

EP 10.12 Utility of the preoperative observed/expected lung-to-head ratio in predicting survival in fetuses with severe hydrothorax treated with pleuro-amniotic shunt

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Objective:

To evaluate the utility of preoperative lung size in predicting neonatal survival in fetuses with massive pleural effusions treated with pleuro-amniotic shunt (PAS).

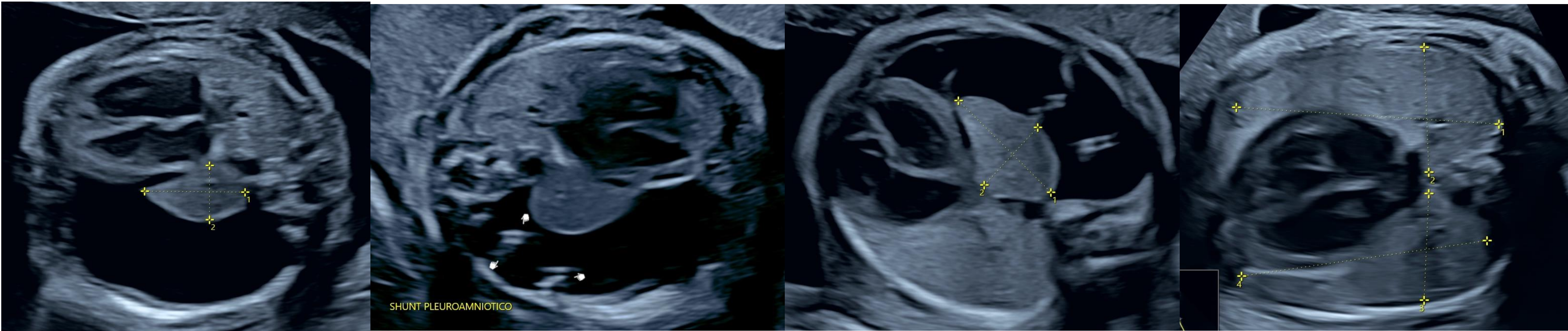
Method:

A retrospective observational cohort study including fetuses with severe hydrothorax (massive pleural effusion with mediastinal shift, hydrops or severe polyhydramnios) requiring PAS during the study period between 2013-2024 were included. The lung size by means of the observed/expected lung-to-head circumference ratio (O/E-LHR) were evaluated in both lungs before fetal intervention. The potential value of the mean lung size (right O/E-LHR+ left O/E-LHR /2) to predict neonatal survival was analyzed.

Results:

During the study period, 52 fetuses with severe hydrothorax were successfully treated with PAS at a mean gestational age (GA) of 30.1 (range, 22.1-36.1) weeks. Mean O/E-LHR was 48.0% (range, 16.5-60.0%) and neonatal survival was achieved in 33 cases (63.5%). The median gestational age at birth was 35.6 (range, 28.6 to 40.7) weeks.

Survivors showed a significantly higher preoperative lung size (50.3% vs. 41.3%, $p<0.05$) and higher GA at diagnosis (30.0 vs. 27.6, $p=0.07$), and higher GA at birth (36.6 vs. 33.4 weeks, $p<0.001$) than non-survivors. Decision tree analysis identified the GA at birth as the best predictor of prognosis: (GA at birth <35 weeks: 23.5% survival; GA at birth between 35 and 37 weeks: 70%, and GA at birth above 37 weeks: 100% survival).



Conclusions:

In fetuses with severe hydrothorax treated with PAS, GA at birth but not preoperative lung size is associated with neonatal survival.