

Ex-utero Intrapartum Therapy

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Cervical Teratoma



K.M.

- 25 years old
- G1 P0
- Referred at 24 weeks GA



EXIT Principles

- Secure neonatal airway at delivery due to anatomy or pathophysiology concerns
- Maintain uteroplacental circulation by preserving uterine hypotonia

Open tracheal occlusion



Multidisciplinary team

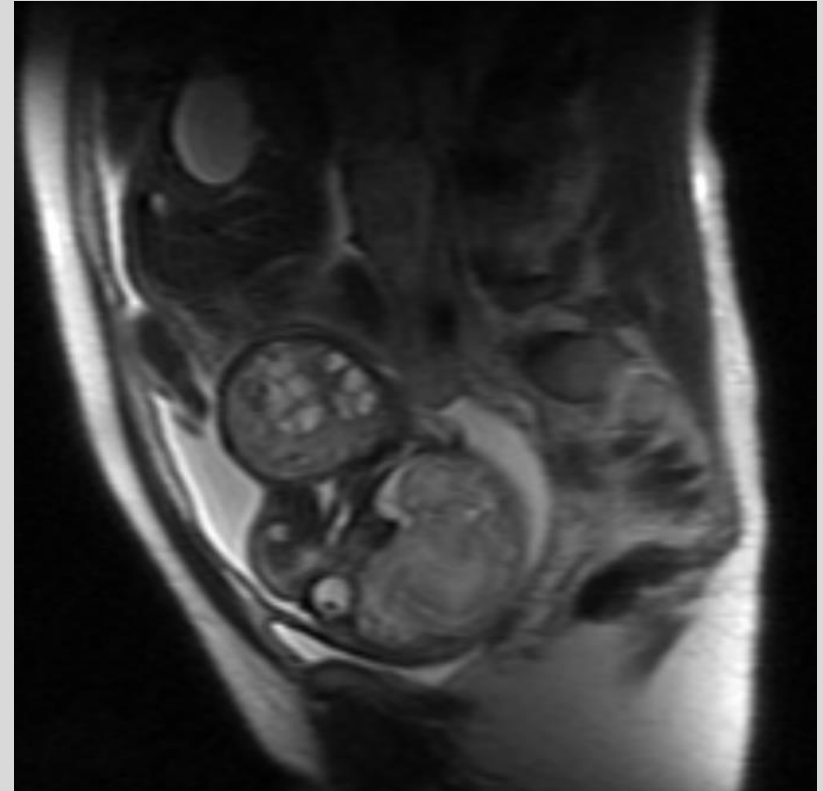
- Maternal-fetal specialist
- Pediatric surgeon
- Obstetric anesthesiologist
- Pediatric anesthesiologist
- Sonographer
- Neonatologist
- Neonatal transport nursing
- Obstetric surgical team
- Pediatric surgical team
- Respiratory therapist

Prenatal workup

- Team counseling
- Fetal ultrasonography
- Fetal echocardiography
- Fetal MRI
- Karyotype analysis
- Lung maturity

Fetal MRI

- 35 weeks GA
- 8.6 x 4.7 maxillary mass
- Extends to upper chest
- Left nare/oropharynx obstruction
- Compression left parapharyngeal space
- Patent trachea and thoracic inlet

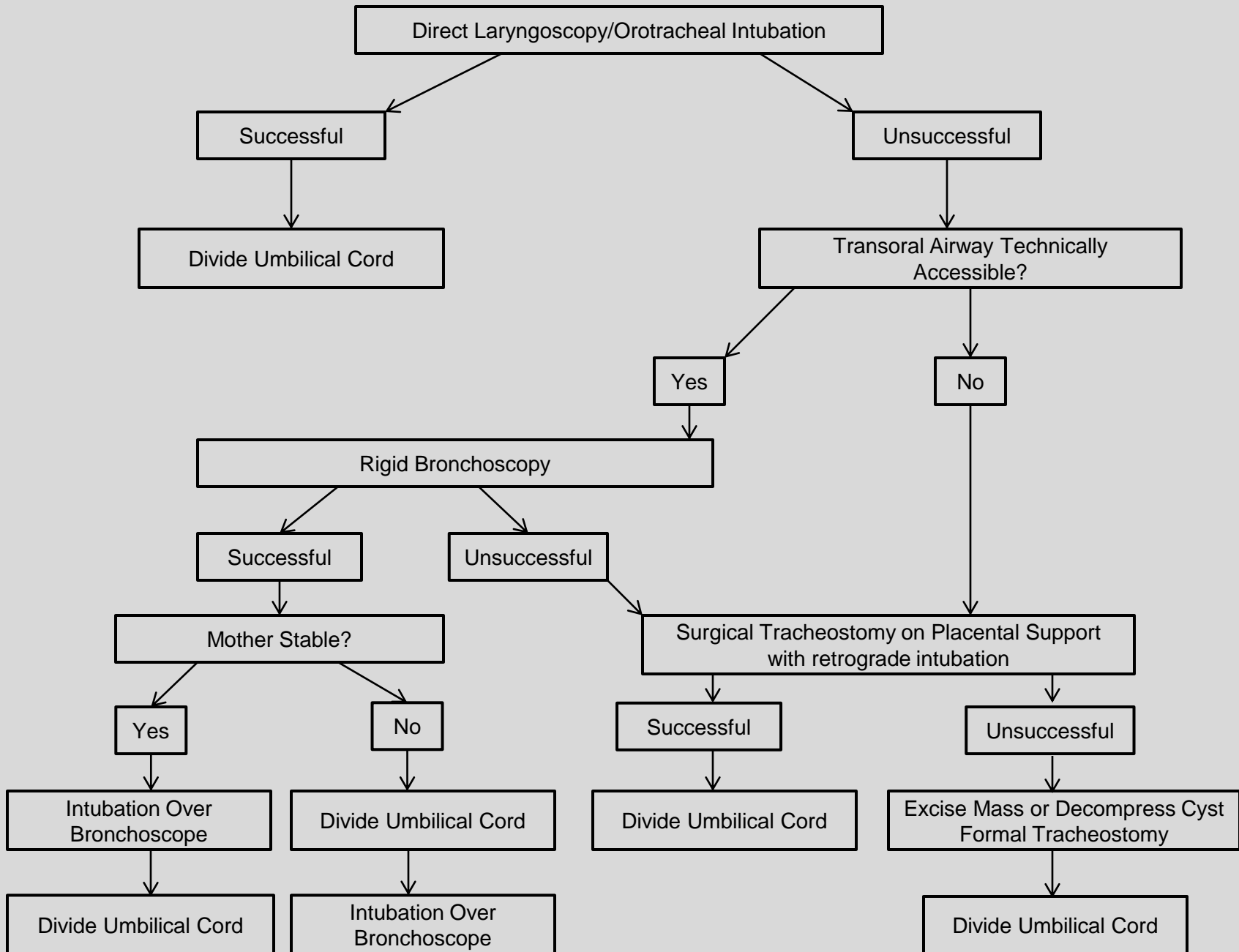


EXIT to airway

- Reversal of tracheal occlusion balloon
- Fetal neck masses
 - Cervical teratoma
 - Hemangioma
 - Lymphangioma
 - Neuroblastoma
 - Goiter
- CHAOS
 - Laryngeal atresia
 - Tracheal atresia
 - Micrognathia

EXIT procedure

- Uterine relaxation
 - Inhalation agents
 - Tocolytic agents
- Maintain intra-uterine volume
 - Partial delivery of fetus
 - Amnio-infusion
- Fetal monitoring
 - Fetal echocardiography
 - Pulseoximetry
- Maternal monitoring
 - ECG
 - Arterial line
 - End-tidal CO₂



EXIT to resection

- Lung masses
 - Congenital pulmonary airway malformations (CPAM)
 - Bronchopulmonary sequestration
- Mediastinal masses
 - Teratoma
 - Lymphangioma

EXIT to ECMO

- Congenital diaphragmatic hernia
 - LHR < 1.0
 - Liver up
- Congenital heart disease
 - Hypoplastic left heart syndrome with restrictive/intact atrial septum
 - Aortic stenosis with restrictive/intact atrial septum

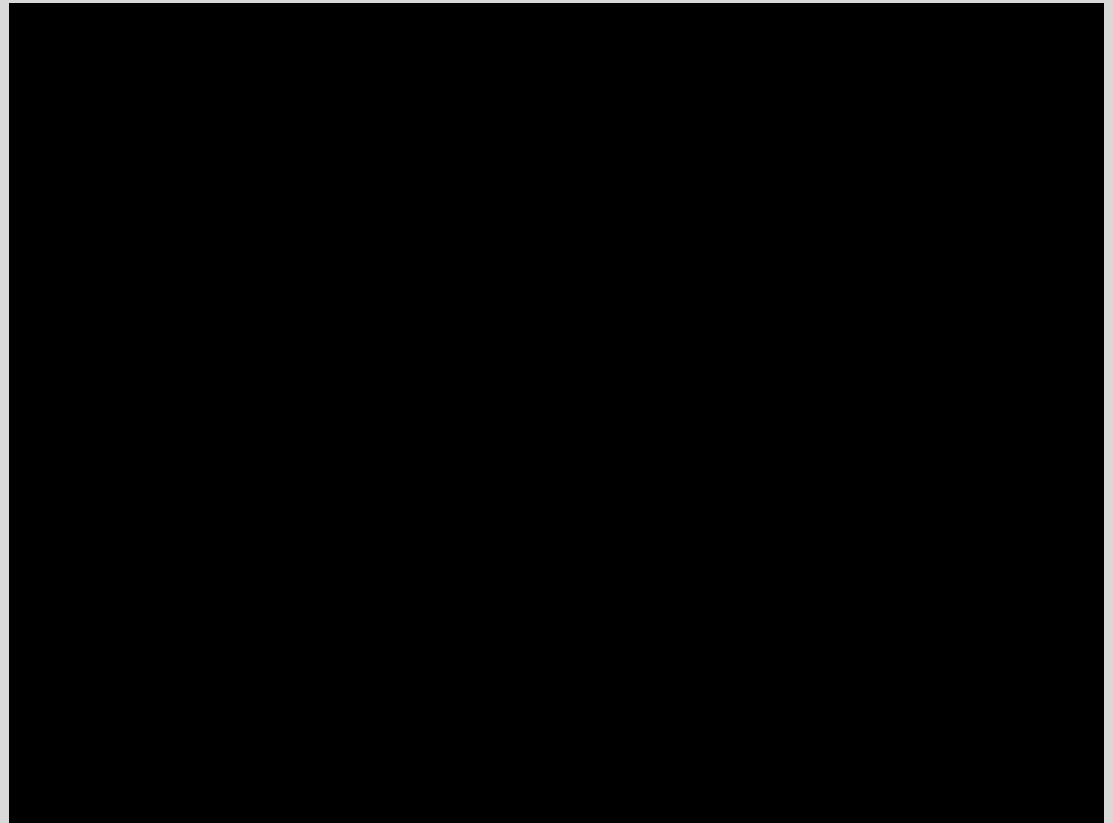
EXIT to separation

- Conjoined twins

Equipment

- Direct laryngoscopy
 - Miller 0
 - Miller 00
- Direct bronchoscopy
 - 2.5
 - 3.0
- Feeding tubes
 - 2.5 Fr
 - 3.0 Fr
- 2.5 mm
 - < 28 weeks GA
 - < 1kg
- 3.0 mm
 - 28 – 34 weeks GA
 - 1-2 kg
- 3.5 mm
 - > 34 weeks GA
 - 2 -3 kg

Ex-utero Intra-partum Treatment (EXIT procedure)



Gavin M.



Questions?

