Lung isolation management has long been a complicated issue in the neonate. The Arndt bronchial blocker is available in sizes that allow lung isolation in pediatric patients. The blocker has been used in the short term in the operating room, with instances of longer use in the adolescent. We report the use of an Arndt bronchial blocker for an extended period of time to treat multiple right sided emphysematous blebs in a neonate.

Case Summary

A 1 wk old 2.7kg male presented in cardiogenic shock and was found to have coarctation of the aorta. The patient underwent an uneventful left thoracotomy and coarctation repair and returned to the ICU intubated with a 3.0 cuffed ETT. Over the next 24 hours, the patient became increasingly difficult to ventilate. CXR revealed a large right tension pneumothorax. A chest tube was placed but ventilation continued to be difficult and required a right thoracotomy with plication of a large upper lobe leak. The patient returned to the ICU with transient improvement. Within the next 12 hours the patient developed a large chest tube air leak causing difficulty with oxygenation and ventilation (pCO₂ 150 mhg) despite several ventilation modalities. A CT scan showed multiple emphysematous blebs throughout the right lung with a normal appearing left lung. Treatment options considered were placing the patient on ECMO or avoiding ECMO by isolating the right lung for an extended period while continuing to ventilate the left lung. The patient was taken to the radiology suite where a 5 Fr Arndt Blocker was passed through the 3.0 Cuffed ETT and successfully placed into the right mainstem bronchus. A radio opaque dye was used to inflate the blocker cuff so the exact location of the cuff could be determined on follow-up CXR’s. The 3.0 ETT cuff was removed and the patient was intubated with a new 3.0 cuffed ETT. This allowed the blocker to be extraluminal and thus avoid obstructing the lumen of the ETT. The air leak disappeared and ventilation improved immediately after bronchial blocker cuff inflation. The patient was maintained in this manner until day 3 when the cuff of the blocker was deflated with no evidence of an air leak. The blocker was left in place deflated for 1 more day and then removed. The child has since made a full recovery. The Arndt Bronchial Blocker was originally designed to be used for short term lung isolation in the operating room. This is the first described case of its successful long term use in a neonate.