Discussion:
NPPE secondary to bronchospasm is rare and often subclinical in adults and not previously described in a child. High negative inspiratory pressure coupled with obstructed terminal bronchi results in the formation of interstitial edema. Hypoxia further increases afterload resulting in transudation of fluid from the capillaries into the alveoli down a hydrostatic gradient. While this patient’s underlying lung disease and recent URI predisposed to bronchospasm and may have increased the severity, bronchospasm remains an uncommon cause of NPPE, especially in children.

Case Report:
A 2 year-old, ASA III, 12kg, former 34-week preemie with mosaic Trisomy 13, chronic lung disease, GERD, laryngotracheomalacia, seizures, bicuspid aortic valve with moderate stenosis, developmental delay and hypothyroidism presented for epigastric hernia repair, excision of toe polydactyly, endoscopy and colonoscopy. He had a recent URI, residual clear rhinorrhea, normal saturation and lung exam.

Anesthetic Management:
- Un eventful IV induction, GETA, sevoflurane maintenance
- Intermittent phenylephrine bolus to maintain MAP

Emergence:
- NMBA reversal given and bite block present
- Prolonged bronchospasm and coughing with elevated ventilation pressures and desaturation requiring multiple doses albuterol via ETT and IV epinephrine
- Foamy pink secretions in ETT after 25 min
- PEEP, furosemide and PPV
- Prolonged emergence from anesthesia over the next 45 minutes
- Chest x-ray revealed pulmonary edema
- Successful extubation 60 minutes after initial bronchospasm to high flow oxygen mask
- Pulmonary edema clinically resolved within 24 hours

FLUID MOVEMENT =  K(ΔP_{hydrostatic} - ΔP_{oncotic})

Learning points:
- Pulmonary edema has multiple causes
- Treatment is symptomatic regardless of cause
- Clinical course is usually self-limited
- Bronchospasm is a rare non-cardiogenic cause
- Mechanism
  - Increased inspiratory effort against narrowed airways
  - Air trapping, hypoventilation and hypoxia further contribute

Introduction:
This case will discuss the unusual presentation of negative pressure pulmonary edema secondary to bronchospasm in a toddler.