BABY, YOU TAKE MY BREATH AWAY: TRACHEAL STENOSIS AND VP SHUNT, A MULTIDISCIPLINARY SUCCESS

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Background

Largyngeotracheal stenosis (LTS) is the narrowing of the upper airway between the larynx and trachea. It can lead to complications (respiratory failure, cardiopulmonary arrest, and death)[1,2]

Causes: Trauma, autoimmune disease, infectious process

Symptoms: Upper airway obstruction or asymptomatic

Case Report

19-year-old G1P0 at 37 weeks who underwent primary cesarean delivery at 37w0d for history of severe maternal tracheal stenosis.

- Past Medical History: congenital tracheal stenosis from cartilaginous deformity s/p slide tracheoplasty and tracheostomy s/p decannulation, Chari I malformation, hydrocephalus s/p VP shunt and revision, anxiety and scoliosis

- Imaging: tracheal stenosis measuring 3.5 mm in the narrowest dimension

- Physical Exam: well healed subtle tracheostomy scar, mild stridor, able to lie flat without dyspnea, able to achieve >4 METS without symptoms

Discussion

Airway
- Subglottic tracheal stenosis during pregnancy poses challenges in airway and delivery management
- Difficult airway should be anticipated
- Multidisciplinary planning with ENT should be arranged

Physiologic Changes During Pregnancy
- Mucosal congestion
- Airway swelling
- Bleeding
- High aspiration risk

Incidence[3]
- 1 in 400,000 in the general population
- Predilection towards females between 20-40 y.o

Causes & Management[4,5]
- Autoimmune (related to Wegner's)
- Balloon dilation followed by SVD
- Severe cases: elective trach with reversal post-partum

Shunt[6]
- Dysfunction during pregnancy has been quoted ~10-50% (older literature)
- Likely ~5.9% (most recent literature review)
- Cesarean delivery favored over vaginal delivery but no literature exists on ideal mode
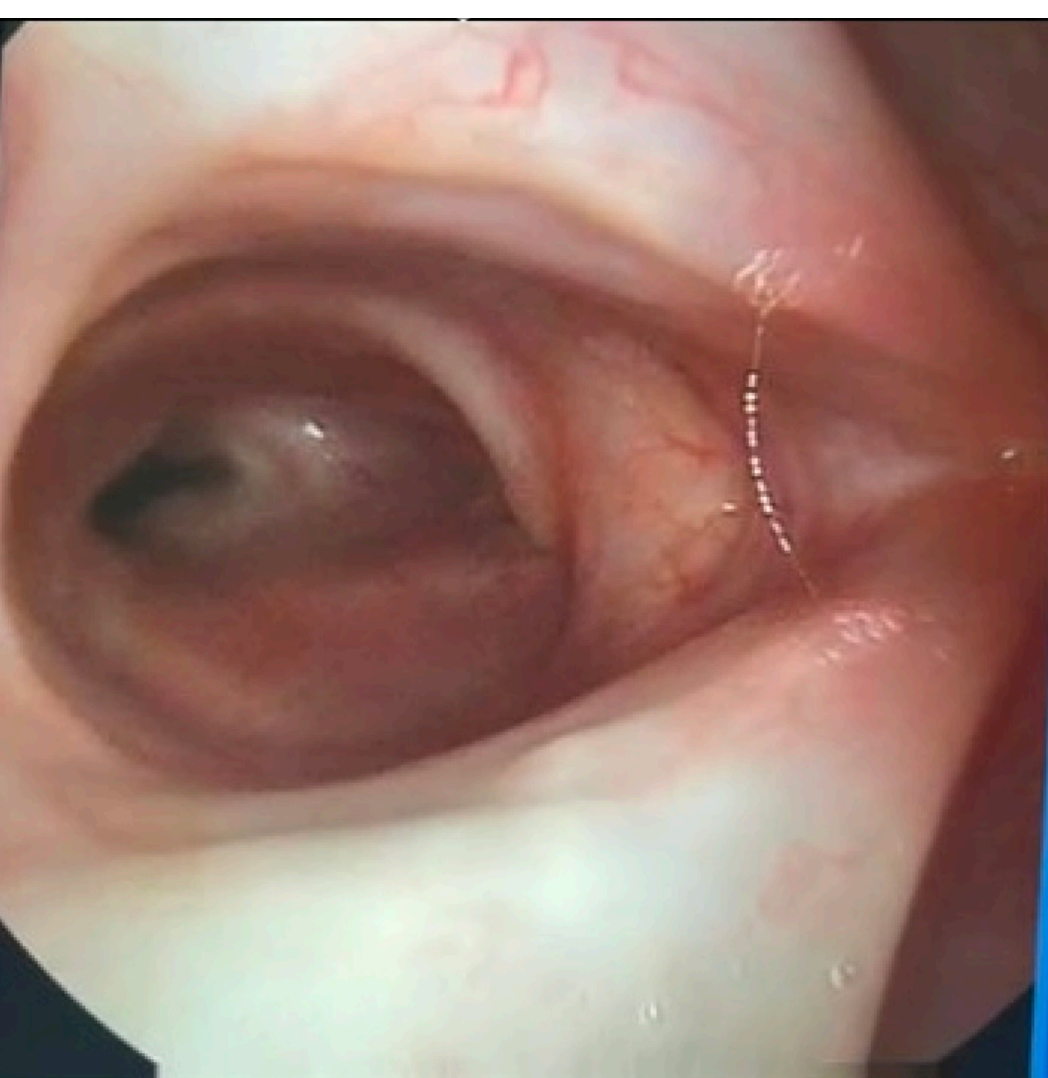
Imaging

Image 1: Flexible scope in ENT office at mid-gestation showing severe subglottic narrowing.

Image 2: Chest CT at mid-gestation showing stenosis of the trachea at the thyroid isthmus measuring 3.5 mm in the narrowest dimension.

Take Away Points

- Multidisciplinary discussion with ENT to create a decision tree of anesthetic options
  - Example in this case: (A) CSE with decreased spinal dose and later up titration for analgesia or (B) ENT instrumentation or (C) LMA with spontaneous breathing or (D) tracheostomy or (E) ECMO cannulation for VV ECMO (via bilateral femoral veins)
- Evaluate early with laryngology
- Ensure bidirectional communication with OB anesthesia
- Ensure airway management escalation plan in place

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