Outcome of bronchopulmonary sequestration with massive pleural effusion after intrainatal vascular laser ablation

Objective
To assess the outcome after intrainatal vascular laser ablation (VLA) in fetuses with bronchopulmonary sequestration (BPS) and massive pleural effusion.

Methods
All fetuses with BPS and massive pleural effusion that were treated with intrainatal VLA of the feeding vessel in a 5-year period (2012 - 2016) in three centers were reviewed for complications, clinical success rate, intrauterine course and postnatal outcome.

Results
In the study period 12 fetuses with BPS and massive pleural effusion, mediastinal shifting and polyhydramnios were treated with intrainatal laser ablation (VLA) of the feeding vessel. Median gestational age at first intrainatal VLA was 31+5 (range, 24+0 - 33+5) weeks of gestation. In 7 (58.3%) fetuses complete cessation of blood flow was achieved after the first VLA, while in 5 (33.3%) fetuses residual perfusion of the feeding vessel was demonstrated at follow up. Repeat intervention was successful in 4 of 5 cases. In one case the repeat intervention was technically impossible and delivery occurred at 30 weeks of gestation. One fetus developed an intrathoracic hematoma after VLA and received an intrauterine blood transfusion due to mild anemia. Overall, in 11 of 12 (91.7%) fetuses complete coagulation of the feeding vessel could be achieved, pleural effusion resolved in all cases followed by a reduction in size or complete resolution of the BPS on prenatal ultrasound. All fetuses were liveborn at a median gestational age of 38+4 (range, 29+4 - 41+2) weeks. Postnatally three (25.0%) newborns underwent sequestrectomy.

Conclusion
VLA is an effective and safe treatment of BPS with severe pleural effusion that reduces preterm birth and seems to reduce the need for postnatal sequestrectomy.