[NM-167] Repair of large CCAM in a 7 week old female

[1]Hanlon C, [2]Irwin M
[1]University of Florida , Gainesville , FL, USA; [2]Univeristy of Florida , Gainesville , FL, USA

A 7-week old, 4.9 kg infant was diagnosed with a significant left-sided congenital cystic adenoid malformation (CCAM) of the lung after admission due to respiratory distress. The patient was positive for respiratory syncytial virus during admission, and she was treated with supportive measures initially. However, her condition did not improve, and a chest radiograph revealed a significant, left-sided cystic lesion of the lung with mediastinal shift. At this point pediatric surgery consultation recommended thoracotomy and resection of the diseased lung.
The patient was brought to the operating room on high-flow nasal cannula with a single-lumen femoral central line in situ. Anesthesia was induced with 8% inhaled sevoflurane and 0.2 mg of IV midazolam, and spontaneous ventilation was maintained during placement of an additional 24 g IV and a radial arterial line. The patient was then paralyzed with vecuronium, 0.1 mg/kg, and a 5 Fr Arndt bronchial blocker was placed in parallel with a 3.5 mm uncuffed ETT. A significant air leak was noted, and the uncuffed tube was exchanged for a cuffed ETT and inflated until an air leak was noted at 25 cm H2O. Bronchoscopy was utilized to position the bronchial blocker in the left mainstem, and one-lung ventilation (OLV) was initiated without difficulty prior to positive-pressure mechanical ventilation. Initial blood gas showed significant respiratory acidosis, but this was corrected without difficulty. Pain control was achieved with Fentanyl boluses, total 5 mcg/kg, and a bupivicaine rib block placed by the surgeons. After a 3 hour operative time, paralysis was reversed and spontaneous, two-lung ventilation was resumed. The patient was successfully extubated in the operating room to 6L nasal cannula and brought to the PICU for recovery. At 48 hours postoperatively the patient was stable on room air.
CCAM is a common pulmonary lesion encountered in pediatrics(1). While surgical repair of this and other lung lesions is achievable with one- or two-lung ventilation with comparable outcomes (2), OLV provides a more favorable surgical field while minimizing trauma to residual lung tissue (3). Use of a bronchial blocker for lung isolation is well-documented (4,5). In our patient, the right upper lobe bronchus takeoff was too close to the carina to allow for a right mainstem intubation, but the bronchial blocker easily achieved OLV for the procedure. As the healthy portion of the lung on the left was minimal, reducing trauma to it with lung isolation optimized conditions for early extubation. Finally, use of a rib block in place of an epidural catheter achieved favorable pain control to allow for in-room extubation and an uneventful recovery.
