**CLINICAL VIGNETTE:**

**Successful treatment of Severe Acquired Unilateral Emphysematous bleb in a 24-Week Extreme Premature Infant with Selective Left Main-Stem Intubation**

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**Objective:** Selective intubation of the left main bronchus using flexible fiber optic bronchoscopy is a viable option to successfully manage extreme premature infants with right lung emphysematous blebs.

**Abstract:**

Pulmonary Interstitial Emphysema (PIE) is a life threatening complication of mechanical ventilation which increases morbidity and mortality in premature infants. Treatment options include high-frequency ventilation, positional therapy, lobectomy, and selective bronchial intubation. While right main stem bronchus intubation is easy to perform, left main stem intubation still remains challenging with rare reports in literature. We report a case of successful left main stem intubation using fiber optic bronchoscopy in extreme preterm infant.

A 640 gram, 24 week gestation male infant was delivered by cesarean section, intubated with 2.5mm endotracheal (ET) tube and placed on conventional ventilator. APGAR scores, 3 and 6 at 1 and 5 minutes. Chest radiograph showed diffuse granular opacities suggestive of severe respiratory distress syndrome. On day 2, due to worsening respiratory failure, he was changed to high frequency oscillatory ventilation and started stress dose steroids. On day 12, radiograph showed right middle and lower lobe pulmonary interstitial emphysema and atelectasis of whole left lung. Despite efforts like changing to high frequency oscillatory ventilation and positional therapy, by day 16 the hyperinflation worsened into large emphysematous bleb collapsing right upper lobe and pushing the mediastinum to left associated with pulmonary hypertension requiring inhaled Nitric oxide.

Due to respiratory failure and hemodynamic instability, ENT team selectively intubated left main stem bronchus with a 2.0 mm ET tube using flexible bronchoscopy. After 10 days of single lung ventilation, there was complete resolution of the emphysematous bleb and he was re-intubated with a 2.5mm ET tube, secured above the carina with adequate re-inflation of the right lung. He was extubated to high flow nasal cannula on day 28.

Selective intubation of the left main bronchus using flexible fiber optic bronchoscopy is a viable option to successfully manage unstable extreme premature infants with respiratory failure associated with right lung emphysematous blebs.