tically significant. Institutional review board approval obtained prior to the study.

RESULTS: Ultrasound assessment of the fetal thymus was possible in 90.4% of the cases. Both 3D-US and 2D-US measurements were significantly correlated with GA (TV r = 0.97, P < 0.001; MTA r= 0.79; MTD r=0.49; APD r= 0.57; SID r= 0.45; all p < 0.01).

CONCLUSION: We present the first normative data of the volume of the developing fetal thymus. 3D-US fetal thymus volume can be obtained in a majority of cases and is more significantly correlated to GA than the MTD, APD, AID and MTA. Assessment of the fetal thymus may be indicated where conditions that could affect the thymic size are suspected (e.g. fetal infections, diGeorge syndrome).

3D Fetal Thymus Volume (mL) During Pregnancy

	Percentile		
GA	5th	50th	95th
18-20	0.93	1.52	2.03
20-22	1.76	2.03	2.45
22-24	2.13	2.39	3.37
24-26	3.70	4.35	4.53
26-28	4.27	5.40	5.60
28-38	6.27	7.27	9.47

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352 Ultrasound prediction of growth abnormalities in fetuses with gastroschisis

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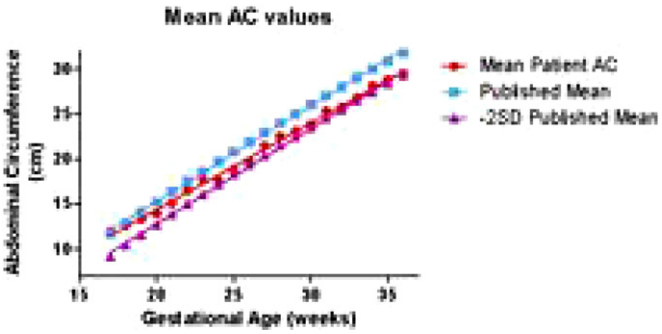
OBJECTIVE: To determine if 1) mean abdominal circumference (AC) of fetuses with gastroschisis are smaller from published normative values and whether 2) diagnosis of AC < 5th percentile is supported by postnatal diagnosis of small for gestational age (SGA).

STUDY DESIGN: This was a retrospective review of pregnancies complicated with gastroschisis between 2000 and 2008. AC was classified as < 5th percentile or > 5th percentile on the final sonogram prior to delivery. Intrauterine growth restriction (IUGR) was defined as EFW < 10th percentile. SGA was defined as neonatal birthweight < 10th percentile.

RESULTS: Three hundred sixty eight ultrasound observations, performed in 74 fetuses with gastroschisis, were used for analysis. Mean AC of fetuses with gastroschisis were between the 5th and 50th percentile for gestational age. Of the 30 (40.5%) patients with AC measurements < 5th, 15 (50%) were SGA at delivery. Eleven of the 74 fetuses (15%) were classified as IUGR and all were SGA postnatally.

CONCLUSION: Mean AC values in fetuses with gastroschisis were below the mean for population established norms. EFW is a better predictor of SGA than AC < 5th percentile. Established biometric curves can be used to evaluate in utero growth patterns in fetuses with gastroschisis.



Gastroschisis: Mean Abdominal Circumference

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353 Sonographic predictors of fetal fat accretion

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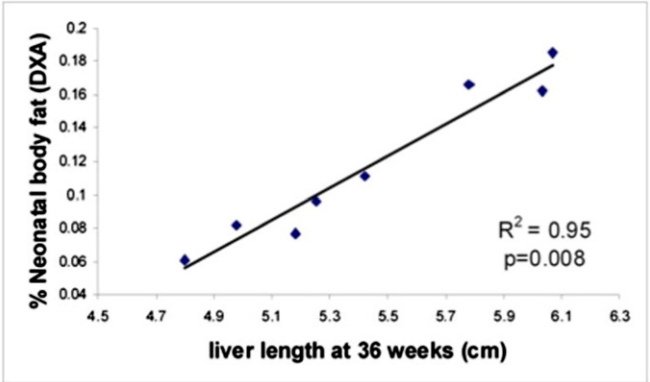
OBJECTIVE: Data suggest that the in-utero environment affects neonatal body composition which is predictive of childhood obesity and metabolic syndrome. Percent fat at birth correlates poorly with birthweight (BW) and is more predictive than BW of offspring metabolic complications in later life. There are few data on the use of ultrasound (US) to predict neonatal adiposity yet US remains the basis for predicting abnormal growth and is necessary for any future fetal-based strategy. This study was undertaken to evaluate US measures of fetal adiposity and to correlate them with neonatal body composition.

STUDY DESIGN: Obese and normal weight women carrying normal singleton pregnancies were prospectively enrolled at 14 weeks. Multiple US measures of fetal size and fat accretion (subcutaneous tissue area) were performed at 28 and 36 wks. These were compared with BW and with neonatal body composition as measured by dual x-ray absorptiometry (DXA).

RESULTS: Among 9 women enrolled in the study, neonatal body composition ranged from 6-19% fat and correlated poorly with birth weight (R2=0.085, NS). However, body composition correlated well with mid-femur (R2=0.74, p=0.003) and mid-humerus (R2=0.59, p=0.015) cross-sectional area of subcutaneous (adipose) tissue at 36 weeks, and with femur length (R2=0.45, P = 0.047) at 28 weeks. The AC at 36 weeks was not predictive of % fat at birth (R2=0.16). Liver length at 36 weeks was most predictive of neonatal adiposity with an R2 of 0.95, p=0.008 (Figure).



Fetal liver length predicts neonatal % body fat

CONCLUSION: This is the first study to demonstrate that fetal liver length and subcutaneous tissue (mid-femur & mid-humerus) correlate with neonatal % body fat. As previously published, BW and neonatal body composition did not correlate. These observations hold