MULTIPLE PREGNANCY

Topics to be covered

Objectives:

-Incidence

-Diagnosis of multiple pregnancy

-Mechanism of twinning & Zygosity

-Complication of multiple pregnancy

-Causes of perinatal mortality & morbidity

-Twin to twin transfusion

-Antenatal management of multiple pregnancy

-Assessment of chorionicity by ultrasound

-Management of labour in multiple pregnancy

Incidence of multiple pregnancy

-The natural rate of twinning is 1:90

-Slightly higher in blacks than whites

-In USA the incidence is 3%

The incidence is increasing due to Assisted reproduction technique(ART)and ovulation induction

-The incidence of monozygotic twins is constant and is 4:1000 pregnancies

-The incidence of dizygotic twins increase with age, parity, weight, height, and is higher in some families

Diagnosis of multiple pregnancy

Suspected if:

-Large for date uterine size

-Multiple fetal heart rates are detected

-Multiple fetal parts are felt

-HCG & maternal serum alpha-fetoprotein is elevated for gestational age

-Pregnancy with ART

-Confirmed by ultrasound

Zygosity

Dizygotic:

Diamniotic/Dichorionic

70-80% of all twins

Fertilization of two ova

Each fetus will be surronded by amnion & chorion(each fetus has its own placenta)

Zygosity

Monozygotic: 20-30% of all twins

Result from cleavage of a single fertilized ova

The timing of cleavage determines placentation

Dichorionic/diamniotic monozygotic twins:

Cleavage in the first 3 days after fertilization

Each fetus will be surrounded by amnion & chorion(each fetus has its own placenta)like dizygotic twins

Has the lowest mortality rate of monozygotic twins <10% of all monozygotic twins

Zygosity

Monochorionic/diamniotic:

Cleavage between day 4 and 8 after fertilization

Share single placenta but separate amniotic sac

The mortality is 25%

Monochorionic/monoamniotic:

< 1% of cases

Cleavage after the 8th day (day 9-12)

Share single placenta & single sac

Mortality is 50-60%, usually before 32 weeks

Zygosity

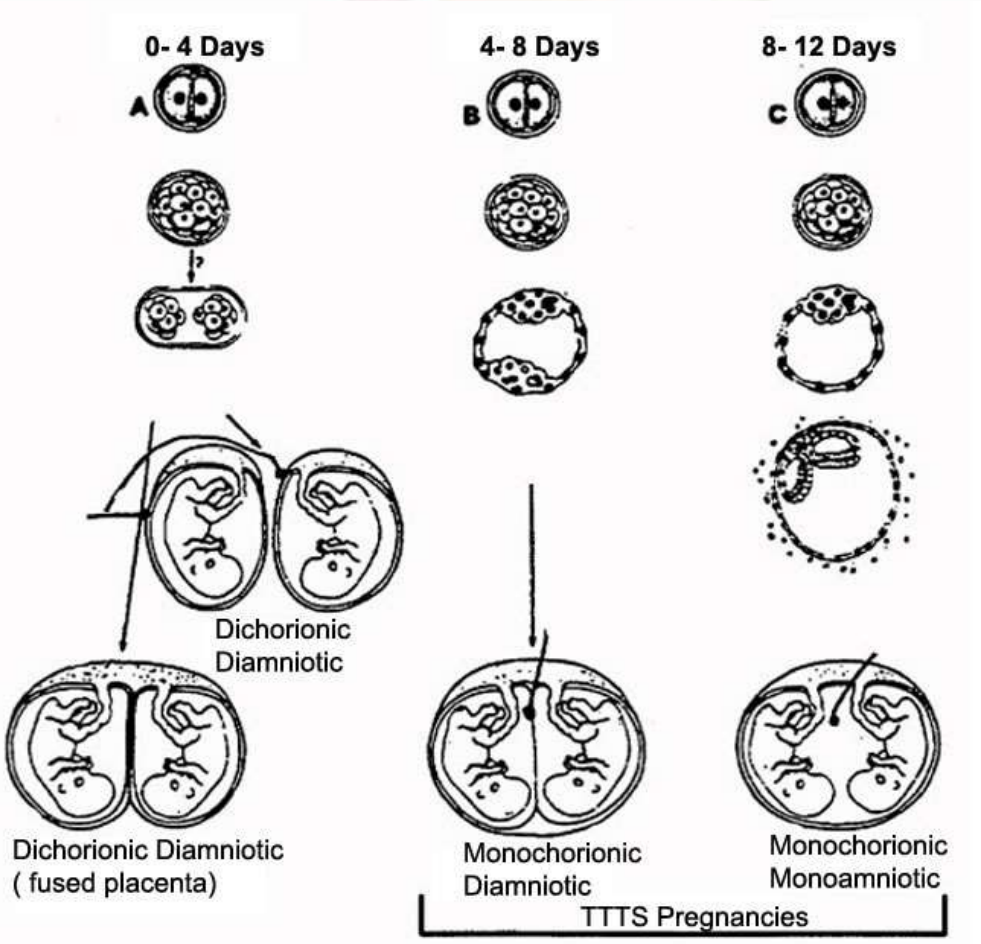
Conjoined twins:

Cleavage after day 12

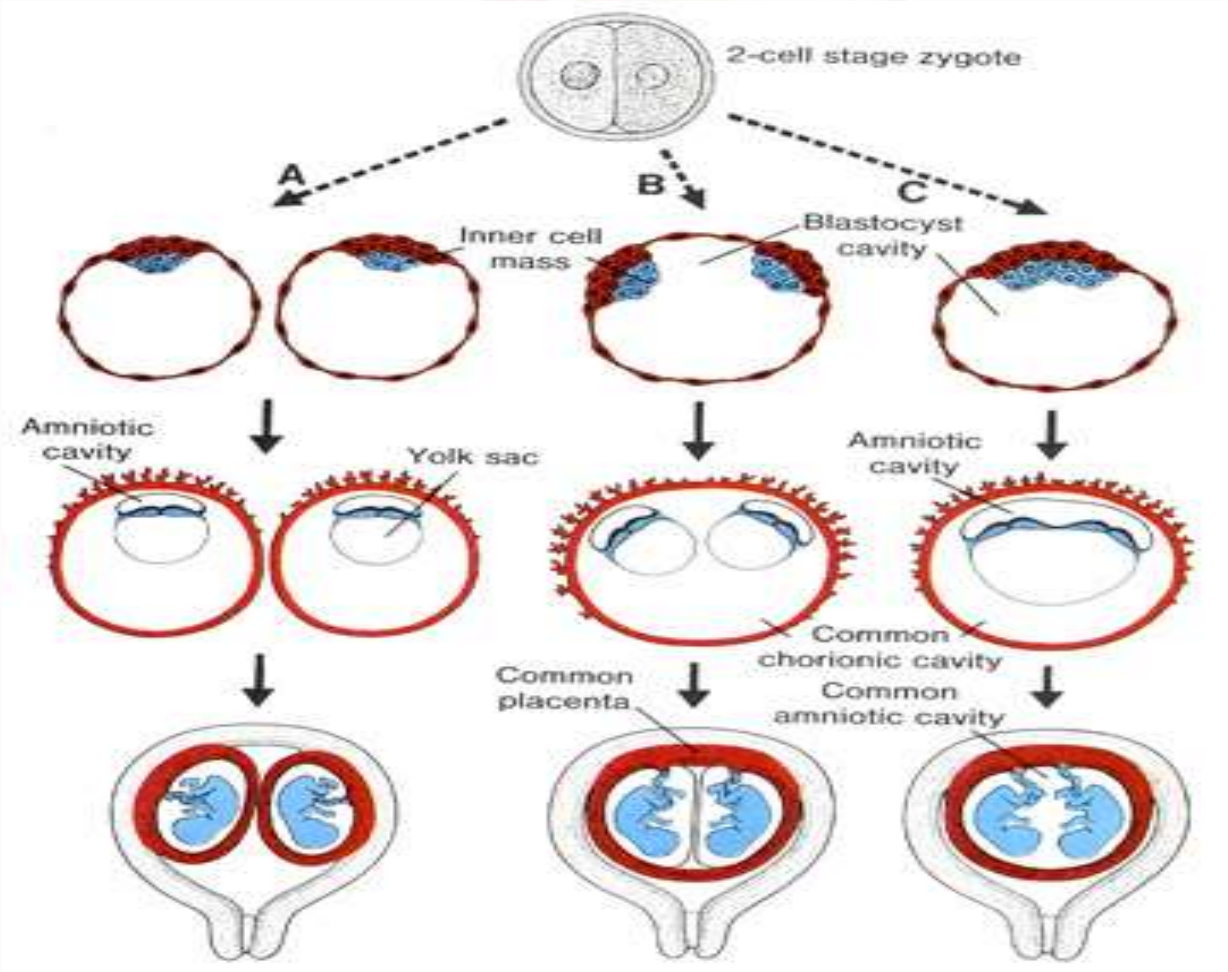
Incidence is 1: 70,000deliveries

The fetuses may fuse in a number of ways, most commonly chestand/or abdomen

Mechanism of twining



Monozygotic twins



Complications of multiple pregnancy

-High perinatal mortality & morbidity (3-4 times higher than singleton pregnancy)

-Abortion(<50% of twins diagnosed in the first trimester result in live birth(vanishing twin))

-Nausea & vomiting

-Preterm labour (50%)(twins delver at 37 weeks, triples at 33 weeks, Quadruplets at 29 weeks)

-IUGR

-PET (3 times higher than singleton)

-Polyhydramnios (in 10%)

-Congenital anomalies

-Postpartum hemorrhage

-Placental abruption, placenta previa

-Discordant twin growth (more than 20%discrepacy in fetal weights)

-Malpresentation, cord prolapse, Operative delivery

Causes of perinatal mortality & morbidity

- -Prematurity (Respiratory distress syndrome)
-Birth trauma
-Cerebral hemorrhage
-Birth asphyxia
-Congenital anomalies
-Still birth

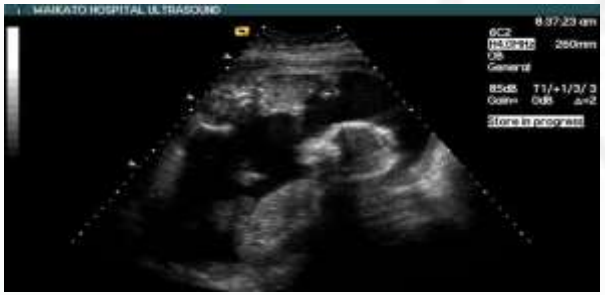
Twin-twin transfusion (TTN)

-Occur in 20-25% of monochorionic twins

-One fetus donate blood to the other due to vascular anastomosis

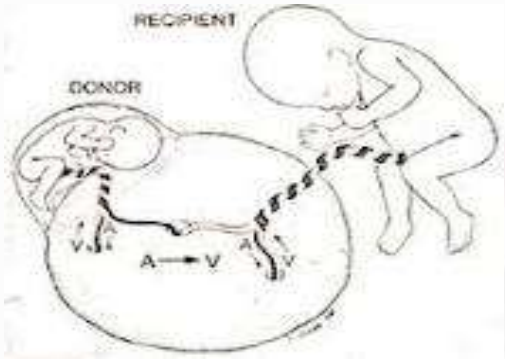
-The **recipient** fetus will have heart failure, polyhydramnios, and hydrops

-The **donor** will have IUGR & oligohydramnios



Twin-twin transfusion (TTN)

Management includes amnio-reduction of the recipient twin, intra-uterine blood transfusion for the donor twin, selective fetal reduction,fetoscopic laser ablation of placental anastomosis



Antenatal management of multiple pregnancy

-Adequate nutrition (300 additional calories per day per fetus)

-Prevent anemia

-More frequent antenatal visits

-Ultrasound:

Assess chorionicity at 9-10 weeks

Nuchal translucency at 12-13+ weeks

Assessment of fetal growth & fetal wellbeing every 3-4 weeks from 23 weeks onward

-Multifetal reduction may offered for high order multiple gestation in the first trimester

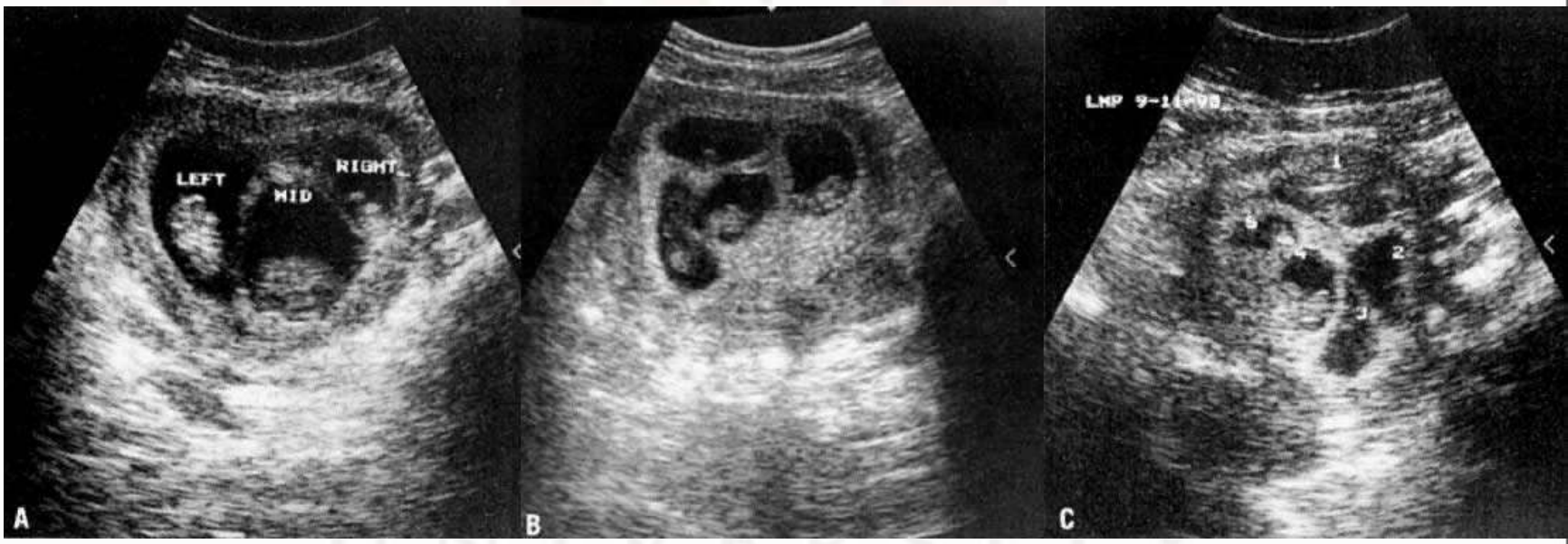
-Preterm labour risk:

Serial cervical length assessment

Steroids for fetal lung maturation

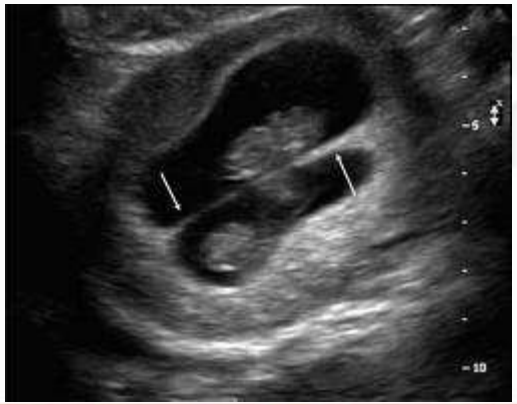
Assessment of chorionicity by ultrasound

Multiple gestational sacs in first trimester

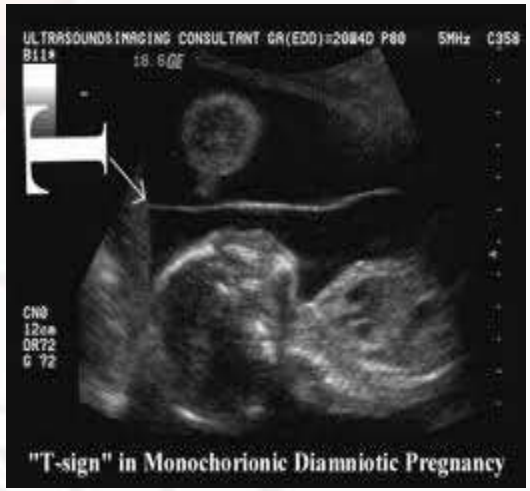


Assessment of chorionicity

Twin Peak Sign (Lambda)
Dichorionic twins



T sign
Monochorionic twin



Management of labour in multiple pregnancy

-Controversial

-Depends on presentation , gestational age, presence of fetal complications, experience of the obstetrician

-usually if the first fetus is cephalic– normal delivery

-Non vertex first twin--- cesarean section

-**Locked twins**: Breech-vertex twins ---- cesarean section

- Active management of third stage to prevent PPH

Pre-requisite for intra-partum management of multiple pregnancy

Secondary or tertiary center

Well functioning large-bore IV line

Availability of emergency C/S –anesthesia- blood bank

Continuous simultaneous fetal heart rates monitoring

Availability of NICU beds- paediatrician

Imaging technique (ultrasound)

Bibliography

Recommended books:

-Essentials of obstetrics & gynecology (Hacker and Moore's) P 160-172

-Current diagnosis & treatment –Obstetrics & gynecology (p301-310)