MULTIPLE PREGNANCY

Multiple pregnancy is the term used to describe pregnancy with more than one fetus. The vast majority of such pregnancies are cases of twins. The rate of twinning in different populations is determined by racial predisposition to double ovulation and hence nonidentical twinning. Thus, among the Caucasian population, twins are found in 1 in 80 pregnancies. The ratio of binovular (dizygotic) twins, to monovular (monozygotic) twins, is around 3 to 1. In contrast, in West Africans, who have the highest rates in the world (1 in 44 pregnancies is a case of twins) the ratio of dizygotic to monozygotic twinning may be between 4-6 to 1. The lowest rates of twinning are seen in Asia. The incidence of twin pregnancy has risen slightly over the last 10 years. In contrast, the rate of triplets and higher order multiple pregnancy (quadruplets, sextuplets etc.) has increased dramatically.

TWINS

VARIETIES: (1) **Dizygotic (DZ) twins**—It is most common (80%) and results from the fertilization of two ova (2) **Monozygotic (MZ) twins** (20%) results from the fertilization of a single ovum.

GENESIS OF TWINS:

Dizygotic twins 80% *(Syn*: *fraternal, binovular)* result from fertilization of two ova, most likely ruptured from two distinct Graafian follicles usually of the same or one from each ovary, by two sperms during a single ovarian cycle. Their subsequent implantation and development differ little from those of a single fertilized ovum. The babies bear only fraternal resemblance to each other (that of brothers and sisters from different births) and hence called fraternal twins.

In Monozygotic (MZ) twins 20% *(Syn: identical, uniovular)*, the twinning may occur at different periods after fertilization and this markedly influences the process of implantation and the formation of the fetal membranes.

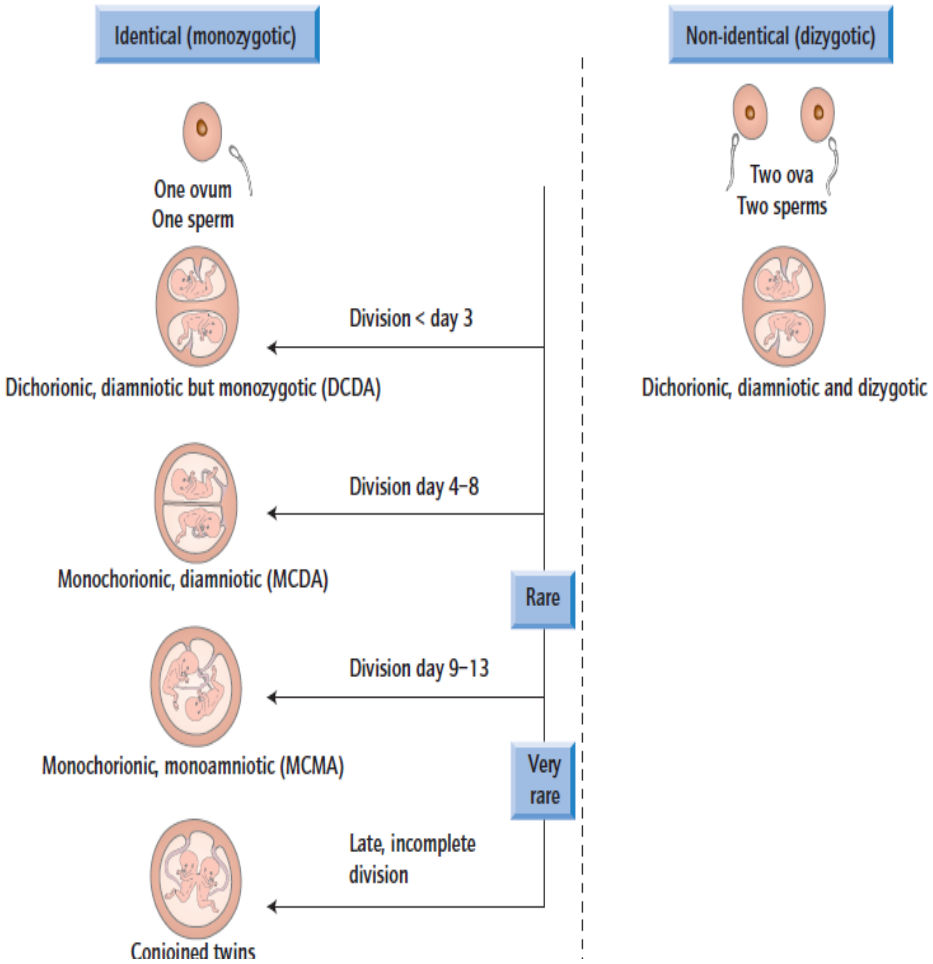
On rare occasion, **the following possibilities may occur:**

 If the division takes place within 72 hours after fertilization (prior to morula stage) the resulting embryos will have two separate placenta, chorions and amnions (**diamniotic-dichorionic or D/D—30%**).

 If the division takes place between the fourth and eighth day after the formation of inner cell mass when chorion has already developed—**diamniotic monochorionic twins** develop (D/M—70–75%).

 If the division occurs after eighth day of fertilization, when the amniotic cavity has already formed, a **monoamniotic-monochorionic twin** develops (M/M—1–2%).

 On extremely rare occasions, *division occurs after 2 weeks of the development of embryonic disc resulting in the formation of* **conjoined twin (<1%) called**—Siamese twin. **Four types of fusion. may occur**: (i) Thoracopagus (most common), (ii) pyopagus (posterior fusion), (iii) craniopagus (cephalic) and (iv) Ischiopagus (caudal).



Zygosity refers to the genetic makeup of twin pregnancy and **chorionicity** refers the placenta's membrane status. **Chorionicity** is determined by the timing of embryo division. Determination of chorionicity is essential as the obstetrical and perinatal outcome depends on it. It is diagnosed reliably by ultrasonography in the first trimester by counting the number of gestation sacs and evaluating the thickness of the dividing membranes.

Diagnosis of zygosity can be made by: examining fetal genders (different genders = dizygotic), placenta (monochorionic → monozygotic) and by genetic testing.

DETERMINATION OF ZYGOSITY: With the advent of organ transplantation, the identification of the zygosity of the multiple fetuses has assumed much importance (Table 17.1).

 ***Examination of placenta and membranes*:**

Dizygotic twins: (i) There are two placentae, either completely separated or more commonly fused at the margin appearing to be one (9 out of 10). There is no anastomosis between the two fetal vessels. (ii) Each fetus is surrounded by a separate amnion and chorion. (iii) As such, **the intervening membranes consist of four layers**—amnion, chorion, chorion and amnion. In fact in early pregnancy the decidua capsularis of each sac may be identified under the microscope in between the chorionic layers .

Monozygotic twins: (i) The placenta is single. There is varying degree of free anastomosis between the two fetal vessels. (ii) Each fetus is surrounded by a separate amniotic sac with the chorionic layer common to both (diamniotic— monochorionic). (iii) As such **the intervening membranes consist of two layers of amnion only** .

However, on rare occasions, the uniovular twins may be diamniotic-dichorionic or monoamniotic-monochorionic.

 ***Sex*:** While twins having opposite sex are almost always dizygotic and twins of the same sex are not always monozygotic but the uniovular twins are always of the same sex.

 If the fetuses are of the same sex and have the same genetic features (dominant blood group), monozygosity is likely.

 A test skin graft—Acceptance of reciprocal skin graft is almost a certain proof of monozygosity.

 DNA microprobe technique is most definitive.

 Follow-up study between 2 and 4 years—showing almost similar physical and behavioral features suggestive of monozygosity.

ETIOLOGY: The cause of twinning is not known. **The frequency of monozygotic twins remains constant throughout the globe.**

***Prevalence of dizygotic twins is related to*:**

Race: The frequency is highest amongst Negroes, lowest amongst Mongols and intermediate amongst Caucasians.

Hereditary: There is a hereditary predisposition likely to be **more transmitted through the female (maternal side).**

***Advancing age of the mother*:** Increased incidence of twinning is observed with the advancing age of the mother, the **maximum being between the age of 30 and 35 years**. The incidence of twins is markedly reduced thereafter.

Influence of parity: The incidence is increased

with increasing parity, especially from **fifth gravida onward**.

Iatrogenic: Drugs used for induction of ovulation may produce multiple fetuses to the extent of 20–40% following gonadotrophin therapy, although to a lesser extent (5–6%) following clomiphene citrate.

 Superfecundation is the fertilization of two different ova released in the same cycle, by separate acts of coitus within a short period of time.

 Superfetation is the fertilization of two ova released in different menstrual cycles. The nidation and development of **one fetus over another fetus** is theoretically possible until the decidual space is obliterated by 12 weeks of pregnancy.

 Fetus papyraceous or compressus is a state which occurs if one of the fetuses dies early. The dead fetus is flattened, mummified and compressed between the membranes of the living fetus and the uterine wall. It may occur in both varieties of twins, but is **more common in monozygotic twins** and is discovered at delivery or earlier by sonography.

 Vanishing twin: Serial ultrasound imaging in multiple pregnancy since early gestation has revealed occasional death of one fetus and continuation of pregnancy with the surviving one. The dead fetus (if within 14 weeks) simply"vanishes" by resorption. The rate of disappearance could be to the extent of 40%.

MATERNAL PHYSIOLOGICAL CHANGES: Multiple pregnancy imposes physical changes on the mother in excess of those seen in singleton pregnancy.

(1) There is increase in weight gain and cardiac output.

(2) Plasma volume is increased by an addition of 500 mL. There is no corresponding increase in red cell volume resulting in exaggerated hemodilution and anemia.

(3) There is increased a-fetoprotein level, tidal volume and glomerular filtration rate.

LIE AND PRESENTATION: The most common lie of the fetuses is longitudinal (90%) but malpresentations are quite common. **The combination of presentation of the fetuses are**—(1) both vertex (50%), (2) first vertex and second breech (30%), (3) first breech and second vertex (10%), (4) both breech (10%), (5) first vertex and second transverse and so on, **but rarest one**, **being both transverse when the possibility of conjoined twins should be ruled out**.

DIAGNOSIS

HISTORY: (i) History of **ovulation inducing drugs** specially gonadotrophins, for infertility or use of ART. (ii) Family history of twinning (more often present in the maternal side).

SYMPTOMS: Minor ailments of normal pregnancy are often exaggerated.

GENERAL EXAMINATION: (i) Prevalence of anemia is more than in singleton pregnancy. (ii) Unusual weight gain, not explained by preeclampsia or obesity, is an important feature. (iii) Evidence of preeclampsia (25%) is a common association.

ABDOMINAL EXAMINATION:

Inspection: The elongated shape of a normal pregnant uterus is changed to a more "barrel shape" and the abdomen is unduly enlarged.

Palpation: (i) The height of the uterus is more than the period of amenorrhea. This discrepancy may only become evident from mid-pregnancy onward. (ii) **The girth of the abdomen** at the level of umbilicus is more than the normal average at term (100 cm). (iii) **Fetal bulk seems disproportionately larger** in relation to the size of the fetal head. (iv) **Palpation of too many fetal parts**. (v) **Finding of two fetal heads or three fetal poles** makes the clinical diagnosis almost certain.

Auscultation: Simultaneous hearing of **two distinct fetal heart sounds (FHS) located at separate spots with a silent area in between** by two observers.

INVESTIGATIONS

Sonography: In multifetal pregnancy it is done to obtain the following information:

(i) confirmation of diagnosis as early as tenth week of pregnancy, (ii) viability of fetuses, vanishing twin in the second trimester, (iii) chorionicity **(lambda or twin peak sig** , (iv) pregnancy dating, (v) fetal anomalies, (vi) fetal growth monitoring (at every 3–4 weeks interval) for *IUGR,* (vii) presentation and lie of the fetuses, (viii) twin transfusion (Doppler studies), (ix) placental localization, (x) amniotic fluid volume.

Chorionicity of the placenta is best diagnosed by ultrasound at 10–13 weeks of gestation. In dichorionic twins there is a **thick septum** between the two gestational sacs. It is best identified at the base of the membrane, where a triangular projection is seen. This is known as **lambda or twin peak sign**. **Presence of lambda or twin peak sign indicates dichorionic placenta**. Presence of one gestational sac with a thin dividing membrane, and two fetuses, (**"T" sign**) suggests monochorionic diamniotic pregnancy.

 Biochemical tests: Maternal serum chorionic gonadotrophin, α-fetoprotein and unconjugated estriol are approximately double than those of singleton pregnancies. But their values cannot diagnose clearly a twin from a single fetus.

DIFFERENTIAL DIAGNOSIS includes: (1) hydramnios, (2) big baby, (3) fibroid or ovarian tumor with pregnancy, (4) ascites with pregnancy.

COMPLICATIONS

 MATERNAL: **Pregnancy** **Labor** **Puerperium** **FETAL**: (p. 239)

MATERNAL — During pregnancy:

Nausea and vomiting occurs with increased frequency and severity.

 Anemia is more due to increased iron and folate requirement by the two fetuses. Deficiency of folic acid leads to increased incidence of **megaloblastic** anemia.

 Preeclampsia (25%) is increased three times over singleton pregnancy. Exposure to superabundance of chorionic villi is the possible explanation .

 Hydramnios (10%) is more common in monozygotic twins and usually involves the second sac. It is perhaps due to increased renal perfusion with consequent increased urinary output which may accompany the hypervolemia in the larger twin.

Antepartum hemorrhage may occur with slight increased frequency. **The increased incidence of placenta previa** is due to the bigger size of the placenta encroaching on to the lower segment. **The separation of normally situated placenta may be due to** (i) increased incidence of preeclampsia, (ii) sudden escape of liquor following rupture of the membranes of the hydramniotic sac, (iii) deficiency of folic acid and (iv) following delivery of the first baby due to sudden shrinkage of the uterine wall adjacent to the placental attachment.

 Malpresentation is quite common in twins compared to singleton pregnancies. In about 70% cases, the first baby is presented by vertex and in 50%, both presented by vertex. **Malpresentation is thus more common in the second baby**. Fortunately, the babies are usually smaller and do not pose much of a problem.

 Preterm labor (50%) frequently occurs and the mean gestational period for twins is 37 weeks. Overdistension of the uterus, hydramnios and premature rupture of the membranes are responsible for preterm labor.

 Mechanical distress, such as palpitation, dyspnea, varicosities and hemorrhoids, may be increased compared to a singleton pregnancy.

During Labor

 Early rupture of the membranes and cord prolapse are likely to be increased due to increased prevalence of malpresentation. Cord prolapse is five times more common than in singleton pregnancy and is more common in relation to the second baby.

 Prolonged labor though theoretically expected, is practically not met with. This is because of parous women with smaller babies.

 Increased operative interference is due to high prevalence of malpresentation with its associated complications.

 Bleeding (intrapartum) following the birth of the first baby may at times be alarming and is due to separation of the placenta following reduction of placental site.

 Postpartum hemorrhage is the real danger in twins. **It is due to**: (i) atony of the uterine muscle due to overdistension of the uterus, (ii) a longer time taken by the big placenta to separate, (iii) bigger surface area of the placenta exposing more uterine sinuses, (iv) implantation of a part of the placenta in the lower segment which is less retractile.

During puerperium: There is

increased incidence of: (1) subinvolution— because of bigger size of the uterus (2) infection because of increased operative interference, preexisting anemia and blood loss during delivery, (3) lactation failure—this is minimized by reassurance and giving her additional support.

FETAL:

 Miscarriage rate is increased especially with **monozygotic twins**.

 Premature rate (80%) is very much increased and babies suffer from its hazards .

 Discordant twin growth (25%)— Some degree of **discordant growth** is normal in dizygotic twins. Cases of true pathological discordance involve estimated weight difference of 25% or more. This may be due to twin–twin transfusion syndrome, placental insufficiency, IUGR or from structural anomalies occurring in one fetus .

 Intrauterine death of one fetus—is **more in monozygotic one**. If a loss occurs in first trimester, the affected fetus simply "***Vanishes****"* by resorption. If the death occurs during second trimester, a *fetus papyraceous* or *compressus* may form. If death occurs late in pregnancy, there may be death of

the other fetus in presence of vascular anastomosis or it may complicate the mother with DIC (rare). **The deaths are due to** cord compression, competition for nourishment or congenital malformation. . In dichorionic twins, the second or third trimester intrauterine death of one fetus may be associated with the onset of labour, although in some cases the pregnancy may continue uneventfully and even result in delivery at term. Careful fetal and maternal monitoring is required.

 Appearing twin—where diagnosis of twin pregnancy is missed on initial USG but diagnosed as twins in a later scan. This is common in monozygotic twins.

 Fetal anomalies are increased by 2–4% compared to a singleton pregnancy, **more in monozygotic twins**. They are in the form of anencephaly, hydrocephalus, microcephaly, cardiac anomalies or Down's syndrome.

 Asphyxia and stillbirth are more common due to increased prevalence of preeclampsia, malpresentation, placental abruption and increased operative interferences. The second baby is more at risk. *Complications are more in monochorionic twin pregnancies.*

PROGNOSIS

Maternal mortality is increased in twins than in a singleton pregnancy. **Death is mostly due to hemorrhage (before, during and after delivery)**, **preeclampsia and anemia**. Increased **maternal morbidity** is due to the prevalence of complications and increased operative interference.

Perinatal mortality is markedly **increased mainly due to prematurity**. It is 4–5 times higher than in a singleton pregnancy. It is **extremely high** in monoamniotic monozygotic twins due to cord entanglement. One-third loss is due to stillbirth and two-third due to neonatal death. **During delivery the second baby is more at risk (50%) than the first one due to:** (i) retraction of uterus leading to placental insufficiency, (ii) increased operative interference and (iii) increased incidence of cord prolapse. Because of increased risk to both the mother and the baby, compared to that of a singleton pregnancy, the **twin pregnancy is considered** "**high risk**" **and as such should be delivered in a hospital**.

COMPLICATIONS OF MONOCHORIONIC TWINS

(i) **Twin-twin transfusion syndrome (TTTS) —** It is a clinicopathological state, **exclusively met with in monozygotic twins**, where one twin appears to bleed into the other through some kind of placental vascular anastomosis.

Clinical manifestations of twin transfusion syndrome occur when there is hemodynamic imbalance due to unidirectional deep arteriovenous anastomoses. As a result the receptor twin becomes larger

with hydramnios, polycythemic, hypertensive and hypervolemic, at the expense of the donor twin which becomes smaller with oligohydramnios, anemic, hypotensive and hypovolemic. The donor twin may appear ″stuck″ due to severe oligohydramnios. Difference of hemoglobin concentration between the two, usually exceeds 5 g% and estimated fetal weight discrepancy is 25% or more.

Management: Antenatal diagnosis

is made by ultrasound with Doppler blood flow study in the placental vascular bed.

(a) Repeated amniocentesis to control polyhydramnios in the recipient twin is done.

(b) Septostomy (making a hole in the dividing amniotic membrane).

(c) Laser photocoagulation to interrupt the anastomotic vessels on the chorionic plate can give some success.

(d) Selective reduction (feticide) of one twin is done when survival of both the fetuses is at risk . The smaller twin generally has got better outcome. The plethoric twin runs the risk of congestive cardiac failure and hydrops. Congenital abnormalities (neural tube defects, holoprosencephaly) are high (2–3 times). Perinatal mortality in TTTS is about 70%. (See further, author′s ″Master Pass in Obstetrics and Gynecology″.

(ii) **Dead fetus syndrome—**Death of one twin (2–7%) is associated with poor outcome of the co-twin (25%) especially in monochorionic placenta. The surviving twin runs the risk of cerebral palsy, microcephaly, renal cortical necrosis and DIC. This is due to thromboplastin liberated from the dead twin that crosses via placental anastomosis to the living twin

(iii) **Twin reversed arterial perfusion (TRAP)** is characterized by an ″**acardiac perfused twin**″ having blood supply from a normal co-twin via large arterio-arterial or vein to vein anastomosis . In majority the co-twin dies (in the perinatal period) due to high output cardiac failure. The arterial pressure of the donor twin being high, the recipient twin receives the ″used″ blood from the donor. The perfused twin is often chromosomally abnormal. The anomalous twin may appear as an amorphous mass. Management of TRAP is controversial. Ligation of the umbilical cord of the acardiac twin under fetoscopic guidance has been done.

(iv) **Monoamniocity (2% of all twins)** in monochorionic twins leads to high perinatal mortality due to cord problems (entanglement) . Sulindac, a prostaglandin synthase inhibitor has been used to

reduce fetal urine output, creating borderline oligohydramnios and to reduce the excessive movements.

(v) **Conjoined twin** is rare (1.3 per 100,000 births). Perinatal survival depends upon the type of joint Major cardiovascular connection leads to high mortality.

Antenatal care

Multidisciplinary team:

1. Specialist obstetricians
2. Ultrasonographers
3. Fetal medicine Referrals center

1. Information and emotional support

- Explain aims and possible outcomes of all (screening and diagnostic) tests { minimise anxiety }.

2. Diet, lifestyle and nutritional supplements

- Same as in routine ANC.
- Higher incidence of anaemia

CBC At 20–24 w {identify who need early supplementation with iron or folic acid At 28 w: as in routine ANC

3. Frequent AN visits combined with US

- First CRL measures from 45 mm to 84 mm (11- 14 w)
- MC: every 2 to 3 w, starting at 16 w
- DC: every 3 to 4 w, starting from the anatomy scan (18 to 22 weeks)

Fetal complications Information about screening Before and after every screening test.

1. Screening for Down's syndrome
2. Screening for structural abnormalities
3. Screening for feto-fetal transfusion syndrome
4. Screening for IUGR

Monitoring for feto-fetal transfusion syndrome

- Start diagnostic monitoring at 16w.

- Repeat monitoring fortnightly until 24 w.
- Weekly monitoring if intertwin membrane infolding or amniotic fluid discordance

Monitoring for IUGR

Growth curves

- As Singleton
- 30 min for growth scans
- Start at 20 w
- undertake scans at intervals of less 4w.

Estimate f Wt discordance using two or more biometric parameters

- Growth discordance: either Difference (20 mm) in AC or Difference of 20% EFW.

HOSPITALIZATION

 Routine hospital admission only for bed rest is not essential. However, bed rest even at home from 24 weeks onward, not only ensures physical and mental rest but also improves uteroplacental circulation. This results in:

(i) increased birth weight of the babies,

(ii) decreased frequency of preeclampsia,

(iii) prolongation of the duration of pregnancy.

To prevent preterm delivery, **routine use of betamimetics or cerclage operation has got no significant benefit**. **Use of corticosteroids to accelerate fetal lung maturation** is given (single dose) to women with preterm labor less than 34 weeks. Twins develop pulmonary maturity 3–4 weeks earlier than singletons.

 Emergency: Development of complicating factors necessitates urgent admission irrespective of the period of gestation

MANAGEMENT DURING LABOR

Place of delivery: As the twin pregnancy is considered a ″high risk″, the patient should be confined in

an equipped hospital preferably having an intensive neonatal care unit.

Vaginal delivery is allowed when both the twins are/or at least the first twin is with vertex presentation.

FIRST STAGE: Usual conduction of the first stage as outlined for a singleton fetus, is to be followed with additional precautions:

- **A skilled obstetrician should be present**. An experienced anesthetist should be made available.
- **Neonatologists (two)** should be present.
- **Presence of ultrasound in the labor ward** is helpful. It makes both the external and internal versions less difficult by visualizing the fetal parts.
- **The patient should be in bed** to prevent early rupture of the membranes.
- **Use of analgesic drugs** is to be limited as the babies are small and rapid delivery may occur. Epidural analgesia is preferred as it facilitates manipulation of second fetus, should it prove necessary.
- **Careful fetal monitoring (preferably electronic)** is to be done .
- **Internal examination should be done** soon after the rupture of the membranes to exclude cord prolapse.
- An intravenous line with Ringer's solution should be set up for any urgent intravenous therapy، if required. One unit of compatible and cross matched blood should be made readily available.
- Neonatologist should be present at the time of delivery.

DELIVERY OF THE FIRST BABY: The delivery should be conducted in the same guidelines as mentioned in normal labor. As the baby is usually small, the delivery does not usually pose any problem.

(i) Liberal episiotomy under local infiltration with 1% lignocaine.

(ii) (ii) Forceps delivery, if needed, should be done preferably under pudendal block anesthesia. General anesthesia is better avoided, as the second baby may be subjected to the effects of prolonged anesthesia.

(iii) (iii) Not to give intravenous ergometrine with the delivery of the first baby.

(iv) (iv) Clamp the cord at two places and cut in between, to prevent exsanguination of the second baby through communicating placental circulation in monozygotic twins) of course, it is an usual procedure even in singleton birth).

(v) (v) At least, 8–10 cm of cord is left behind for administration of any drug or transfusion, if required.

(vi) (vi) The baby is handed over to the nurse after labeling it as number 1.

CONDUCTION OF LABOR AFTER THE DELIVERY OF THE FIRST BABY (DELIVERY OF SECOND TWIN)

Principles: The principle is to expedite the delivery of the second baby. The second baby is put under strain due to placental insufficiency caused by uterine retraction following the birth of the first baby. Steps of management:

Step 1: Following the birth of the first baby, the lie, presentation, size and FHS of the second baby should be ascertained by abdominal examination or if required by real time ultrasound. A vaginal examination is also to be made not only to confirm the abdominal findings but to note the status of the membranes and to exclude cord prolapse, if any. Lie longitudinal:

Step 1: Low rupture of the membranes is done after fixing the presenting part on the brim. Syntocinon may be added to the infusion bottle to achieve this. Internal examination is once more to be done to exclude cord prolapse. More vigilance is employed to watch the fetal condition.

Step 2: If the uterine contraction is poor, 5 units of oxytocin is added to the infusion bottle. The interval between deliveries should ideally be less than 30 minutes.

Step 3: If there is still a delay (say 30 minutes), interference is to be done.

Vertex: • Low down — Forceps are applied.

•High up — If the first baby is too small and the second one seems bigger, cephalopelvic disproportion should be ruled out. The possibility of hydrocephalic head should be excluded by ultrasonography. If these are excluded, internal version followed by breech extraction is performed under general anesthesia. Ventouse may be an effective alternative.

Breech: The delivery should be completed by breech extraction.

Lie transverse: If the lie is transverse, it should be corrected by external version into a longitudinal lie preferably cephalic, if fails, podalic. If the external version fails, internal version under general anesthesia should be done forthwith. As the fetus is small there is no difficulty in performing internal version and it is the only accepted indication of internal version in present day obstetric practice

Indications of urgent delivery of the second baby:

(1) Severe (intrapartum) vaginal bleeding,
(2) Cord prolapse of the second baby,
(3) Inadvertent use of intravenous ergometrine (oxytocics) with the delivery of the first baby,
(4) First baby delivered under general anesthesia,
(5) Appearance of fetal distress.

MANAGEMENT OF THE THIRD STAGE:

The risk of postpartum hemorrhage can be minimized by routine administration of 0.2 mg methergine IV or oxytocin 10 IU IM following the delivery of the second baby. The placenta is to be delivered by controlled cord traction. It is a sound practice to continue the oxytocin drip for at least 1 hour, following the delivery of the second baby. A blood loss of more than average should be immediately replaced by blood transfusion, already kept at hand. The patient is to be carefully watched for about 2 hours after delivery. Multiple births put an additional stress and strain on the mother as well as on the family members. Mother should be given additional support at home to look after both the babies.

INDICATIONS OF CESAREAN SECTION:

The indications are broadly divided into: **Obstetric causes** **For twins**

Obstetric indication:

(1) Placenta previa
(2) Severe preeclampsia
(3) Previous cesarean section
(4) Cord prolapse of the first baby
(5) Abnormal uterine contractions
(6) Contracted pelvis.

For twins:

(i) Both the fetuses or even the first fetus with noncephalic (breech or transverse) presentation
(ii) Twins with complications: IUGR, conjoined twins
(iii) Monoamniotic twins
(iv) Monochorionic twins with TTTS
(v) Collision of both the heads at brim preventing engagement of either head.

MANAGEMENT OF DIFFICULT CASES OF TWINS

Fortunately, **abnormal conditions leading to difficult delivery are extremely rare**.

 Interlocking: The most common one being the after-coming head of the first baby getting locked with the fore-coming head of the second baby. Vaginal manipulation to separate the chins of the fetuses is done, failing which cesarean section is necessary. Decapitation of the first baby if already dead, pushing up the decapitated head, followed by delivery of the second baby and lastly, delivery of the decapitated head, at least saves one baby.

 Occasionally, two heads of both vertex twins get locked at the pelvic brim preventing engagement of either of the head. The possibility should be kept in mind and the diagnosis is confirmed by **intranatal sonography/ radiography**. Disengagement of the higher head can be possible under general anesthesia. If fails, cesarean section is the alternative, for fetal interest.

CONJOINED TWINS : It is extremely rare. Incidence varies from 1:100,000 to 1:50,000 births. In twin pregnancies the incidence is from 1:900 to 1:650 .

Diagnosis: Unfortunately conjoined twins are often diagnosed during delivery when there is obstruction in the second stage. Failure of traction to deliver the first twin in the second stage or inability to move one twin without moving the other suggests conjoined twins. Presence of a bridge of tissue between the fetuses on vaginal examination confirms the diagnosis.

Antenatal diagnosis is important. Benefits are:

(i) Reduces maternal trauma and morbidity
(ii) Improves fetal Survival
(iii) Helps to plan the method of delivery
(iv) Allows time to organize the pediatric surgical team.

Management depends on

(i) Extent and site of union
(ii) Possibility of surgical separation and
(iii) (iii) Size of the fetuses and possibility of survival.

Indications for referral to a tertiary level fetal medicine centre

1. 1.MC MA twin pregnancies
2. 2.MC MA triplet pregnancies
3. 3.MC DA triplet pregnancies
4. 4.DC DA triplet pregnancies
5. 5.Pregnancies complicated by any of the following:
    - discordant fetal growth
    - fetal anomaly
    - discordant fetal death
    - feto-fetal transfusion syndrome.

1. MC twin

The surviving fetus is at significant risk of sustaining damage {sudden, severe, and prolonged hypotension at the time of the demise or by embolic later}

- >34 w: Immediate intervention
- 32 to 34 W: corticosteroids & delivery after 48H
- < 32 w: **Conservative management**

A. A.U/S, CTG, BPP
B. if normal: MRI of the fetal brain 2–3 w after the co-twin death.
C. Counseling should include the long-term morbidity in this condition

2 .DC Death of one twin is not a strong indication for intervention to deliver the surviving twin

A. Expectant management up to 37 w
B. If a condition affecting both twins is present PET, IUGR: Close surveillance and timely intervention
C. Regular assessment of coagulation status

TRIPLETS, QUADRUPLETS, ETC.

Triplets may develop from fertilization of a single ovum or two or even three ova ; similarly with quadruplets and quintuplets. **Female fetus usually outnumber the male one.** The diagnosis is accidental following sonography, or during births. Clinical course and complications are intensified compared to twins. Perinatal loss is markedly increased due to prematurity. **Preterm delivery is common (50%) and usually delivery occurs by 32–34 weeks (mean 33.5 weeks) time. Discordance of fetal growth** is more common than twins. Perinatal loss is inversely related to birth weight. Management is similar to that outlined in twins. **Average time for delivery in quadruplets is 30–31 weeks**.

To improve the fetal salvage, especially in quadruplets, it is advisable to employ liberal cesarean section. Selective reduction: If there are 4 or more fetuses, selective reduction of the fetuses leaving behind only two is done to improve outcome of the co-fetuses. This can be done by intracardiac injection of potassium chloride between 11 and 13 weeks under ultrasonic guidance. It is done transabdominally. Umbilical cord of the targeted twin is occluded by fetoscopic ligation or by laser or by bipolar coagulation, to protect the co-twin from adverse drug effect. Multiple pregnancy reduction improves perinatal outcome in women with triplets or more. Selective termination of a fetus with structural or genetic abnormality may be done in a dichorionic multiple pregnancy in the second trimester by intracardiac injection of potassium chloride.

Timing of delivery uncomplicated:

A. 1.MAMC 34W
B. 2.Triplet pregnancies elective birth from 35 w 0 days, after a course of antenatal corticosteroid
C. 3.MC DA twin elective birth from 36 w 0 days, after a course of antenatal corticosteroids
5. DC twin elective birth from 37 w 0 days

The mode of delivery

- ☐ 1.Triplet: CS
- ☐ 2. MCMA twins: CS

3. DC twins:

- ☐ Very low birth weight infant (1500 g): CS

Prerequisites for vaginal delivery

- continuous intrapartum monitoring
- appropriate analgesia
- an obstetrician experienced in twin delivery

Presentation of the first twin.

A. Vertex-vertex: Vaginal delivery .
B. 2nd non-vertex: The optimal mode is unknown with retrospective reviews providing support for both CS and vaginal birth