

Foreword

Fetal and Neonatal Surgery: Then and Now



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Advances in fetal and neonatal surgery mirror the gains made in the entire field of neonatal-perinatal care. It is hard to believe that the first fetal surgical intervention was performed in 1963 without any ultrasound or other imaging modality when Dr Albert William Liley performed a fetal transfusion for severe erythroblastosis fetalis (Fig. 1).¹ The procedure was successful and paved the way for subsequent interventions in this malady that was associated with much morbidity and mortality. Advances in fetal imaging have not only improved our understanding of organ development and embryology but also allowed for entire teams of providers to accomplish interventions that were inconceivable in 1963. These teams include specialists in maternal-fetal medicine, neonatology, surgery, radiology, anesthesia, and more. As technology has advanced and the access to life-saving medical interventions has spread on a global scale, mothers and babies have experienced improved health outcomes.

While the list of procedures for fetal anomalies continues to grow, congenital diaphragmatic hernia (CDH) stands out as the most intriguing and challenging conditions to fix. While overall mortality for infants born with CDH has decreased over time, lung hypoplasia and pulmonary hypertension put a significant dent in survival. Fetal tracheal occlusion as a potential approach to prevent lung hypoplasia was pioneered by Dr Michael Harrison and colleagues and continues to evolve as a treatment modality (Fig. 2).²

In this issue of the *Clinics in Perinatology*, Drs Tsao and Lee have put together a series of articles on fetal and neonatal surgery written by global leaders in the field. These authors and their teams exemplify the spirit that has shaped the field and will most certainly continue to create innovation and hope in this complex field. As always, I am grateful to the publishing staff at Elsevier, including Kerry Holland and Karen

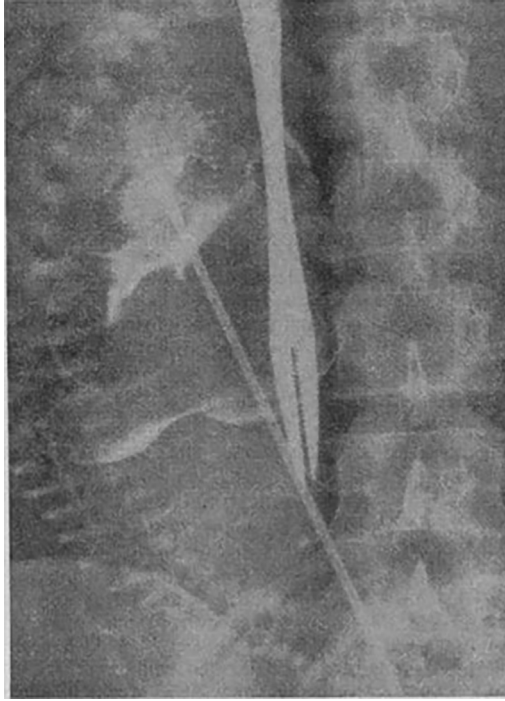


Fig. 1. Contrast medium and the coiled catheter in the fetal peritoneal cavity from the original case report by Dr Albert William Liley. The Tuohy needle has been withdrawn and lies on the mother's abdominal skin. (From LILEY AW. INTRAUTERINE TRANSFUSION OF FOETUS IN HAEMOLYTIC DISEASE. Br Med J. 1963 Nov 2;2(5365):1107-9.)

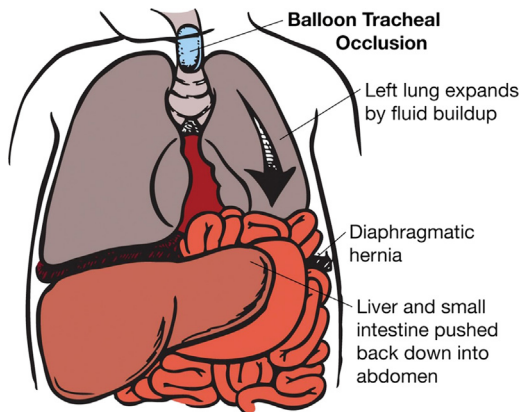


Fig. 2. The effects of tracheal occlusion in fetuses with CDH. Occluding the trachea of fetuses with CDH increases lung volume, decreases herniation of abdominal viscera, and improves postnatal lung function. (From Graves CE, Harrison MR, Padilla BE. Minimally Invasive Fetal Surgery. Clin Perinatol. 2017 Dec;44(4):729-751.)

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2. Graves C, Harrison M, Padilla BE. The effects of tracheal occlusion in fetuses with congenital diaphragmatic hernia (CDH). Occluding the trachea of fetuses with CDH increases lung volume, decreases herniation of abdominal viscera, and improves postnatal lung function. *Clin Perinatol* 2017;44:1–29. <https://doi.org/10.1016/j.clp.2017.08.001>.