Background
Ex-utero intrapartum treatment (EXIT) procedure
• Allows for early fetal airway management on placental circulation
• Procedure generally performed under GA
• Uterine relaxation is necessary to maintain fetal oxygenation and perfusion
Severe micrognathia
• Subjectively diagnosed on routine ultrasound
• MRI allows more objective evaluation (Figure 1)
• Classified as jaw index of < 33.5 on fetal MRI (< 5th percentile)
• Jaw index is a calculated value where the anterior-posterior diameter is normalized to the biparietal diameter
Arthrogryposis Multiplex Congenita
• Signs and symptoms including multiple non-progressive joint contractures, micrognathia, glossoptosis, cleft palate, breech presentation and preterm birth

Case Description
Healthy 19yo G1P0 at 37 weeks presents in preterm labor for urgent C-section and airway management of fetus with severe micrognathia

Preoperative
• Fetus was diagnosed with jaw index of 18.5 on MRI in utero
• Debrief held in OR with maternal fetal medicine, pediatric surgery, ENT, pulmonary, anesthesiologists, neonatologists and nursing staff to discuss management

Intraoperative
• Maternal surgical anesthesia established using combined spinal epidural (CSE)
  • 12mg hyperbaric bupivacaine with 15mcg fentanyl
• Breach position necessitated delivery of whole fetus to have access to the airway
• Bolus of 50mcg nitroglycerin was given for uterine relaxation
• ENT → Grade 3 view with Miller 1 blade
• Intubated with 3.0 cuffed ETT over Hopkins rod (Figure 2)
• Successful placement confirmed with bronchoscopy
• Umbilical cord clamped and infant taken to NICU for stabilization
• Completion of C-section without maternal complications

Postoperative
• Infant returned to OR next day for tracheostomy (Figure 3)
• Direct laryngoscopy with Miller 1 showed grade 4 view

Discussion
• MRI offers early objective diagnosis of micrognathia
• Management of neonatal critical airway takes the efforts of a skilled, dedicated team
• Placental circulation offers early airway intervention in a controlled environment
• Performing an EXIT procedure under neuraxial anesthesia is an appropriate option if the intervention on placental support is expected to be short and close monitoring of maternal hemorrhage is maintained

References