Sonography of Multifetal Pregnancy

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2 Zygosity

- Two separate ova
 ODizygotic twining-fraternal twins
 OMuch more common occurrence- 70%
- Single fertilized ova
 OMonozygotic twinning- identical twins
 OOccurs in approx. 1 per 250 live births

3 Triplets and Higher Order Pregnancies

- Combination of fertilized separate ova
- Division of fertilized ova

4 Perinatal Morbidity and Mortality in Twins

- Mortality rate:
 - Multiples>Singletons
 - OPrematurity
 - ¥36 Weeks Term
 - **OGrowth Restriction**
 - Birth Weight <1500gms</p>
 OTwins 8X
 - OTriplets 33x
 - Monochorionic Twins
 - OMortality rate 2/3x that of dichorionic twins

5 Embryology and Placentation

- Dizygotic twinning
 - OSeparate fertilized ova
 - OChorion frondosum and decidua basalis combine to form the placenta × Two placentas
- Monozygotic twinning
 - OOne ova fertilized division of a single zygote
 - OThe chorionicity and amnionicity of monozygotic twins depends on the stage at which division occurs and is categorized

6 Zygosity

- Two separate ova
 - ODizygotic twining-fraternal twins
 - OMuch more common occurrence- 70%
 - OIncreases with:
 - ■Advanced maternal age
 - Maternal family history
 - ▼Ovulation induction agents
 - ▼ Reproductive technology
- Single fertilized ova

OMonozygotic twinning- identical twins OOccurs in approx. 1 per 250 live births

7 Twin Peak Sign

- Triangular projection of placental tissue extending from the placental surface and running through or dividing separate sacs.
- OAlso called a Lambda Sign
- OWidest at the placental surface and tapers
- OSee with diamntiotic/monochorionic
- T Sign-T shaped junction formed when two amniotic membranes fuse with one placenta. OSee with diamniotic/monochorionic

8 Monozygotic Twinning

- Division of a single zygote
- Chorionicity and amnionicity depends on the stage of division
- Categories:
 - ODichorionic/Diamniotic (DC/DA)
 - Within first three days post conception

OMonochorionic/Diamniotic (MC/DA)

▼Between fourth and eight day post conception

OMonochorionic/Monoamniotic (MC/MA)

▼ Divides after day 8 post conception

- OConjoined Twins
 - Divides after day 13
 - ▼ Incomplete division of embryonic disc
 - X

9 Chorionicity One More Time!

- Dichorionic/Diamniotic- DC/DA
 - OCleavage occurs in morula stage
 - OEach blastocyst implants in endometrium
 - Maybe close, causing abutting or fusing
 - O25% of monozygotic twins are DC/DA
- Monochorinic/Diamniotic- MC/DA
 - OBlastocyst already formed
 - ×Once shared placenta
 - ▼ Intertwin vascular connections
 - OAmnion not developed-70%
- Monochorionic/Monoamniotic- MC/MA OBlastocyst formed
 - OAmnion already formed
 - Share placenta and amniotic cavity
 - ▼ If embryonic disc does not divide-conjoined twins

10 Sonographic Determination of Amnionicity and Chorionicity

- Chorionicity predicts adverse outcomes
 OPlacentas in the Monochorionic pregnancies always have vascular anastomoses
 OFused placenta in DC/DA is not anastamosed
- 11 After The First Trimester
- 12 Congenital Anomalies in Twins

- Chromosomal and anatomic anomalies more common in multiples
- Increased risk of: ONeural defects
 ODiaphragmatic hernias
 OLymphatic issues
- Presenting fetus labeled "A"
- Document all anatomy as for singleton ODocument fetus and gender
- Evaluate uterus, cervix, adnexa
- 13 Conclusion
 - Understand zygosity and chorionicity/amnionicity OTwo sacs with echogenic ring around each
 - OOnce sac with echogenic ring and two heartbeats
 - ▼ Two amnions within one chorion
 - ▼ Prior to 7 weeks count two yolk sacs
 - Two placental discs
 - Accurate crown rump lengths
 - Heart rates
 - Many avenues for risks
- 14 Membranes