



COLLEGE OF MEDICINE
DEPT. OF OBSTETRICS AND GYNECOLOGY

Multiple Gestation OR

Multiple Fetal Pregnancy

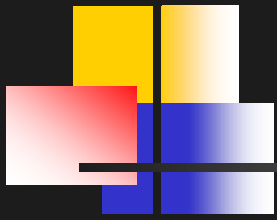
Dr. Ayman Hussien Shaamash

MBBCH, MSc., MD. (Egypt)

Professor of OB./Gyn.

Faculty of Medicine.

King Khalid University



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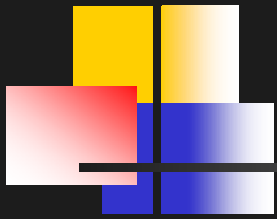
- 1- Definition, Incidence and epidemiology.**
- 2- Etiology of multiple fetuses.**
- 3- Types of twins:-**
 - a- Determination of zygosity.**
 - b- Risk of zygosity:**
 - * Risk of fetuses.**
 - * Maternal complications.**
 - * Problems of monochorionic twins**
- 4- Management of twins:-**
 - a- Antenatal.**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

MONOZYGOTIC TWINS

Identical Twins

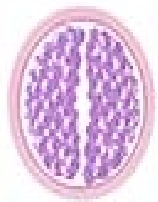
- Identical twins (same sex,): It is a single fertilized ovum that that divides into two similar structures.
 - Constant incidence of 1:250 births.
 - Constitutes 1/3 of twins.
 - NOT affected by factors of dizygotic twins



Results from division of fertilized egg :

1. 0-3 days: Dichorionic / Diamniotic.
 2. 4-8 days: Monochorionic/Diamniotic.
 3. 9-12 days: Monochorionic/Monoamnio.
 4. >12 days: Conjoined twins.
- 70% are monochorionic/ diamniotic .
 - 30% are dichorionic / diamniotic.

Early or late split of monozygotic twins



Early split

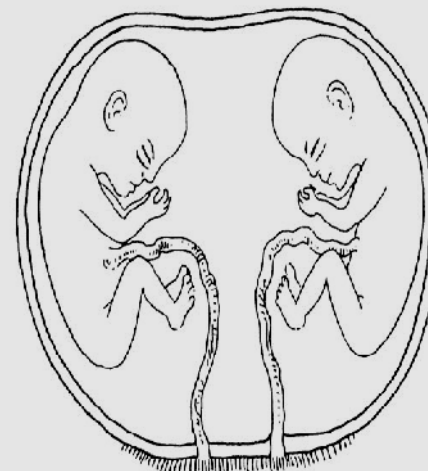


Late split

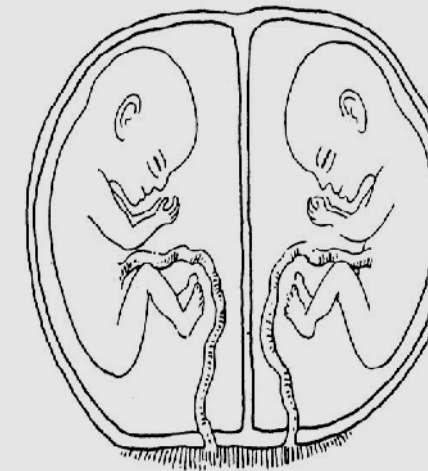
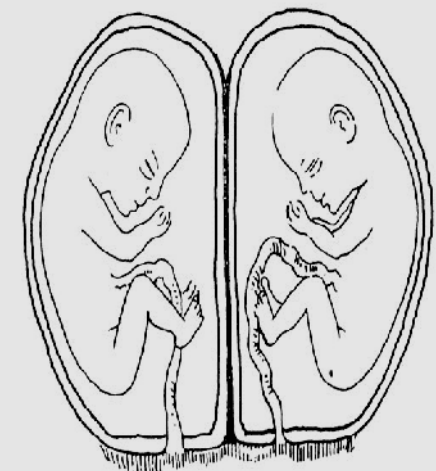


The earlier splitting of the single zygote occurs, the more independently the twins will develop

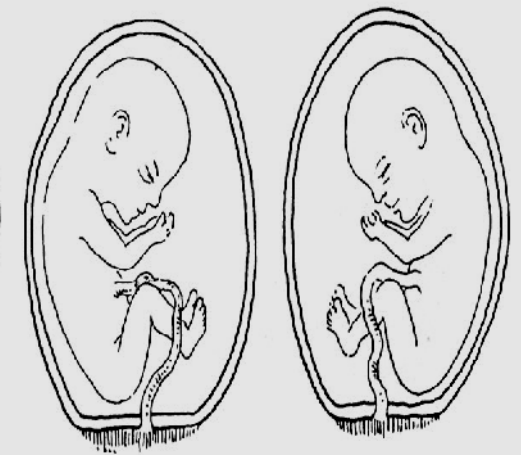
Monoamniotic monochorionic



Diamniotic dichorionic (fused)



Diamniotic monochorionic



Diamniotic dichorionic (separated)

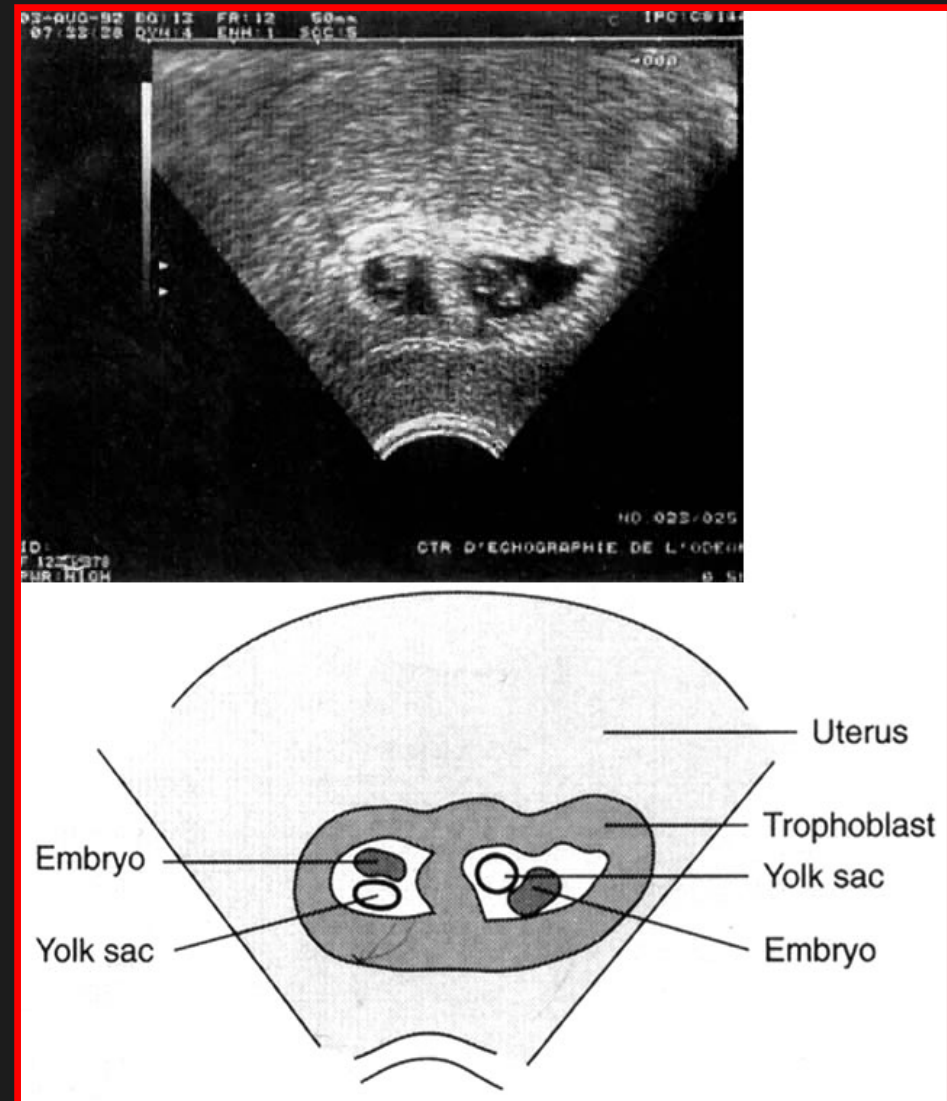


Determination of zygosity and chorionicity

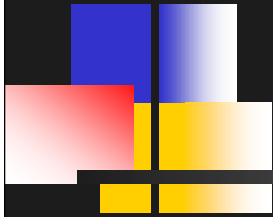
- **Zygosity** refers to genetic work up of the pregnancy (one or tow ova).
- **Chorionicity** indicate the membrane composition of the pregnancy (the chorion and amnion)
- Very important as most of the complications occur in Monozygotic / Monochorionic twins.

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

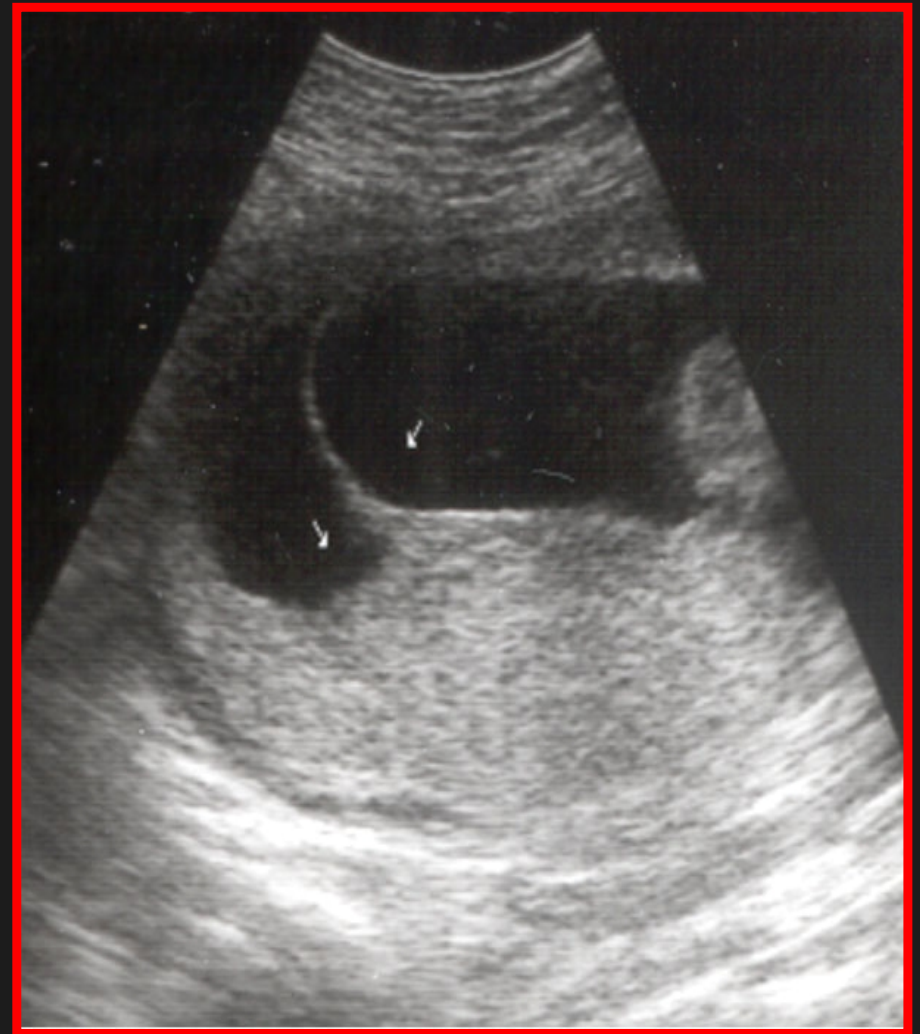


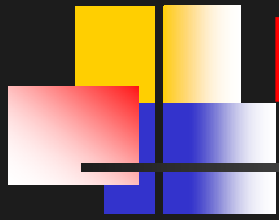


During 2nd and 3rd. trimesters pregnancy by USS

- 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

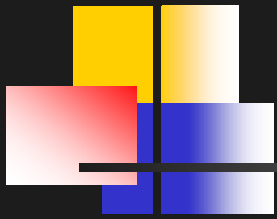
or sign (dizygotic or monozygotic)





Diagnosis of Multiple Fetuses

- I. History.
- II. Clinical Examination.
- III. D.D.
- IV. Investigations.



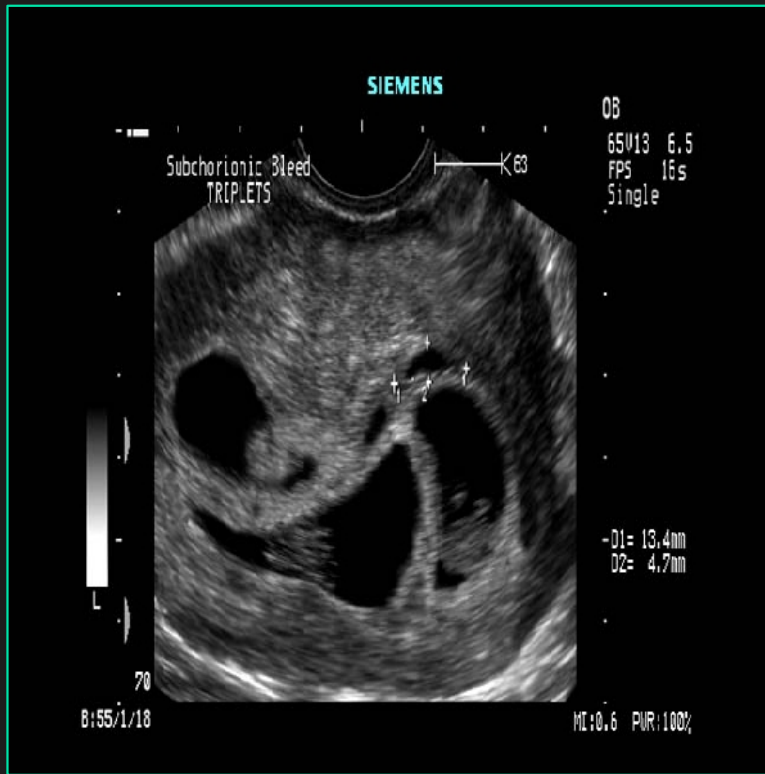
- ✓ +ve family history on maternal side.
- ✓ +ve history of ovulation induction.
- ✓ Exaggerated symptoms of pregnancy.
- ✓ Marked edema of lower limb.
- ✓ Discrepancy between date and uterine size.
- ✓ Palpation of many fetal parts.

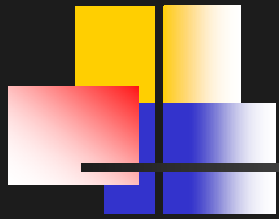


Differential diagnosis: (large uterus for date)

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

2Ds USS





3Ds & 4Ds USS



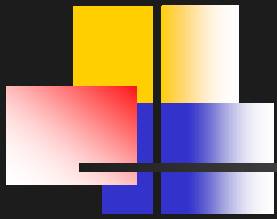
Complications Associated with Multiple Gestation

(80% of twin pregnancies)

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

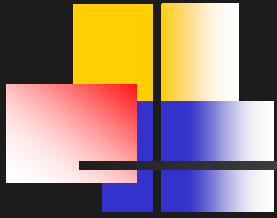
*Most common cause of perinatal mortality in multiple gestation

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

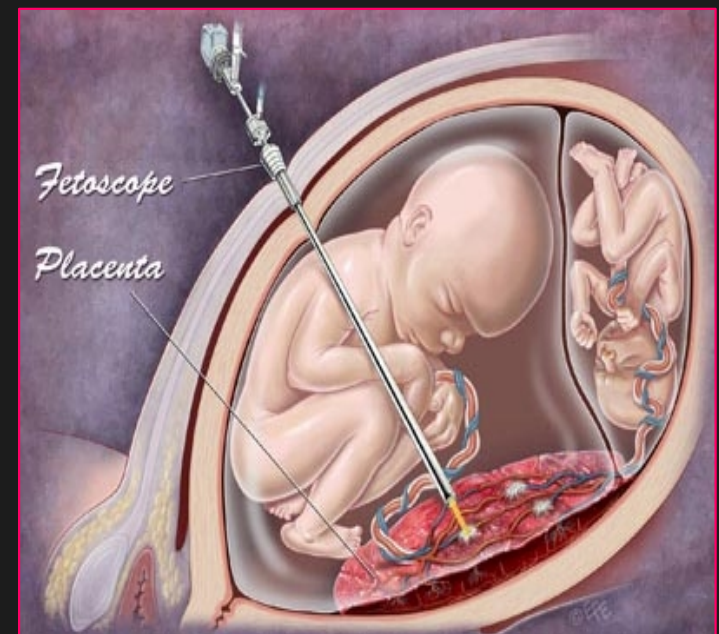
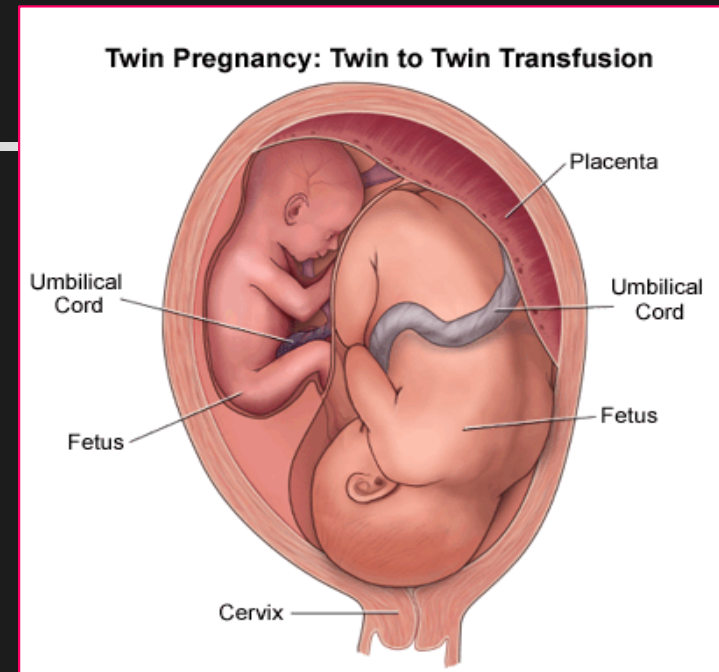
MONOCHORIONIC +/- MONOAMNIOTIC TWIN COMPLICATIONS



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
5. Congenital malformation. Twice of singleton.
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 monozygotic 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



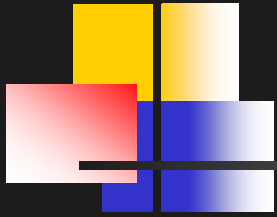
A Discordant twin due to severe transfusion syndrome

Dx:

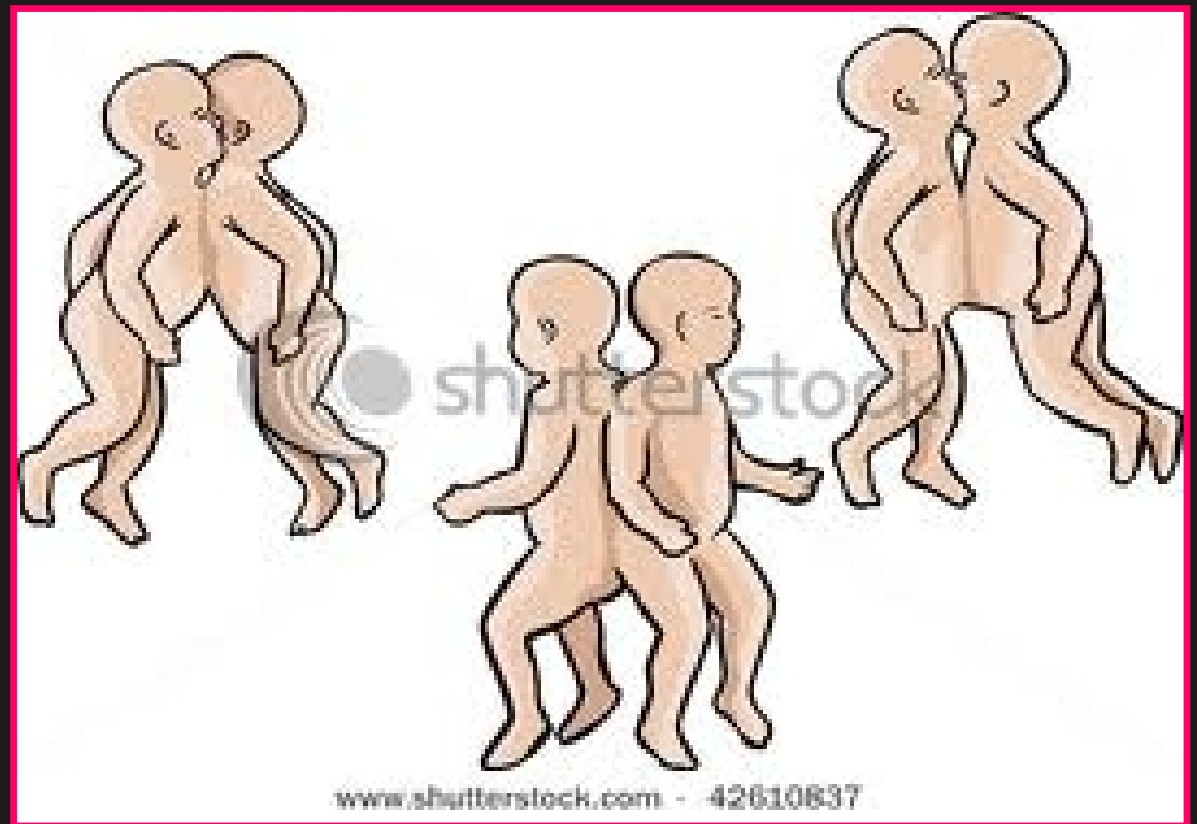
- 1- In-utero : 25% difference in fetal weight.
- 2- Postnatal : 5g/dl difference in hematocrite.



Conjoined twins → Siamese twins



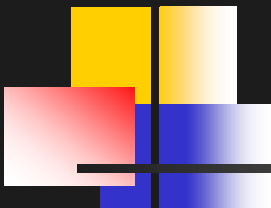
- * Anterior (thoracopagus).
- * Posterior (pygopagus).
- Cephalic (craniopagus).
- * Caudal (ischopagus).

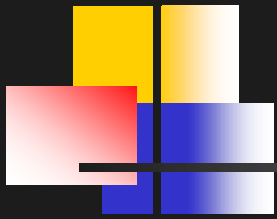


Conjoined twins → Siamese twins



INTRAUTERINE DEATH OF ONE TWIN

- 
-
- Early in pregnancy usually no risk.
 - In 2nd or 3rd trimester:
 - Increase risk of DIC .
 - Increase risk of thrombosis in the a live 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.



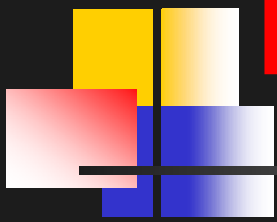
AIMS OF MANAGEMENT

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 → at 35 weeks.

90% of triplets → at 32 weeks.

100% quadruplets → at 29–30 wk

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

Bed rest

Tocolytics

Steroids

Cerclage



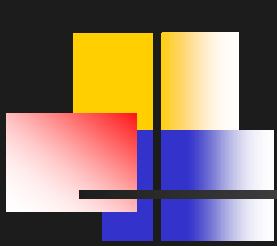
MANAGEMENT-DICHORIONIC TWINS

- 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



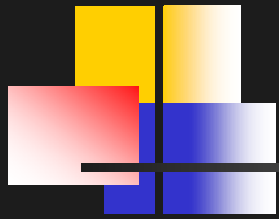
MANAGEMENT-MONOCHORIONIC TWINS

- 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 line.
- ❖ CTG monitoring.
- ❖ Anesthetist → ER C-S
- ❖ Pediatrician for each fetus.
- ❖ Mode of delivery depends on presentation.
- ❖ Management of complications of 2nd & 3rd stages



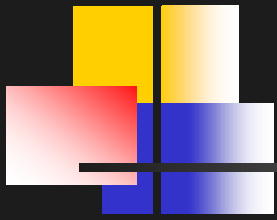
LABOUR & DELIVERY

- 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

(2nd 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, 2ND twin is 4 times affected than 1st .
- 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

