Prenatal detection of esophageal atresia: comparing a standard level two vs a tertiary center expert anomaly scan

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Objective
Esophageal atresia (EA) with or without tracheoesophageal fistula (TEF) occurs in 1: 3,500 live births. Prenatal suspicion of EA/TEF arises in fetuses that exhibit polyhydramnios, small/absent stomach bubble or an esophageal pouch. Previous studies have shown the prenatal detection rate of this anomaly to be between 9.2%- 57% depending on operator expertise and index of suspicion. The aim of this study was to compare the detection rate of EA/TEF (EA/TEF DR) on a standard level two ultrasound scan versus a tertiary center expert scan and to assess the EA/TEF DR on an early and late second trimester anomaly scan and a late second/third trimester anomaly scan.

Methods
A retrospective study of the prenatal diagnosis of all EA/TEF cases born at Sheba Medical Center between 2005-2018 was undertaken. Data from computerized maternal and neonatal medical records was retrieved, including prenatal ultrasound scans, genetic evaluation, maternal demographic details and postnatal course. SPSS software was used for all statistical analysis.

Results
Over a 13-year period, there were 52 singleton pregnancies affected by EA/TEF. Isolated, VACTERL associated and non-VACTERL multiple anomaly associated EA/TEF occurred in 36.5%, 53.8% and 9.6% of the cases. Forty-six patients underwent a standard level two anomaly scan and 40 patients were referred for an ultrasound expert scan at our tertiary center, for various reasons. Thirteen cases that were suspected to have EA/TEF on the standard level two scan were taken out of further analysis of the tertiary center scan. We found a trend of a lower EA/TEF DR on the level two vs. the tertiary center expert scan (28.3% vs. 45.5%, p=0.6). Thirty-seven patients of the cohort underwent an early (14-16 week) anomaly scan, 46 had a late (20-24 week) anomaly scan and 29 patients underwent a late second/third trimester scan. The detection rate of EA/TEF was 2.7%, 15.2% and 55% for each of the scans, respectively.

Conclusion
In our cohort, a standard level two scan exhibited a trend towards lower EA/TEF DR compared to a tertiary center scan. Expert tertiary scans detected roughly half of the cases. Most of the cases were detected on a late second/third trimester scan.