT-DICHORIONIC TWINS

- Ultrasound at 10-13wks: viability, chorionicity, nuchal translucency (NT)
- Structural anomaly scan at 22 wks
- Serial fetal growth scans-24,28 then 2wkly
- 34-36wks: discussion of mode of delivery (mode of delivery depends on fetal weight, GA, presentation)
- Vaginal delivery for vertex-vertex presentation
- Cesarean section for Non vertex presentation
- Postnatal advice- breastfeeding/contraception
MANAGEMENT-MONOCHORIONIC TWINS

- Ultrasound at 10-13 wks: viability, chorionicity, NT for aneuploidy
- Ultrasound surveillance for TTTS and discordant growth at 16 wks and then 2wkly
- Structural anomaly scan at 22wks
- 32-34wks: discussion of mode of delivery.
- Elective Cesarean delivery at 36/37 wks (if uncomplicated)
- Postnatal advice- Breastfeeding/contraception
INTRAPARTUM MANAGEMENT

- Trained obstetrical attendant.
- Available blood.
- Good access I.V live.
- CTG monitoring.
- Anesthetist → ER C-S
- Pediatrician for each fetus.
- Mode of delivery depends on presentation.
- Management of complications of 2nd & 3rd stages
LABOUR & DELIVERY

- Routine management in labour
- Monitor both twins
- Inform neonatologist
- Place an intravenous line
- After delivery of first twin, check lie & presentation of 2nd twin
- Leave membranes intact until presenting part well in the pelvis
- Use oxytocic only after delivery of 2nd twin
Perinatal Outcome of Twin Pregnancy

(2\textsuperscript{nd} twin is more affected)

- PNMR is 5 times that of singleton (30-50/1000 births and 70% in TTTS).
- RDS accounts for 50% of PNMR.
- Birth trauma, 2\textsuperscript{ND} twin is 4 times affected than 1\textsuperscript{st}.
- Incidence of SB is twice that of singleton.
Selective Fetal Reduction

- From 8% to 20% of multiple pregnancies reduce spontaneously by the end of the first trimester “vanishing twin”.
- In the higher-order gestation selective multifetal reduction (SFR) is an option.
- One or more fetuses are aborted in order to improve perinatal outcome.
- Under US guidance, between 10-13 wk, one or more fetuses are injected with potassium chloride.
- Up to 10% risk of abortion
Selective Fetal Reduction
Thank You