FETAL OMPHALOCELE SONOGRAPHIC DIAGNOSIS

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ABSTRACT
Congenital anomalies affect approximately 2 to 3% of all live births every year.¹ Sonographic antenatal detection of anomalies has become a new goal of modern obstetrics management. We report a case of omphalocoele with associated anomalies, its sonographic detail and clinical implications, managed at our institution.

INTRODUCTION
Omphalocoele is an anterior abdominal wall defect at the base of umbilical cord with herniation of abdominal contents. The herniated organs are covered by parietal peritoneum. The exact mechanism leading to omphalocoele is controversial. During normal embryonic growth, a rapid elongation of the gut and its mesentery characterizes the development of the midgut. As a result of this rapid growth and the simultaneous expansion of the liver, the abdominal cavity becomes too small to contain all of the intestinal loops, so they enter the extraembryonic coelom in the umbilical cord. This process of physiologic umbilical herniation occurs during the 6th week of development. During the 10th week, the intestines return to the abdominal cavity. This process is called the reduction of the midgut hernia.² Ultrasonographic (US) examinations have revealed the completion of this process at 12 weeks gestation.³ It has been suggested that failure of the intestinal loops to reenter the abdominal cavity results in omphalocoele.⁴ Another possibility is that omphalocoele results from the failure of the embryonic lateral folds to fuse in the midline.⁵ Omphalocoele is associated with anomalies in 70% of cases. The severity of associated anomalies determines the prognosis. The mortality rate is 80% when associated anomalies are present and it increases to 100% when choromosomal and cardiovasular anomalies are present.²,⁶

CASE REPORT
A 25 year old woman was referred to our department by her obstetrician for antenatal sonographic evaluation of polyhydromnios. She was at 18 weeks of gestation. Sonography revealed polyhydromnios and an echogenic mass measuring 3.5cm in diameter protruding through the fetal abdominal wall. The diagnostic impression was an omphalocoele because defect was seen at the site of insertion of umbilical cord so gastrochiasis was unlikely. The findings of associated hydromnios should prompt careful further examination of the fetus for such problems as intestinal obstruction because the cause of the excess amniotic fluid is unrelated to the omphalocoele itself. Detailed search for any associated anomalies was done. There was anencephaly and this explained maternal hydromnios in this patient. Although omphalocoele is usually associated with cardiovascular anomalies but in our case there was neural tube defect. A 1x1.5cm cyst was seen adherent to umbilical cord. The patient was counselled by her obstetrician to terminate the pregnancy. The patient agreed and then she was induced and fetus was delivered. Gross findings of the fetus confirmed the sonographic findings.

DISCUSSION
Omphalocoele and gastrochiasis are two most common major anterior abdominal-wall defects.⁷
Figure 1.
Sagittal and axial sonogram showing abdominal wall defect at the site of insertion of umbilical cord. The herniated organ is liver and covered by membrane. Findings suggestive of omphalocoele.

Figure 2. Sagittal Sonogram Showing Anencephaly.
Gastroschisis: Gastroschisis usually poses no problems of differentiation from an omphalocele. The only finding that the two share is that they both arise from the anterior abdominal wall. Gastroschisis has no membranous covering and usually presents with a ragged edge, which almost never contains liver. In addition, gastroschisis is typically right-sided, with the umbilical cord entering the abdomen to the left of the herniation (rather than on the herniation, as in an omphalocele). Spontaneous rupture of an omphalocele membrane may cause problems in differentiation, but this is so rare that it should seldom enter the differential diagnosis.\(^4\)

It may be difficult to differentiate between a midline omphalocele and physiologic midgut
herniation in early pregnancy; it may also be difficult to differentiate omphalocele from bowel herniation of gastrochisis.\(^1\)

Physiologic bowel herniation: Physiologic herniation occurs at 10-13 weeks' gestation. The best method for differentiating this from an omphalocele is repeat sonography after 15 weeks' menstrual age. A large defect with liver exteriorized indicates an omphalocele at any gestational age.\(^{2,3}\)

Pseudo-omphalocele: During scanning of the fetal abdomen, pressure from the transducer may give an impression of an omphalocele, particularly during scanning in an oblique plane. The angle formed between such a pseudomass and the fetal abdominal wall is usually obtuse. A pseudo-omphalocele may also occur as a result of oligohydramnios or compression of the lateral thoracic wall from other causes. With medial compression of the lower thoracic wall, the abdomen may have an hourglass-like appearance when imaged in a transverse plane. Omphalocele associated with oligohydramnios is exceptionally rare.\(^7\)

CONCLUSION

The prognosis of fetal omphalocele depends upon associated congenital and chromosomal anomalies.

REFERENCES