DC	LP < 8 cm N =1070 (82)	LP 8-9.9 cm N = 174 (13)	LP 10-11.9 cm N = 43 (3)	LP ≥12 cm N = 14 (1)	P
Anomalous infant	26 (2)	5 (3)	2 (5)	2 (14)	0.03
Birthweight (g)	2397 ± 555	2518 ± 509	2652 ± 469	2635 ± 793	< 0.01
Preterm birth					
≤ 36 weeks	449 (43)	72 (42)	15 (37)	3 (25)	0.53
≤ 34 weeks	234 (22)	36 (21)	5 (12)	2 (17)	0.44
≤ 32 weeks	119 (11)	17 (10)	1 (2)	1 (8)	0.32
Discordance ≥ 25%	10 (1)	2 (1)	0 (0)	0	0.89
Neonatal death	8 (1)	0	0	0	0.63

MC	LP < 8 cm N = 509 (82)	LP 8-8.9 cm N = 77 (12)	LP 10-11.9 cm N = 23 (4)	LP ≥ 12 cm N = 9 (1)	P
Anomalous infant	12 (2)	3 (4)	3 (13)	2 (22)	< 0.01
Birthweight (g)	2291 ± 561	2374 ± 579	2326 ± 503	2243 ± 649	0.51
Preterm birth					
≤ 36 weeks	229 (46)	36 (49)	11 (55)	4 (57)	0.78
≤ 34 weeks	112 (22)	16 (22)	6 (30)	2 (29)	0.84
≤ 32 weeks	50 (10)	8 (11)	3 (15)	2 (29)	0.39
Discordance ≥ 25 %	11 (1)	2 (3)	0	0	0.89
Neonatal death	12 (2)	1 (1)	0	1 (11)	0.15

LP = Largest pocket
Data are reported as N (%) or mean ± SD

348 The accuracy of prenatal ultrasound in the diagnosis of true microcephaly

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OBJECTIVE: To determine the accuracy of prenatal ultrasound in detection of microcephaly, defined as birth head circumference (HCbirth) <10%ile.

STUDY DESIGN: This was a retrospective chart review of fetuses identified prenatally with a head circumference (HCfetal) of <3%ile. HCbirth were abstracted from the newborn medical chart, and Z-scores calculated for both. Sensitivity, specificity, false positive (FP) and false negative (FN) rates were calculated for HCfetal. An ROC curve was calculated to determine the accuracy of HCfetal in the detection of microcephaly.

RESULTS: An ultrasound database search from Jan 2005 to July 2011 for HC <3% identified 730 ultrasounds of 455 fetuses in 433 patients. There were 375 live births in this group. Median Z-scores were similar between fetal and neonatal groups (−1.16 [−1.6, −0.9] and −1.2 [−1.8, −0.7], respectively). The overall prevalence of microcephaly was similar in both groups using an HCfetal Z-score cutoff of ≤ −1.3 (40.1% and 49.6% respectively). A Z-score of ≤ −1.3 had 44.6% sensitivity, 35.1% specificity, 44.9% FP rate, and 45.9% FN rate for detection of microcephaly (p=0.08). Using a HCfetal Z-score cutoff of ≤ −1.7 yielded 28.8% sensitivity, 21% specificity, 62.6% FP and 28.2% FN rate (p=0.09). The area under the ROC curve was 0.6, indicating that HCfetal is an inaccurate test for microcephaly. Gestational age at time of ultrasound was not significantly associated with microcephaly (95% CI −0.27-0.01).

CONCLUSION: Prenatal ultrasound was able to detect a population at risk for microcephaly as evidenced by the high prevalence in this group at birth; however, the ability of prenatal ultrasound to predict a specific HCbirth for an individual is poor. Sensitivity and specificity for prenatal ultrasound are low, and FP and FN rates are high. Factors which contribute to the inaccuracy of prenatal ultrasound include the variability of the microcephaly phenotype, heterogeneous etiologies, lack of consensus regarding the definition of microcephaly, high rate of concurrent growth restriction, and lack of gender- or race-specific fetal growth curves.

349 Antenatal ultrasonographic findings to predict esophageal atresia in cases with visible stomach bubble

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OBJECTIVE: Becauses fetuses with esophageal atresia need an early postnatal surgery, they should be delivered in a tertiary center. However, prenatal diagnosis of esophageal atresia sometimes challenging. The aim of this study was to determine the antenatal ultrasonographic findings which offer the best diagnostic accuracy in fetal esophageal atresia with or without tracheoesophageal fistula (EA/TEF) with moderate to severe polyhydramnios and visible stomach bubble.

STUDY DESIGN: We performed a retrospective analysis of 121 pregnant women who presented polyhydramnios (AFI ≥24) between March 1996 and April 2011. Of these, 3 cases in whom EA was suspicious but delivered stillbirth without autopsy, and those who were diagnosed as having other fetal gastrointestinal obstructions (e.g. duodenal atresia, jejunal atresia, or ileal atresia), hydrops fetalis, or congenital diaphragmatic hernia were excluded. A total of 87 cases were enrolled. Ultrasonographic findings evaluated were (1) small abdominal circumference (AC) less than 10 percentile for gestational age, (2) upper pouch sign, and (3) tiny stomach bubble. Predictive value of an individual sonographic marker was calculated.

RESULTS: Of a total of 87 cases with polyhydramnios, 2 cases had upper neck pouch sign. Of these 85 cases, 8 cases showed absent stomach bubble. The remaining 77 cases were analysed. In the setting of polyhydramnios and visible stomach bubble (77 cases), the prevalence of EA/TEF was 6.5% (5/77). Small AC had higher sensitivity compared to tiny stomach bubble. Small AC and tiny stomach bubble were statistically significant sonographic findings for diagnosing esophageal atresia antenatally. After adjusting possible confounders, only small AC was remained significant (P <0.05).

CONCLUSION: In polyhydramnios and visible fetal stomach bubble, small AC as an antenatal sonographic finding suggests that the fetus has EA/TEF. Clinicians should measure AC in this setting.

Table 1. Predictive value of antenatal sonographic findings in polyhydramnios and visible stomach bubble

Predictive value	Sensitivity	Specificity	PPV	NPV
Severe polyhydramnios (AFI ≥30)	20.0%	97.2%	33.3%	94.6%
Small AC (<10p)	80.0%	91.7%	40.0%	98.5%
Tiny stomach bubble	60.0%	97.2%	60.0%	97.2%
Small AC and tiny stomach bubble	60.0%	98.6%	75.0%	97.3%
	EA(-) (n=72)	EA(+) (n=5)	*P*-value	
Severe polyhydramnios (AFI ≥30)*	2 (2.8%)	1 (20.0%)	0.185	
Small AC (<10 percentile)*	6 (8.3%)	4 (80.0%)	0.001	
Tiny stomach bubble*	2 (2.8%)	3 (60.0%)	0.001	
Small AC and tiny stomach bubble*	1 (1.4%)	3 (60.05)	0.001	

EA, esophageal atresia; AC, abdominal circumference; PPV, positive predictive value; NPV, negative predictive value; AFI, amniotic fluid index.
Value are presented as n (%).
*Chisquare and Fisher's exact test