

UMBILICAL CORD

The normal umbilical cord contains two arteries and one vein that allow for transport of blood between the fetus and the fetal portion of the placenta. Average length is 55 cm (range = 30 - 100 cm). The vessels are surrounded by Wharton's jelly and the entire cord is covered by amnion.



CORD ABNORMALITIES

SINGLE UMBILICAL ARTERY

Absence of an umbilical artery is believed to be present in 1% of all live births. This condition is frequently referred to as a **two vessel cord**. It may be caused by:

- Primary agenesis of one of the arteries
- Secondary atrophy of a previously present artery
- Persistence of the original, single embryonic artery

By itself, a two vessel cord does not put the fetus at risk. However, SUA may be associated with other anomalies. For this reason, prenatal discovery of an absent umbilical artery should prompt a thorough survey of the fetal anatomy.

Commonly associated abnormalities include:

- Trisomies 13 and 18
- GU anomalies
- CNS anomalies
- Cardiac anomalies
- Omphalocele
- Sirenomelia
- VACTRL syndrome (p. 103)

SONOGRAPHIC FINDINGS:

- Absence of an umbilical artery
- Two vessel cord
- Care should be taken to obtain a true transverse section through the cord
- When present, a thorough examination of fetal anatomy should be performed



OMPHALOMESENTERIC DUCT CYST (ODC)

A cystic lesion of the umbilical cord due to the persistence and dilatation of the embryonic omphalomesenteric duct. The cysts are generally located **close** to the fetus and vary greatly in size.

ALLANTOIC CYST

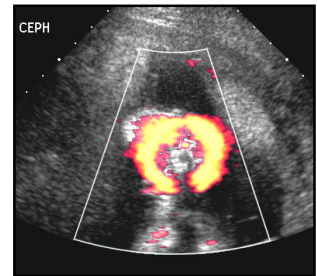
Cystic dilatation of the primitive embryonic allantois. Usually small and located within the cord **away from** the fetal abdomen.

SONOGRAPHIC FINDINGS:

- Demonstration of an umbilical cord cyst
- Absence of blood flow demonstrated by doppler
- Differentiation is not usually possible

NUCHAL CORD

The wrapping of the umbilical cord around the fetal neck. Occurs in about 25% of deliveries and is rarely associated with fetal complications.

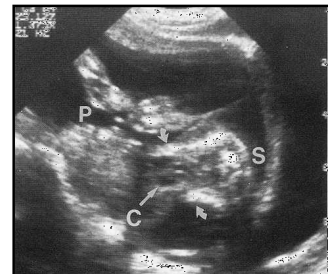


BODY STALK ANOMALY

Also known as short umbilical cord syndrome, limb-body wall complex and cyllosomes. This anomaly is characterized by a lethal exteriorization of the thoraco-abdominal contents due to a lack of closure of the anterior abdominal wall.

SONOGRAPHIC FINDINGS:

- Herniation of liver and abdominal viscera
- No membrane present
- Organs appear tethered to placenta
- No umbilical cord identified
- May mimic amniotic band syndrome or gastroschisis



UMBILICAL VENOUS THROMBOSIS

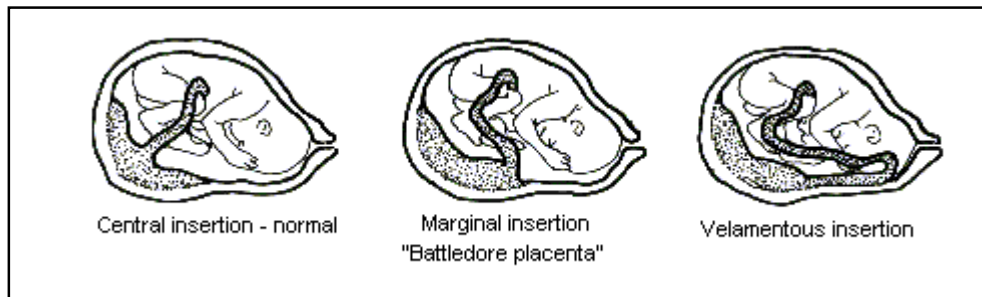
Torsion, knotting or compression of the umbilical cord may cause venostasis and ultimate thrombosis. Since occlusion of the umbilical vein prevents normal perfusion, fetal death almost always occurs. It occurs more frequently in infants born to diabetic mothers and in fetuses with non-immune hydrops.

SONOGRAPHIC FINDINGS:

- Increased echogenicity in the lumen of umbilical vessels
- Absence of Doppler signals within an umbilical vessel
- Absence of color flow within an umbilical vessel

VELAMENTOUS INSERTION OF THE CORD

Attachment of the cord to the membranes rather than to the placental mass. Velamentous insertion differs from marginal insertion which refers to attachment at the periphery of the placenta. This condition may be associated with IUGR, preterm birth and congenital anomalies.



SONOGRAPHIC FINDINGS:

- Establish relationship between cord insertion and placental mass
- Color Doppler may assist in the diagnosis

