Prenatal ultrasonographic findings of esophageal atresia: potential implication of the stomach shape

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Objective
To investigate the prenatal sonographic characteristics of esophageal atresia focused on the shape of stomach and the degree of polyhydramnios.

Method
Inborn singleton from January 2007 - March 2019

Esophageal atresia (N=25)  Idiopathic polyhydramnios (N=77)

without any fetal structural anomaly, musculoskeletal disorder, chromosomal abnormality, or maternal diabetes

- Amniotic fluid index (AFI)
- width/length (W/L) ratio of stomach according to serial gestational period

Result
Figure 1. Prenatal sonographic characteristics of inborn cases of EA (N=25)

<table>
<thead>
<tr>
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<th>Polyhydramnios</th>
<th>Normal AFI</th>
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<tbody>
<tr>
<td>A. AFI</td>
<td>18/25 (76%)</td>
<td>6/25 (24%)</td>
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<td>B. stomach size</td>
<td>9/25 (36%)</td>
<td>8/25 (32%)</td>
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Figure 2. Mean plot for time trend in stomach W/L ratio between EA and non-EA group (p-value = 0.211)

Figure 3. Shape and W/L ratio of stomach between EA and non-EA group after 32 weeks

Figure 4. Mean plot for time trend in AFI between EA and non-EA group (p-value = 0.018)

- EA group manifested significantly higher AFI after 32 week compared to non-EA group.
- The W/L ratio in EA group after 32 week tended to be lower compared to non-EA group, indicating rounder stomach rather than elliptical.

Conclusion
Lower W/L ratio of stomach with progressive polyhydramnios after 32 week may be used to predict EA in the presence of idiopathic polyhydramnios.