

Fellow's Column: A Neonate with Recurrent Apnea

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“We describe a case of a newborn infant who developed significant apnea, bradycardia, and desaturation (ABDs) at 35 weeks postmenstrual age (PMA).”

Summary:

We describe a case of a newborn infant who developed significant apnea, bradycardia, and desaturation (ABDs) at 35 weeks postmenstrual age (PMA). On the day of life 37 (39 2/7 PMA), an otolaryngology evaluation showed edematous floppy arytenoids prolapsing into the airway. The infant underwent a carbon dioxide (CO₂) laser supraglottoplasty. After surgery, the infant continued to nipple well with no further episodes of ABD and was discharged home in stable condition. At the follow-up visit on the day of life 59, she was asymptomatic and growing well. CO₂ laser supraglottoplasty successfully cured the infant's life-threatening events and resulted in her discharge, decreasing the length of her hospital stay and alleviating parental anxiety.

Case:

The infant was born at a gestational age of 34 weeks. Soon after birth, she had signs of respiratory distress syndrome, for which she was intubated orally with a 3.5 mm endotracheal tube without difficulty, was given one dose of surfactant, and was placed on a ventilator. At 19 hours of life, she was extubated successfully to a high-flow nasal cannula. By day 3 of life, she was stable in room air and tolerating oral feedings. Parents were counseled, and discharge planning started.

“On the night before the planned discharge day, the infant developed significant apnea, bradycardia, and desaturation (ABD). A complete workup showed normal hemoglobin, head ultrasound, echocardiogram, and video electroencephalogram. As per unit protocol, a 5-day observation was started.”

On the night before the planned discharge day, the infant developed significant apnea, bradycardia, and desaturation (ABD). A complete workup showed normal hemoglobin, head ultrasound, echocardiogram, and video electroencephalogram. As per unit protocol, a 5-day observation was started. Once again, on the

night before discharge, the infant had significant ABD requiring stimulation. The pattern of ABD and 36-week postmenstrual age (PMA) was not suggestive of central apnea, so treatment with caffeine was not considered. As the infant had no respiratory distress except for 1-2 episodic ABD at night, we did not try nasal continuous positive airway pressure (CPAP) or nasal cannula and continued with a 5-day observation before discharging home. Multiple plans to discharge home failed due to significant ABDs at night. On the day of life 37 (39 2/7 weeks GA), an otolaryngology evaluation showed edematous floppy arytenoids prolapsing into the airway on a flexible nasolaryngoscopy. Figure 1 shows the anatomical landmark with a thickened aryepiglottic fold. On the day of life 39, the infant underwent a carbon dioxide (CO₂) laser supraglottoplasty in the operating room. Figure 2 shows the aryepiglottic folds being clipped with microsurgical scissors. Figure 3 shows the lateral arytenoid complex after CO₂ laser ablation. After the surgery, the infant was observed for ABDs for 48 hours. She continued to nipple well with no further episodes of ABD and was discharged home in stable condition on the day of life 42. At the follow-up visit on the day of life 59, she was asymptomatic and growing well.

“On the day of life 37 (39 2/7 weeks GA), an otolaryngology evaluation showed edematous floppy arytenoids prolapsing into the airway on a flexible nasolaryngoscopy.”

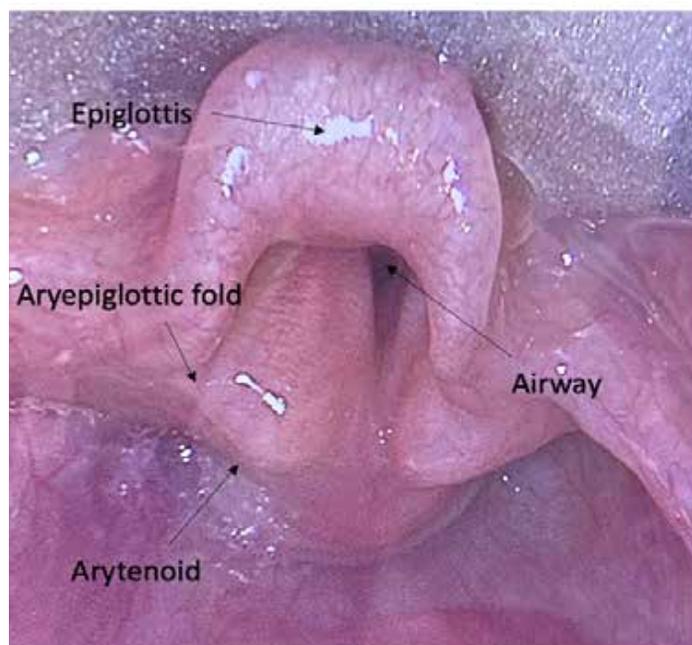


Figure 1: The picture shows the anatomical landmark with thickened aryepiglottic fold



Figure 2: The aryepiglottic fold is identified and clipped with the microsurgical scissors

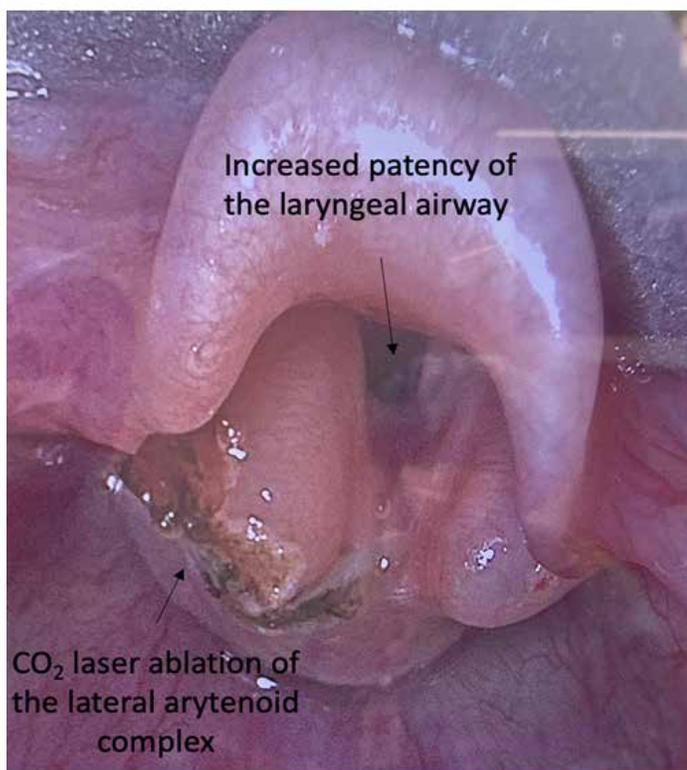


Figure 3: Status post-CO₂ laser ablation of lateral arytenoid complex

Discussion:

In the case described, the infant did not have any stridor but significant ABD due to the floppy arytenoids. In a previous report by Lis et al. (1), floppy arytenoid cartilages were noted as a common

cause of stridor in infants. Temper et al. (2) described a similar case, but the infant had significant stridor.

“Preterm infants are prone to laryngomalacia (LM) that does not necessarily present soon after birth, and symptoms can take a few days or weeks. (3) Prematurity may predispose infants to unusual presentations of LM, including apneic events with no observed stridor.”

Preterm infants are prone to laryngomalacia (LM) that does not necessarily present soon after birth, and symptoms can take a few days or weeks. (3) Prematurity may predispose infants to unusual presentations of LM, including apneic events with no observed stridor. In most cases, it resolves with time, but 20% of infants with LM present with severe disease requiring surgery to eliminate or bypass the obstruction, as seen in the case presented. A success rate of 94% with minimal risk of recurrent symptoms or complications has been reported.(4) Katin and Tucker (5) described a case series of laryngomalacia in young children treated with CO₂ laser to vaporize excess floppy supra-arytenoid tissue.

“We did not perform polysomnography, as evidence showed it to be a low-value investigation and did not correlate with the clinical severity and need for surgery. (6)As noted in the case description, we did institute a trial of caffeine or CPAP due to the episodic nature and gestational maturity.”

We did not perform polysomnography, as evidence showed it to be a low-value investigation and did not correlate with the clinical severity and need for surgery. (6) As noted in the case description, we did not institute a trial of caffeine or CPAP due to the episodic nature and gestational maturity. Surgical intervention was performed, as further delaying surgery would have increased the hospital stay.

In conclusion, CO₂ laser supraglottoplasty successfully cured the infant’s life-threatening events and resulted in her discharge, decreasing the length of her hospital stay and alleviating parental anxiety.

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Discolosure: The authors have no competing interests to declare.

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