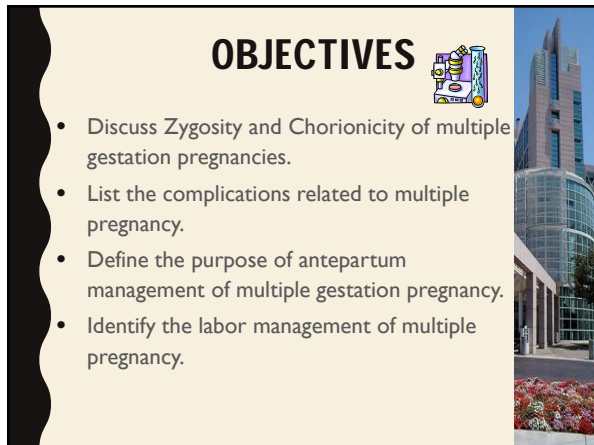


**MULTIPLE
GESTATION**

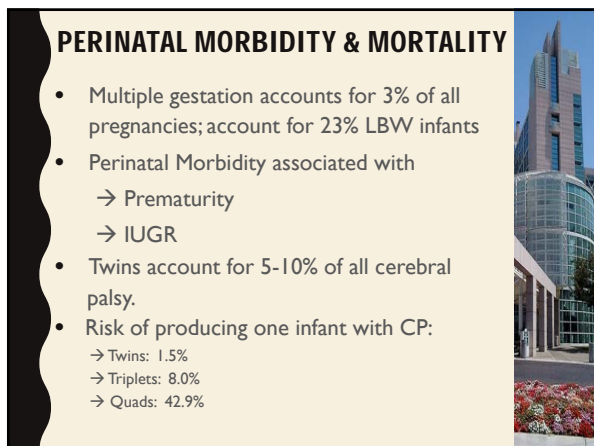
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PERINATAL CLINICAL NURSE
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OBJECTIVES

- Discuss Zygoty and Chorionicity of multiple gestation pregnancies.
- List the complications related to multiple pregnancy.
- Define the purpose of antepartum management of multiple gestation pregnancy.
- Identify the labor management of multiple pregnancy.



PERINATAL MORBIDITY & MORTALITY

- Multiple gestation accounts for 3% of all pregnancies; account for 23% LBW infants
- Perinatal Morbidity associated with
 - Prematurity
 - IUGR
- Twins account for 5-10% of all cerebral palsy.
- Risk of producing one infant with CP:
 - Twins: 1.5%
 - Triplets: 8.0%
 - Quads: 42.9%



MULTIPLE GESTATION

Fetal #	Mean GA	Delivery < 28 Weeks	Mortality	Morbidity in survivors
1	39	0.7%	4/1000	19.7/1000
2	37	5%	12/1000	34.0/1000
3	33	14%	16/1000	57.5/1000



MATERNAL MORBIDITY & MORTALITY

- **Mortality** not significant in industrialized countries
- **Morbidity R/T # of fetuses**
 - Twins: HTN, Abruption, Anemia, UTI
 - Triplets:
 - 98% chance of antenatal complications
 - 32% risk of PP complications



MATERNAL MORBIDITY - TRIPLETS

- Premature labor: 81%
- Preeclampsia: 27%
- PPROM: 17%
- Anemia: 35%
- Endometritis: 15%
- PPH: 13%



TWINS NOMENCLATURE

When ≥ 2 embryos develop in the uterus at the same time...

- Monozygotic: single ovum; "Identical"
 - Constant rate (3-5/1000)
 - Independent of race, heredity, age and parity
 - Same sex
- Dizygotic: double ovum; "Fraternal"
 - Variable rates (1 – 50 /1000 births)
 - Influenced by fertility drugs, race, heredity, age and parity



FETAL ANOMALIES

- Monozygotic twins rates 2-3 times higher.
- Dizygotic twins rate no different than singletons.

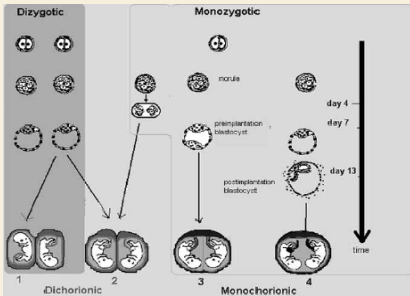


TWINS: NOMENCLATURE

- Dichorionic / Diamniotic: 2 Placentas
 - All Dizygotic Twins (2 ovum)
 - 2/3 Monozygotic Twins (1 ovum)
- Monochorionic / Diamniotic: 1 Placenta
 - Intervening Amnion
 - 1/3 of Monozygotic Twins
- Monoamniotic Twins: 1 Sac
 - 1% of Monozygotic Twins



ZYGOSITY AND CHORIONICITY



FIRST TRIMESTER U/S: DICHORIONIC TWINS



SHARING IS NOT GOOD IN UTERO...

- Dichorionic Twins
 - Prematurity
 - Discordant IUGR 23%
 - PTD 5.5%
- Monozygotic Twins
 - Twin To Twin Transfusion Syndrome 15%;
 - IUGR 34%
 - PTD <32 weeks 9%
- Monoamniotic: Twins Umbilical cord entanglement
- Conjoined Twins: Sharing vital organs



COMPLICATIONS

- Maternal Anemia
- HTN (Pre-eclampsia)
- Preterm labor
- Diabetes (GDM)
- Placental Accidents
- Twin-to-twin transfusion



PREECLAMPSIA

- Twins 10-20%
- Triplets 25-60%
- Quadruplets 90%
- Often occurs earlier, is more severe and atypical in presentation.
- Calcium and Aspirin do not seem to affect the incidence.

Caritis et al. NEJM 1998



PRETERM LABOR

- Cervical length assessment < 2.5 cm associated with a 6.9 fold increased risk of delivery < 32 weeks (27% v. 5%).
+ Fetal Fibronectin at 28 weeks associated with 29% delivery < 32 weeks (OR 9.4)


Goldenberg et al. Am J Obstet Gynecol; 1996



PRETERM LABOR


- No benefit of prophylactic cerclage or tocolytics 1989
- Cerclage for a shortened cervix without clear benefit.
- Prophylactic bedrest not proven effective.
- HUAM

Keirse et al.



PRETERM LABOR

- Intravenous tocolytics
 - Reserved for true documentation of preterm labor.
 - Maternal risks of cardiovascular complications increased.
- Betamethasone
 - 24 – 37 weeks.



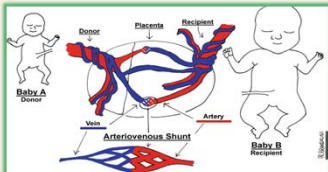
COMPLICATIONS (CONT.)

- Maternal hemorrhage
- Cord accidents
- Polyhydramnios
- Abnormal fetal presentation
- Low birth weight
- Malformations
- SAB/Fetal loss

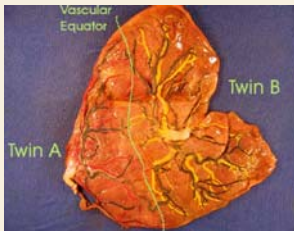


TWIN TO TWIN TRANSFUSION SYNDROME (TTTS)

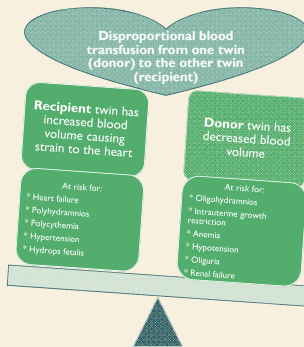
- Disease of the placenta affecting multiples who share a **monochorionic** placenta
- The common placenta may be shared unequally or the blood vessel connections are not evenly dispensed, compromising the growth and essential nutrients of one of the twins and overloading the other
- Not hereditary or genetic. No primary prevention to date.



MONOCHORIONIC TWIN PLACENTA



TTTS CONTINUED...



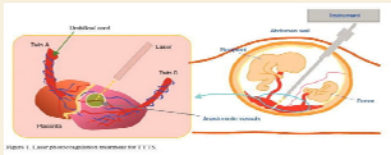
TTTS CONTINUED...

- TTTS can occur at any week in the pregnancy
- The degree of placental abnormalities determine when symptoms occur and the severity of TTTS
- **Chronic TTTS**
 - Appears early in pregnancy (12-26 weeks)
 - More severe due to immaturity of fetuses and longer exposure of TTTS affects
 - Without treatment, most of these babies would not survive
- **Acute TTTS**
 - Appears suddenly when there is a major change in blood pressures between the twins
 - May occur when patient is in labor or within third trimester of pregnancy
 - May have a greater chance at survival due to gestational age



TREATMENT OF TTTS

- Fetoscopic laser ablation
 - Minimally invasive surgery
 - Insertion of fetoscope into uterus in order to determine the abnormal vessels causing TTTS
 - Once identified, abnormal vessels are coagulated.
 - Amniotic sac of recipient fetus is drained to normal amniotic fluid levels



TREATMENT OF TTTS CONTINUED..

- Conservative Management
 - Option for uncomplicated early TTTS
 - Frequent monitoring for preterm labor, cervical shortening or fetal abnormalities
- Cord Occlusion
 - Option when survival for ONE of the twins is a top priority
 - Closes off umbilical cord connecting fetus to the placenta
 - When fetoscopic laser ablation is not an option



FETAL DEMISE

- 0.5-6.8 twin pregnancies.
- 4.3-17% triplet pregnancies.
- Monochorionic:
 - Death of one fetus associated with a 25% risk of cerebral damage in the remaining twin.
 - 6 fold increase in fetal loss < 24 weeks and 2 fold increase in fetal loss after 24 weeks when compared to dichorionic twins



MONOAMNIOTIC TWINS



DIAGNOSIS

- History and physical
- Size vs. dates
- Diagnostic aids
 - Ultrasound
 - Palpation
 - Fetal heart rate
 - Biochemical tests (Chorionic Gonadotropin, HPL & AFP)

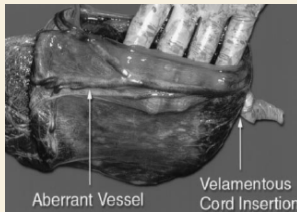


IMPORTANCE OF ULTRASOUND

- Define Chorionicity
- Detection of fetal anomalies
- Evaluation of fetal growth q 4 weeks
- Identify cord insertion - assess risk of velamentous insertion
- Measurement of the cervical length
- Confirmation of fetal well-being



VELAMENTOUS CORD INSERTION



MATERNAL MANAGEMENT

- Iron Supplementation 60 mg daily
- Folic Acid 1 mg daily
- Gestational diabetes screening
- Lower threshold for screening:
 - Preeclampsia
 - Atypical forms of HELLP
 - Fatty Liver



ANTEPARTUM MANAGEMENT

GOAL:
To Reduce Perinatal M&M

- Encourage adequate nutrition & rest
- Anticipate Hypertension and GDM
- Identify TTTS ASAP
- Prevent Preterm Delivery



SELECTIVE REDUCTION

- 10 – 13 weeks.
- 2-3 mEq KCL.
- Overall loss rate <24 weeks 5%.
- Ideal goal is to reduce to twins.
- Amniocentesis does not appear to increase the risk.



SELECTIVE REDUCTION-TRIPLETS

- Convincing argument cannot be made.
- Decision Points:
 - Obligate death of one fetus
 - 4% risk of the procedure
- To Justify:
 - 500 gm birthweight increase
 - 50% reduction of delivery <28 weeks
- No long term outcome data on survivors.



FACTORS THAT IMPACT OUTCOMES

- Zygosity and **chorionicity**.
 - Monochorionic placentation associated with 12% PVL, and 24% neonatal morbidity.
- Timing of intrauterine demise.
 - First trimester “Vanishing Twin”
 - Second and third trimester
 - Premature delivery
 - Maternal DIC
- Timing of delivery:
 - Fetal distress
 - Plateau of fetal growth
 - Near term / pulmonary maturity



INTRAPARTUM MANAGEMENT

GOAL:

To assure a satisfactory outcome: healthy mom and healthy baby

- Obstetrician in house
- Continuous EFM
- IV with LR
- Blood available



INTRAPARTUM MANAGEMENT (CONT.)

- Vaginal Delivery vs. C/S
 - Gestational age
 - Weights (2nd twin > 1500 gm)
 - Positions (vertex vs. breech)
 - Primip vs. Multip
 - OB Provider experience
- Delivery area
 - OR for all team members to work effectively
 - 2 OB's/2 RN's, 1 Anesthesiologist, 2 Neo's/2RN's for each fetus



INTERNAL PODALIC VERSION

A maneuver designed to change any fetal presentation to facilitate delivery

ie. When the delivery of the second twin is delayed or when the fetus is in a transverse lie



CONTROVERSY

- Induction
→ Risk/Benefit of Oxytocin vs. C/S not delineated
- Analgesia vs. anesthesia
→ Fetal depression vs. prolonged labor and maternal hypotension



PSYCHO-SOCIAL STRESSORS

- Progress of pregnancy
- Delivery Method
- Health outcomes of the newborns
- Ability to care for/support 2 children or more at once
- Advanced maternal age
- Fertility couple



PSYCHO-SOCIAL RISK FACTORS

- Child abuse
- Substance abuse
- Marital breakdown
- Postpartum Depression



PATIENT TEACHING

- Types of twins
- Nutritional requirements
- High risk status
 - Preterm delivery
 - GDM
 - Hypertension
 - PP Hemorrhage
- Prophylactic precautions



PATIENT TEACHING (CONT)

Plan of care

- Prenatal
 - Office visits
 - Tests/procedures (fetal reduction, AFP, amnio, NST)
- ? Antepartum bed rest/hospital
- Specialized childbirth education
- Delivery method
- Breastfeeding



CASE STUDY #1


- G1 P0, infertility couple, 32 week twin gestation, normal growth & development, for routine NST @ 1200
- Result: Non-reactive with mild brief variable decelerations of both fetus'

What would you do next?




CASE STUDY #1 (CONT)

- Reassurance
- Change position
- Hydrate
- Continue EFM/testing
- Ultrasound
- Admit to L&D for continued observation



CASE STUDY #1 OUTCOME

- Primary C/S delivery at 1429 (2+ hr)
- Baby "A"
 - apgars 7/9
 - weight 2lbs, 15 oz
- Baby "B"
 - apgars 0/0/4
 - weight 3lb, 3oz
 - CPR, blood transfusion
 - Dx: Hydrops from TTT Syndrome



CASE STUDY #2

- G1P0 @ 35 weeks gestation
- Arrived to L&D c/o SROM clear, sl blood tinged fluid
- Scheduled for induction for SGA of Twin "A"
- POC: Pitocin augmentation; Vaginal Delivery of vtx/vtx twins
- *What would you do now?*



CASE STUDY #2 (CONT)

- Apply EFM
- Draw bloods
- Start IV
- Begin Pitocin augmentation
- Prepare OR for twin delivery
- Notify Anesthesia & Neonatal team



CASE STUDY #2 OUTCOME

- Uncomplicated Vaginal Delivery
- Twin "A"
 - female @ 1041
 - apgars 9/9
 - vtx
 - weight 4lb, 10 oz
- Twin "B"
 - male @ 1109
 - apgars 9/9
 - vtx, cord around shoulder
 - weight 5lb, 6oz



SUMMARY

- Early confirmation of fetal number
- Defining chorionicity
- Maternal issues
- Screening for premature labor
- Assessing fetal growth









Is this love or what...
