Results: No differences in lung volume based on coronal or transversal MR images were observed ($r^2 = 0.98$; slope = 0.91 [0.82 – 1.01]). MR-FLV at termination was significantly related to lung volume at autopsy ($r^2 = 0.96$, slope 1.27 [0.97 – 1.57], n = 6). MR-FLV in TO fetuses increased more rapidly with gestational age (21.0 [10.7 – 31.3] ml/day) than in CTRL (4.7 [1.7 – 7.7] ml/day). US-LRA increase was accelerated in TO (1.60 [1.3 – 1.9] cm^2/day) with regard to CTRL (0.38 [0.23 – 0.53] cm^2/day). US-LRA and MR-FLV were significantly correlated ($r^2 = 0.82$).
Conclusions: Fetal lung volume can be measured using MRI with moderate accuracy both from coronal and transverse sections. MRI and B-scan ultrasound are useful tools to monitor and quantify TO stimulated fetal lung growth in sheep fetuses.

P255
Fetal lung volume assessment by three-dimensional ultrasound in isolated congenital diaphragmatic hernia as a prognostic factor

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Objective: To evaluate the potential of three-dimensional ultrasound (3DUS) to predict outcome in congenital diaphragmatic hernia (CDH).
Patients and methods: From January to December 2002, we studied prospectively 12 cases of isolated congenital diaphragmatic hernia (11 left, 1 right) and 109 controls. Fetal lung volume was assessed by 3DUS using the technique of rotation of the multiplanar imaging. In the control fetuses, a logistic transformation was performed to associate fetal lung volume with gestational age, and the confidence interval was obtained with a bootstrap re-sampling. A mathematical equation was then obtained allowing calculation of the expected fetal lung volume as a function of gestational age. In fetuses with CDH, the observed/expected lung volume ratio was compared with postnatal outcome.
Results: The expected fetal lung volume was derived from the mathematical equation: Fetal lung volume (ml) = exp(82.41/(1 + exp((27.69-gestational age in weeks/3.16)))). The observed/expected fetal lung volume ratio was significantly lower in the CDH group (median: 0.34, range: 0.16–0.66), than in the control group (median: 1.02, range: 0.62–1.97, $p < 0.0001$). The distribution of this ratio was significantly downshifted in the infants with CDH who died (median: 0.19, range: 0.18–0.66) compared to survivors (median: 0.44, range: 0.36–0.66, $p = 0.04$). The observed/expected fetal lung volume ratio was also correlated with the post mortem lung/body weight ratio.
Conclusion: In isolated CDH, fetal lung volume measurement by 3DUS is a potential predictor for pulmonary hypoplasia and postnatal outcome.

P256
The value of prenatal ultrasonography to predict perinatal mortality of congenital diaphragmatic hernia

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Objective: The purpose of this study was to evaluate whether prenatal ultrasonography predicts perinatal mortality of congenital diaphragmatic hernia (CDH).
Methods: Medical records were retrospectively reviewed in 33 CDH cases who were prenatally diagnosed and delivered in Seoul National University Hospital in the period from January 1995 to March 2003. Several prenatal sonographic parameters were evaluated: side of visceral herniation, liver herniation, stomach herniation, polyhydramnios, hydrops, cardiac anomaly, extracardiac anomalies, mediastinal shift, abdominal circumference, estimated fetal weight, proportion of remaining contralateral lung area compared to the area of hemithorax. The predictive values of these parameters for perinatal mortality were analyzed. P value less than 0.05 was regarded as significant level.
Results: Of 33 cases, there were 18 cases (55%) of perinatal death including one case of stillbirth and 15 cases (45%) of survival. Among the parameters analyzed, proportion of contralateral lung area which was measured less than 25 percent of hemithorax on a four-chamber view (7/12 vs. 2/15), the fetal weight estimated less than 10th percentile at diagnosis (5/18 vs. 0/15) and the presence of cardiac anomalies (5/13 vs. 0/15) were significantly related to perinatal mortality. Excluding 4 cases associated with chromosomal abnormalities (2 Trisomy 13, 1 Trisomy 9, 1 46, XY/47, XY, +mar), proportion of contralateral lung area less than 25 percent of hemithorax (6/10 vs. 2/15) and the right-side herniation (5/14 vs. 1/15) were significantly related to perinatal mortality.
Conclusions: The results of this study suggest that prenatal ultrasonographic findings are of value in predicting perinatal mortality of CDH. Remaining contralateral lung area was the most useful prognostic parameter.

P257
Congenital diaphragmatic hernia: value of prenatal ultrasound and magnetic resonance imaging

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Purpose: To see how the prenatal magnetic resonance imaging (MRI) can help the ultrasound in the diagnosis and evaluation of prognosis in congenital diaphragmatic hernia.
Material and methods: Eight pregnant women (24–28 weeks gestational age) were referred for MRI after the ultrasound detected diaphragmatic hernia. Ultrasound was performed with a GE (General Electric) Logic 500 with 3.5 and 5.0 MHz transducers and MRI with 1.5 T (Siemens and GE) using HASTE and SSFSE sequences.
Results: Seven fetuses had left-sided hernia and one had right-sided. We were able to determine with great accuracy lung volume, allowing confirmation of pulmonary hypoplasia. In addition, at MRI, the displaced organs extending into the chest beyond the diaphragm were clearly seen and we could identify anomalies that change the prognosis, such as organoaxial volvulus and liver position (liver up or liver down). The fetal liver was demonstrated in the chest by MRI in 5 fetuses. The diagnosis were confirmed by anatomopathology. The others 3 fetuses were alive after surgery.
Conclusions: We believe that ultrasound and MRI are complementary imaging methods in the evaluation of high-risk pregnancy. MRI can help the ultrasound in the evaluation of the liver position, fetal lung volume and others coexistent abnormalities, which are important prognostic factors.

P258
Use of the lung-to-head ratio in the counseling of women with prenatal diagnosis of congenital diaphragmatic hernia

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Objective: To determine whether the assessment of the lung-to-head ratio (LHR) had an effect on the counseling and subsequent perinatal management of women prenatally diagnosed with congenital diaphragmatic hernia (CDH).