

Ex Utero Intrapartum Treatment (EXIT): Experience for Fetal Airway Obstruction in a Tertiary Referral center in Santiago, Chile.



Theodor N¹, Toso A², Vargas P¹, Vuletin F³, Vera C¹, Lacassie H⁴.

1Division of Obstetrics and Gynecology, 2 Division of Pediatrics , 3 Division of Surgery, 4 Division of Anesthesiology, Pontificia Universidad Católica de Chile.

INTRODUCTION

EXIT procedure is a fetal intervention which is indicated when fetal airway obstruction is found in prenatal ultrasounds. This type of malformations include extrinsic obstruction (teratoma, lymphangiomas, hemangiomas) or intrinsic (laryngeal atresia, CHAOS: congenital high airway obstruction); also includes intrathoracic lesions like congenital hydrothorax and congenital diaphragmatic hernia. Another indication is congenital heart disease that need ECMO connection. The objective of this procedure is maintenance of placental circulation in the meantime fetal airway is evaluated and secured with either direct intubation, bronchoscopy or tracheostomy. It requires a multidisciplinary team: anesthetist, neonatology, ORL, pediatric surgeons, maternal fetal medicine specialists. In Pontificia Universidad Católica Hospital the first EXIT procedure was performed in 2005. By 2022, 14 procedures have been performed.

The objective of this study is to describe our experience on EXIT procedure and neonatal outcomes.

Methods

Maternal and neonatal clinical records and ultrasound data were reviewed.

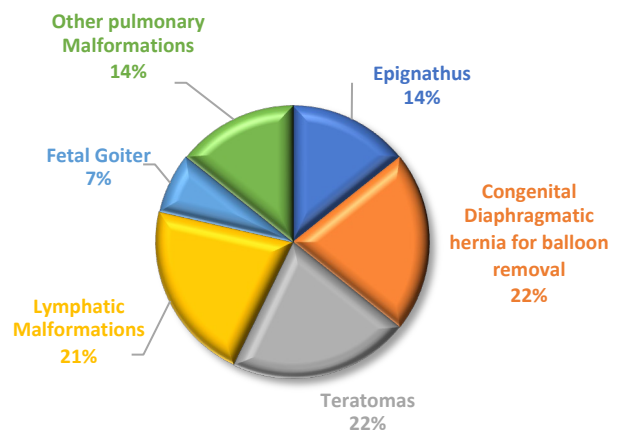
Results

EXIT procedure is coordinated in a multidisciplinary review of each case, the names and the contact number of the EXIT team is part of the medical record. EXIT protocol is reviewed making sure that all the materials and devices needed are available. In extremely complex cases, simulation has been performed prior to surgery.

Results: Since 2005 to 2022, 14 cases have been performed in our center. The fetal diagnosis were epignathus (2 cases), congenital diaphragmatic hernia for balloon removal (3 cases), cervical tumors (3 cases of teratomas, 2 of lymphangiomas and 1 of fetal goiter), 1 case of extensive lymphatic malformation of the upper half of the body and 2 cases with other pulmonary malformations (1 bronchogenic cyst and 1 right pulmonary agenesis with vascular ring). We had a 100% success rate in a secure airway. The time on EXIT was between 4 and 50 minutes (Media 16.5 minutes). Airway management with tracheostomy was needed in 4 patients.

Neonatal survival was variable according to fetal diagnosis. Global neonatal survival after the procedure was 57%. The gestational age of the procedure was between 29.6 and 39 weeks (Media: 34.8 weeks), 64% were delivered prematurely due spontaneous preterm delivery and premature rupture of membranes. Maternal complications include only 2 patients that required maternal transfusion at the puerperium period. With years of experience the performance has improved, allowing 7 emergency procedures with only a few hours of organization.

FETAL DIAGNOSIS



CONCLUSION

EXIT is a complex fetal procedure that requires coordination with several specialist teams. Prenatal diagnosis of fetal airway obstruction has increased, therefore the need for EXIT procedure. Specific and coordinated protocols are needed in referral centers where this procedure is performed, to improve the success of the procedure and neonatal survival.