



# TWINES PREGNANCY AND HIGHER MULTIPLE GESTATION

Dr.Baidaa Abdullah



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## LEARNING OBJECTIVES

- Understand classification of multiple pregnancies.
- Understand risk factors for multiple pregnancies and why prevalence is increasing.
- Understand the increased complications that occur in multiple pregnancies.
- Understand the antenatal care of women with multiple pregnancies

# Definition

twin pregnancy a pregnancy in which two or more embryos develop in the uterus at the same time



## Epidemiology

The incidence of multiple pregnancy varies worldwide, with rates varying from

6 per 1,000 births in Japan

40 per 1,000 births in Nigeria.

16 per 1,000 births In the UK

The majority (97–99%) of these were twin pregnancies with the remainder being predominantly triplet pregnancies.



**EPREVELENCE**

**1.5% -2.5% of all pregnancy**

## classification

Multiple pregnancy may be classified according to:

Number of fetuses: twins, triplets, quadruplets, Quintuplets etc.

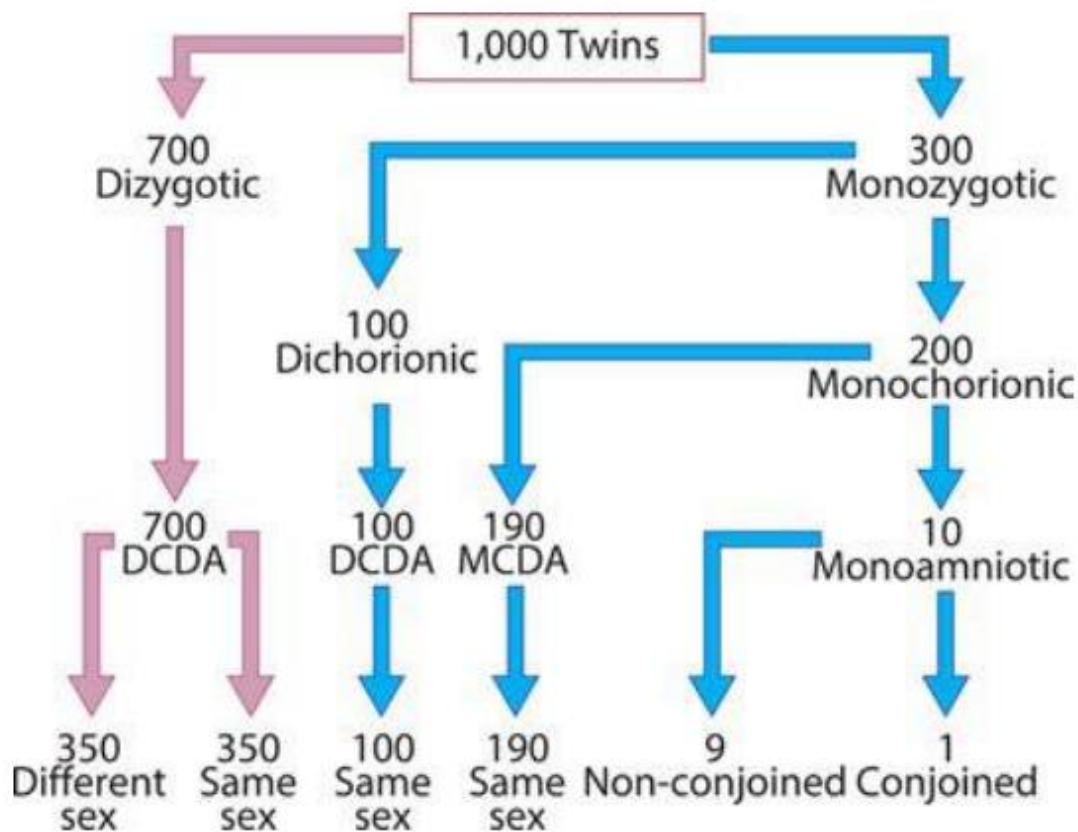
Number of fertilized eggs: **zygosity**.

Number of placentae: **chorionicity**.

Number of amniotic cavities: **amnionicity**.

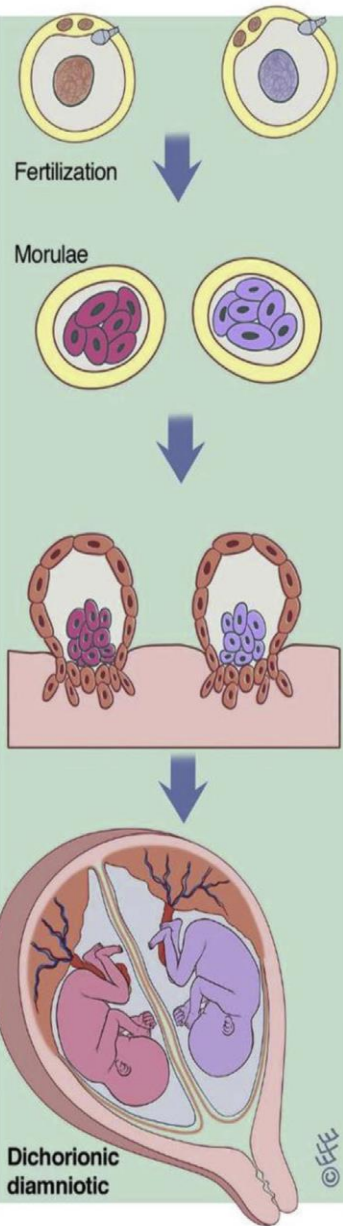
# RISK FACTORS

- 1-increased maternal age
- 2-Family history of dizygotic twins in maternal side.
- 3-IVF
- 4-ovulation induction clomide 6-8% ,gonadotrophins 20-30%.
- 5-high parity
- 6-black race
- Monozygotic twins has the same incidence 1:250 , after IVF increase for unknown cause.

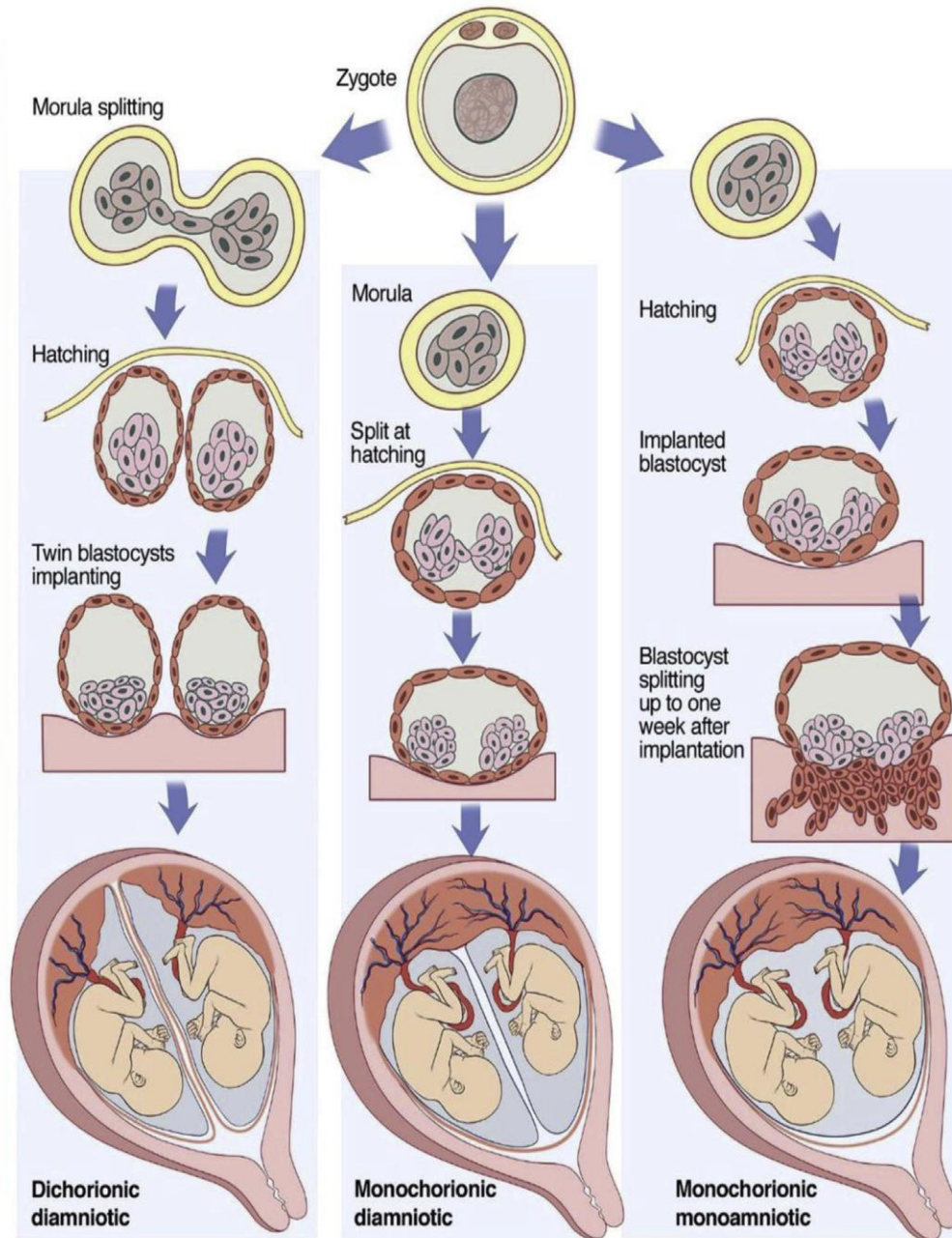


**Figure 7.1** Incidence of monozygotic and dizygotic twin pregnancies. DCDA, dichorionic diamniotic; MCDA, monochorionic diamniotic.

## Dizygotic twinning



## Monozygotic twinning





when the split occurs within **3 days** of conception, two placentas and two amniotic cavities result, giving rise to a **dichorionic diamniotic** pregnancy.

when splitting occurs between **days 4-8**, only the chorion differentiated a **monochorionic diamniotic** pregnancy result.

Later splitting **9-12 days**, after the amnion has differentiated leads to both twins developing in a single amniotic cavity, a **monochorionic monoamniotic** pregnancy

If splitting delayed beyond **day 12**, the embryonic disc has also formed, and **conjoined or Siamese twin** will result.

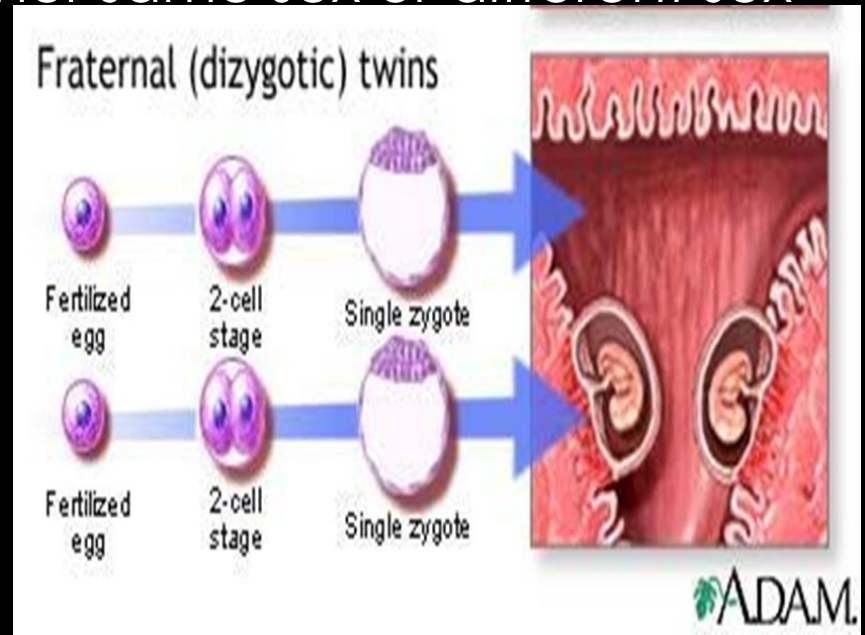
## Non identical or fraternal twins

are dizygotic: 2/3 of spontaneous pregnancy

Resulted from the fertilization of two separate eggs have always two functionally separate placentas(dichorionic)

the placentas can become anatomically fused together and appear to the naked eye as a single placental mass

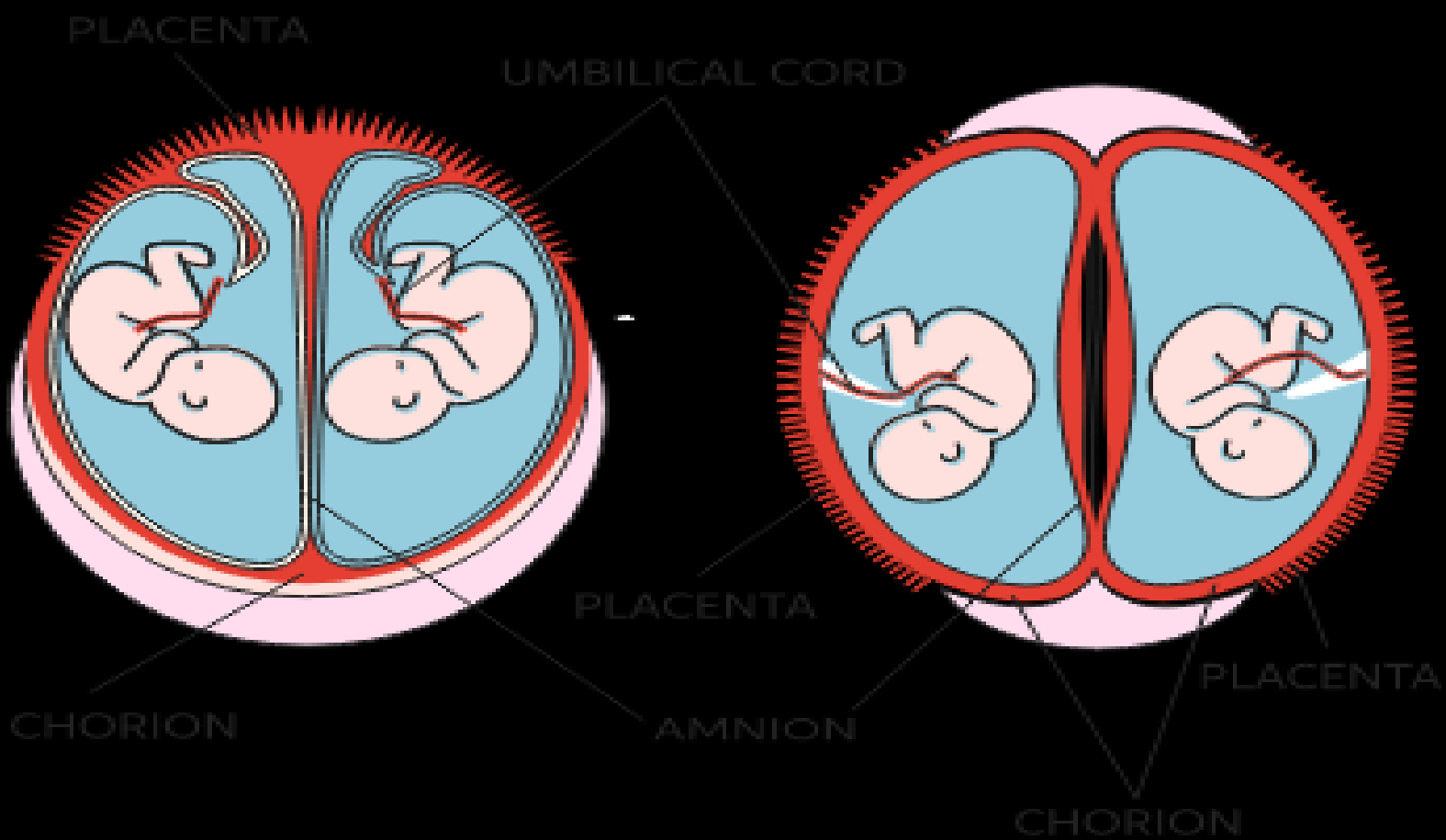
They always have separate amniotic cavities (diamniotic) and the two cavities are separated by a thick 3 layer membrane (fused two amnion in the middle with a chorion on either side) the fetus can either same sex or different sex pairing.



# Identical and fraternal twins

One-egg twins

Two-egg twins



Identical twins are monozygotic: 1/3 of spontaneous pregnancy  
Arise from fertilization of a single egg , and are always same sex pairing,  
may share single placenta , or two placetas can become anatomically  
fused together and appear to the naked eye as a single placental mass  
30% vast majority of monochorionic twins have two amniotic  
69%occasionally, monochorionic twins may share a single sac  
(monoamniotic) 1%.  
Cavities( diamniotic) ,but dividing membrane is thin single layer of fused  
two amnion .

They always have

separate amniotic cavities (diamniotic) and the two cavities are separated by a thick three-layer membrane (fused amnion in the middle with chorion on either side). The fetuses can be either same-sex or different-sex pairing

The twin peak sign (lambda ( $\lambda$ ) sign)



ULTRASOUND & IMAGING CONSULTANT

P80

5MHz

C358

B11

GE

TR \_



Fused placenta

\*\*

CN0  
10cm  
DR72  
G 64

+0:00:13  
00

Dichorionic Diamniotic Twins -  
"twin peak sign"

MI < 0.4

ULTRASOUND&IMAGING CONSULTANT GA(EDD)=20W4D P80 5MHz C358

B11\*

16.6GE



CN0  
12cm  
DR72  
G 72



**"T-sign" in Monozygotic Diamniotic Pregnancy**

## Maternal risk

hyperemesis

Anemia

Hydramnios

Hypertension

Premature labor

Post partum hemorrhage

Preeclampsia

C.S

Placenta previa



## FETAL RISK

1-Malpresentation

2-placenta previa

3-Abruptioplacentae

4-PROM

5-Prematurity

6-Umbilical cord prolapse

7-IUGR

8-Congenital anomalies

9-increased perinatal mortality and morbidity:

a-RDS

b-Brain truma

c-Cerebral hemorrhage

d-Brain anoxia

e-Congenital anomalies

f-Stillbirth

G-Prematurity

## COMPLECATION RELEVANT TO TWIN PREGNANCY

### 1-Miscarriage and sever preterm delivery

Where the average gestation at delivery is at 37 weeks ,therefore about half of all twins delivery preterm.

After 32 weeks do well, most befor 23weeks die

most interest are late miscarriage (12-23) and very pretem (24-32)

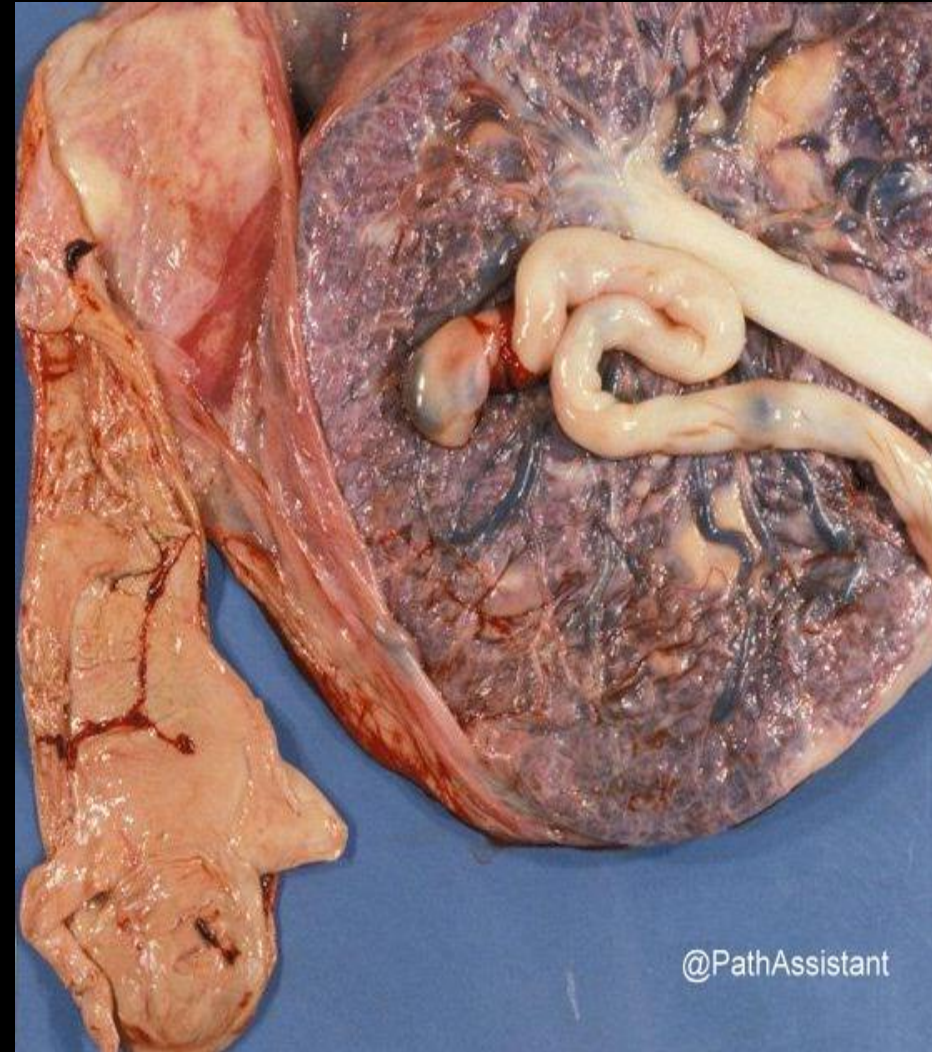
1%in singleton pregnancy, 2%in dichorionic ,more increase in monochorionic twins

## 2-perinatal mortality in twins

- Perinatal mortality rate for twins is around 6 times higher than for singletons related to preterm in monochorionic the risk twice as high as in dichorionic.
- 3- death of one fetus
- If the demise occurs before 12 weeks gestation the dead fetus is absorbed.
- Between 12-20 weeks the fetus shrink and become dehydrated and flattened (fetus papyraceus)

## fetus papyraceus

During 2nd and 3rd trimester (after 20 weeks) the intrauterine death of one fetus in a twin pregnancy may be associated with a poor outcome for the remaining co-twin dichorionic: labour may start or pregnancy may continue uneventfully and delivery at term



@PathAssistant

- in monochorionic death of one twin may result in immediate complications in the survivor 25% death due to hypotensive episode 2nd to placental vascular anastomoses, or if pregnancy continue for more than 3 weeks 50% brain damage and neurodevelopmental handicap, maternal complication DIC (the retained dead fetus syndrome) so platelet and plasms fibrinogen level should checked weekly.

## 4-intrauterin growth restriction

In dichorionic twin pregnancy if one fetus is IUGR so preterm delivery may result in iatrogenic complication in healthy co twin.

Delivery should be avoided before 32weeks,even if imminent death of co twin.

this may not applicable in monochorionic,as damage happens at moment of death of the first twin,

below 32w aim to prolonged pregnancy as far as possible with out risking of death of the IUGR

## 5-fetal abnormality

- The risk is twice compared to singleton pregnancy in dichorionic,
- in monochorionic the risk increase 4 times due to higher vascular accident during embryonic life.
- Abnormality in one fetus manage expectantly or selective fetocid if abnormality is non lethal, the risk of loss of co- twin is 25%, if lethal abnormalities so avoid such risk to healthy fetus unless the abnormality threat the survival of healthy twin,
- **fetocid** either by intra cardiac injection or by cord occlusion technique.

## 6- chromosomal defect

The risk of chromosomal abnormality increase with age , the rate of dizygotic twin increase with age, IVF increase ,which increase the dizygotic twin, IVF increase in older age women ,so increase chromosomal defect in dizygotic twin

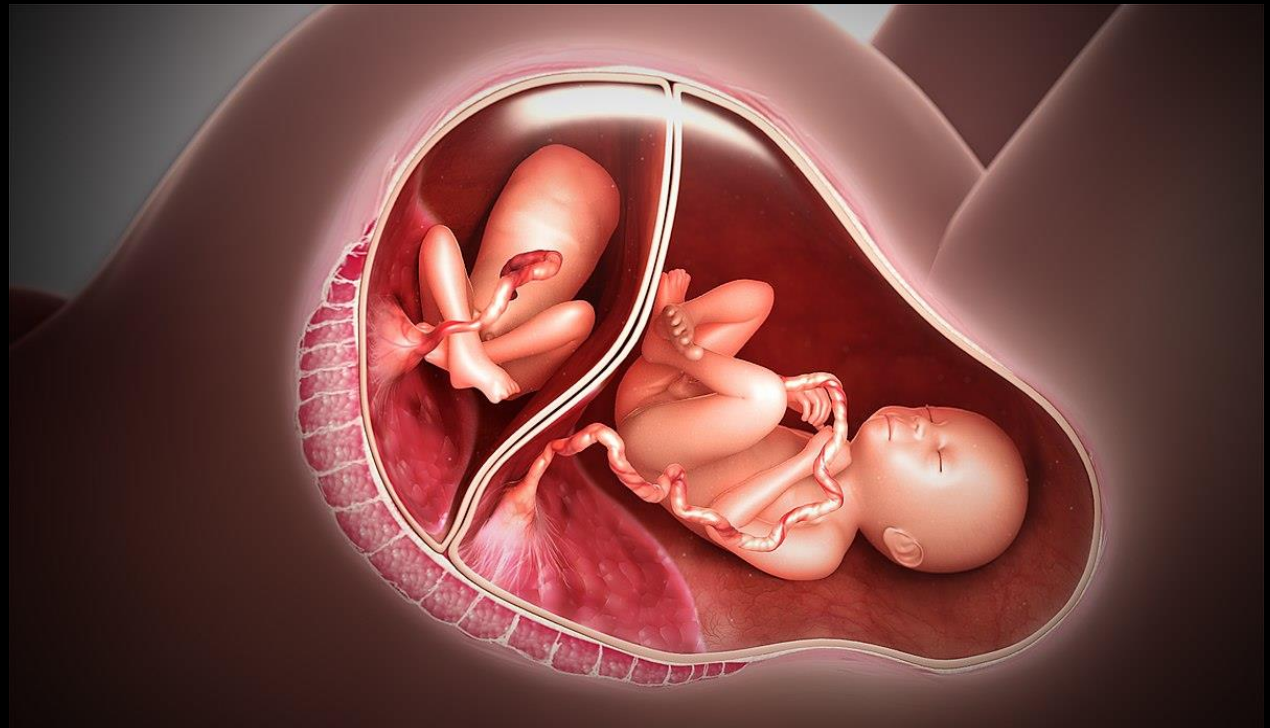
In monozygotic twin either both or non affected

In dizygotic twin risk twice

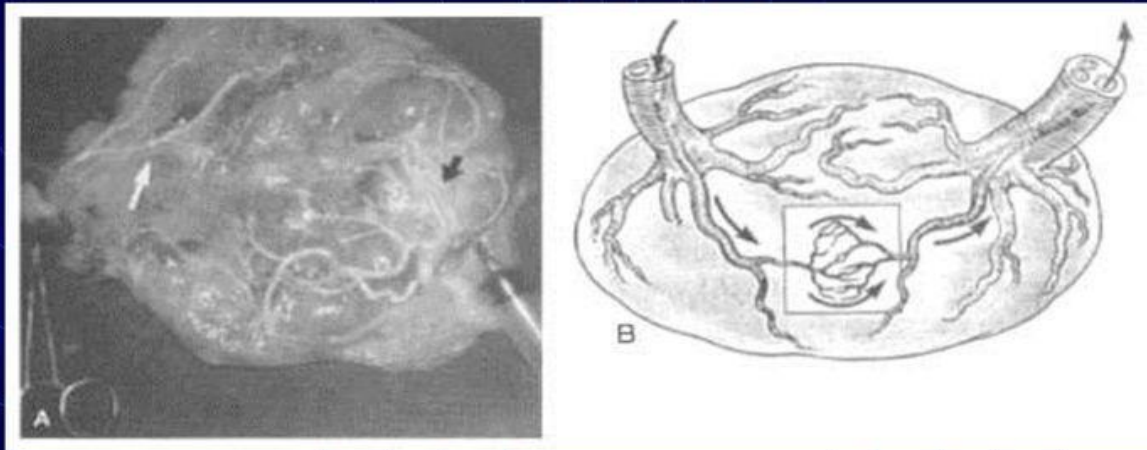
## 7-complications unique to monochorionic twinning

Due to Inter placental vascular anastamoses: in 90% arterio-arterial and arterio-venous, veno-venous less common

a-arterio-arterial anastamoses cause fetal structural abn. due to poor oxygenated blood to recipient cause under developed of cephalad part of body (a cardiac twin)



# Vascular Anastomoses



- 
- b-Cord abn.
  - absence of one of UMBLICAL ARTERIES and associated with other abn., marginal or velamentous cord insertion more frequent

- C-Imbalance in the flow of blood across the arteriovenous anastomoses between to placenta circulations results in twin twin transfusion syndrome the donor fetus suffers from both hypovolemia ,hypotension due to loss of blood and hypoxia due to placental insufficiency, may become growth restricted and oliguric
- The recipient fetus become hypervolaemic,polyuria,polyhydramnion ,there is risk of myocardial damage polycythemia and high output failure severe disease evident at 18-24 weeks. End in miscarriage and severe preterm labour



TTTS is diagnosed based on the following ultrasound criteria:

Single placental mass.

Concordant gender.

Oligohydramnios with maximum vertical pool (MVP) less than 2 cm in one sac

and polyhydramnios in the other sac (MVP >8 cm).

Discordant bladder appearances.

Haemodynamic and cardiac compromise.

## Treatment of TTTS

When TTTS is suspected or diagnosed patients should be referred for a tertiary center.

When TTTS is confirmed, management options include:  
expectant management; amnioreduction; septostomy;  
selective feticide, fetoscopic laser  
ablation of vascular anastomoses.

# Twin-Twin Transfusion

- **Recipient twin:**
  - Polycythemia
  - Hypervolemia
  - Polyhydramnios
  - CHF, hydrops
  - Hyperbilirubinemia
  - High birthweight
- **Donor twin:**
  - Anemia
  - Hypovolemia
  - Oligohydramnios
  - Hypoglycemia
  - “stuck twin” fetus appears stuck due to amnion adhering to fetus
  - Decreased urine output
  - Lower birthweight

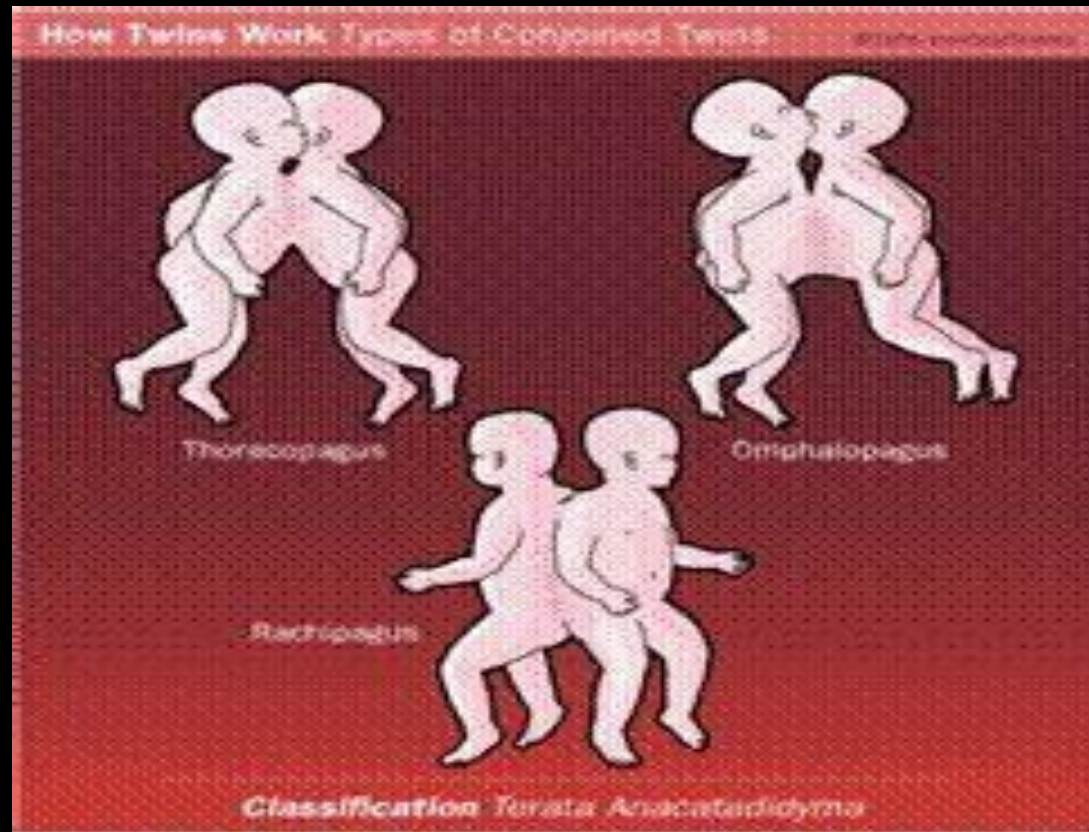


8-complication unique to Monoamniotic twins share single amniotic cavity no dividing membrane between two fetuses increase risk of cord accidents ,elective delivery at 32-34 by C.S, Mortality rate of 50%.

## 9-Conjoined twins:

Classified according to anatomic location of incomplete splitting

Thoracopagus anterior ,pygopagus-posterior , omphaopagus-abdomen, craniopagus-cephalic , ischiopagus-caudal, all delivery by C.S



# ANTENATAL

- women with uncomplicated dichorionic twin pregnancies be offered at least eight antenatal appointments with a healthcare professional from the core team
- for uncomplicated monochorionic diamniotic twin pregnancies at least nine antenatal appointments
- Routine antenatal care for all women involves screening for hypertension and gestational diabetes.
- These conditions occur more frequently in twin pregnancies and there is also a
- higher risk of other problems (such as antepartum haemorrhage and thromboembolic disease); however, the management is the same as for a singleton.
- Due to the increased fetoplacental demand for iron and folic acid, many would recommend routine (as opposed to selective) supplementation in multimultiple
- pregnancies. Minor symptoms of pregnancy are more common, but management is again unchanged compared to singletons

# SCREENING IN MULTIPLE PREGNANCY

- Women with multiple pregnancy should be offered a first trimester scan approximately 11 weeks 0 days to 13 weeks 6 days. The purpose of this is threefold:
- To accurately estimate gestational age.
- To determine chorionicity.
- To screen for Down's syndrome.

- Is critical to good management reliably by US,
- In the late first trimester.
- Dichorionic twins, there is v-shaped extension of placental tissue into the base of the inter-twin membrane, (lambda) or twin peak sign
- Monochorionic twin, absent, inter twin membrane join uterine wall in T shape
- Later in pregnancy :
- -Lambda sign become less accurate,
- -depend on the character of the membrane between the two amniotic sac, thick amnion –chorion septum suggestive of dichorionic

- Multiple pregnancies are at high risk of FGR. As a result, fetal weight should be calculated from 20 weeks' gestation at a maximum of 4 week intervals.
- A growth discrepancy of 25% or greater should be considered clinically significant, a
- tertiary referral opinion sought and additional monitoring or delivery depending
- on gestation planned.
- Other indications for a tertiary level fetal medicine opinion include discordant
- fetal growth, fetal anomaly, discordant fetal death or TTTS.

- 5-thretened preterm labour
- High risk patients should screen for bacterial vaginosis ,screen for group B streptococcal ,steroid therapy to enhance fetal lung maturity,trasvaginal US predict PTL between 16-22 week patient seen at 2 week interval for cervical length estimation cerclage ? beta agonists risk of serious complication.

# INTRAPARTUM MANAGEMENT

General management of a patient with twin pregnancy in labour involves:

- Antenatal education and a preagreed birth plan.
- Continuous fetal heart monitoring.
- Two neonatal resuscitation trolleys, two obstetricians and two paediatricians are available and that the special care baby unit and anaesthetist are informed well in advance of the delivery.
- Analgesia, ideally in the form of an early epidural, to allow for internal podalic version (if needed) for twin 2.
- A standard oxytocin solution for augmentation should be prepared, run through an intravenous giving-set and clearly labelled 'for augmentation', for use for delivery of the second twin.
- Oxytocin infusion in anticipation of postpartum haemorrhage.
- Portable ultrasound.

# VAGINAL DELIVERY OF VERTEX –VERTEX

- Delivery of first twin in usual manner 2nd twin deliver with in 15 minutes after delivery of first twin ,abdominal palpation should be performed to assess the lie of the 2nd twin US for con formation , also FHR , in longitudinal lie with cephalic presentation one should wait until the head is descending and amniotomy with contraction if no contraction with in 5-10 minute after 1st twin then oxytocin infusion should be started if assisted vaginal delivery needed so vacuum extractor has no. of advantages.

- DELIVERY OF VERTEX –NONVERTEX
- If 2nd twin is non vertex ,occur in 40%of twins if 2nd twin is breech ,the membranes can be ruptured once breech fixed in the birth canal .a total breech extraction may be performed if fetal distress occurs or if footling , if fetus transverse lie so external cephalic version monitoring of fetal heart US help ,if fail so internal cephalic version keep the membrane intact to reduce the complication.

# INTERNAL PODALIC VERSION

- A fetal foot is identified by recognizing a heel through intact membranes . the foot is grasped and pulled gently and continuously in to the birth canal.
- The membranes are ruptured as late as possible this procedure is easiest when the transvers lie is with back superior or posterior. US helpful.

Baby in transverse presentation

Attempted version by direct manipulation

Second twin in transverse lie following the vaginal delivery of first twin

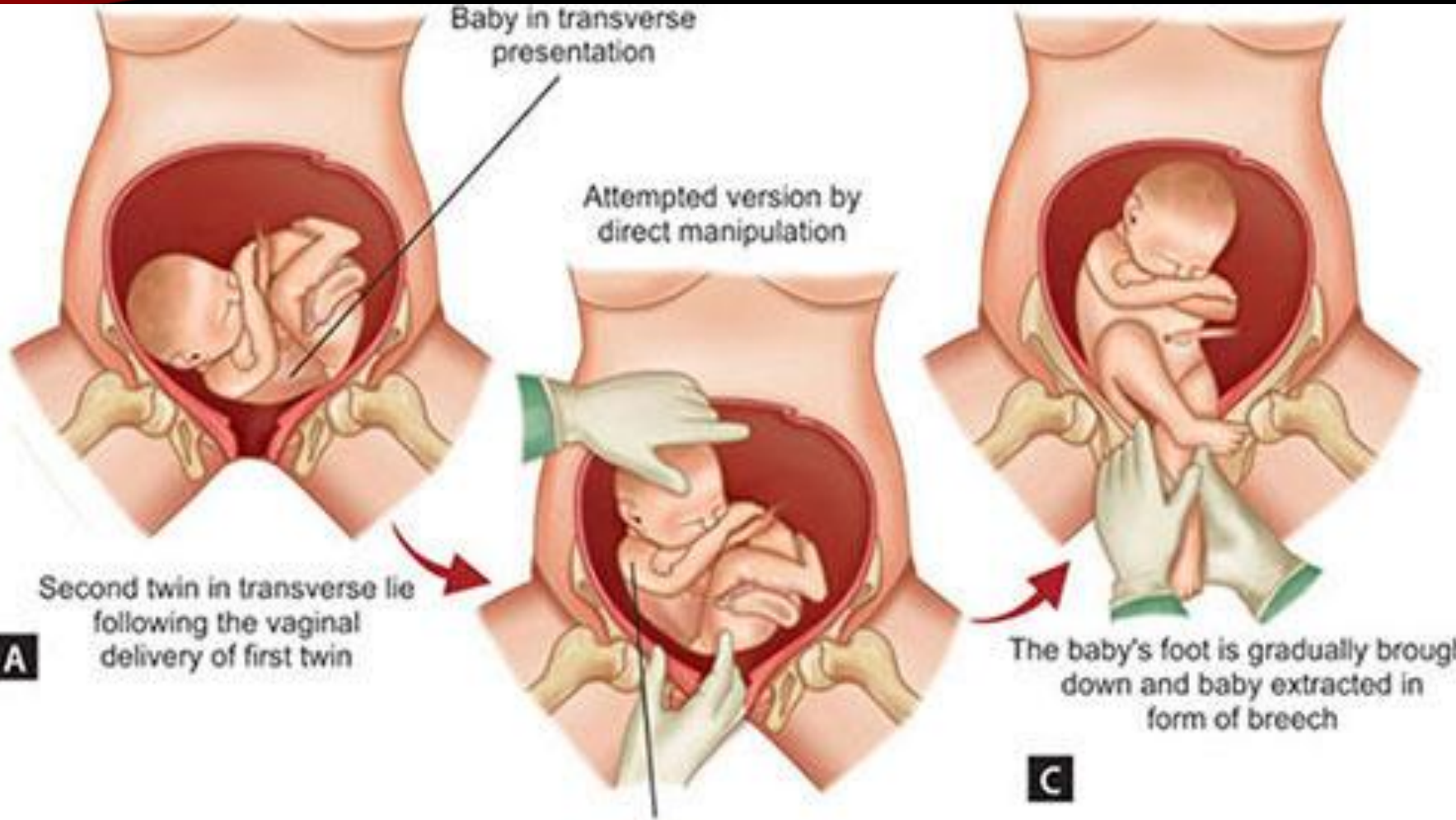
Attempts are made to move baby into a more desirable presentation by pushing the cephalic pole upwards in order to grasp its feet

The baby's foot is gradually brought down and baby extracted in form of breech

**A**

**B**

**C**

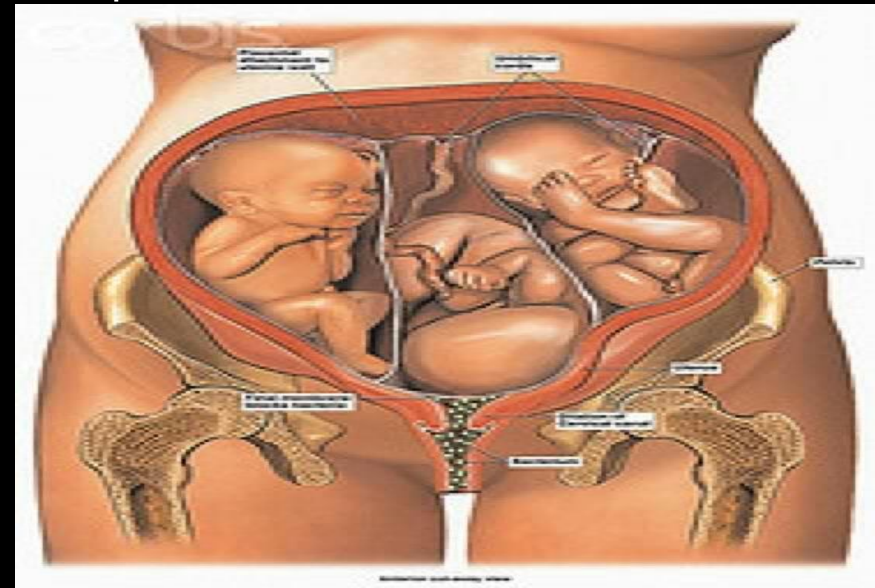


# NON VERTEX FIRST TWIN

- When first twin breech presentation so C.S delivery because of increase risks of associate with singleton breech vaginal delivery, risk of rare inter looking twin
- **PRETERM TWIN**
- No significant differences in perinatal out come in mode of delivery
- A2nd twin between C.S and breech extraction
- in low birth weight twin ,the method of delivery in relation to presentation will have no effect on neonatal mortality

# HIGHER MULTIPLES

- The median gestational age at birth is 33weeks.C.S is usually advocated for delivery due to the difficult of intrapartum fetal monitoring,vaginal birth have reported comparable neonatal out come
- Multifetal reduction around 11-12 weeks allows for spontaneous reduction to occur and for screening and diagnosis of major fetal abnormalities and chromosomal defects, fetus and placenta spontaneously absorbed



THANK YOU

