**PO25 USE OF TRANSNASAL HUMIDIFIED RAPID-INSUFFLATION VENTILATORY EXCHANGE IN A CASE OF SUBGLOTTIC STENOSIS**

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Background: Shared airway management in microlaryngeal surgery is challenging for both the surgeon and anesthesiologist. Multiple airway management techniques have been described, but currently, no gold standard exists1. Transnasal Humidified Rapid-Insufflation Ventilatory Exchange (THRIVE) during apnea is raising interest in airway management in short laryngeal procedures, but its use is limited by the apnea time as published data report safety techniques of around 20 minutes2. In this case, we report our technique to achieve successful apneic oxygenation during a 55-minute dilation surgery for the treatment of subglottic stenosis.

Case Report: A 60-year-old female, ASA II (hypothyroidism and anxious syndrome), was proposed for dilation of subglottic stenosis. She complained about dyspnea at rest, which worsened in the previous month, and not being able to complete phrases. Anesthesia care began with pre-oxygenation with the Optiflow® MR810 system during spontaneous breathing via nasal cannula (FiO2 1.0) with a flow rate of 20 L/min for 3 min in a 40-45° head elevated position and increased to 40 L/min for 3 more minutes. Anesthesia was induced and then maintained with propofol, remifentanil, and rocuronium. After the loss of consciousness, jaw thrust with minimal mouth opening was applied to ensure a patent airway, and the high-flow nasal oxygen flow rate was increased to 60 L/min and maintained throughout the apnea. The degree of inclination of the head was reduced and the patient was ventilated via a facemask to confirm it was easy. The surgeon had difficulties during the laryngoscopy, which prolonged a procedure initially expected to be brief, and in between the attempts we ventilated the patient via a facemask. After surgery, the facemask was used to assist ventilation to wash out carbon dioxide. During the 55 minutes of surgery, the SpO2 always remained above 98%. The highest PaCO2 value was 76.8 mmHg, the highest lactate value was 0.6 mmol/L and the lowest PH was 7.18. After cessation of anesthetic infusion, the patient regained consciousness and was sent to the post-anesthesia care unit. The postoperative period was uneventful.

Discussion and learning points: In our case, THRIVE was effective in providing prolonged apneic oxygenation and tubeless anesthesia during a 55-minute dilation surgery in a patient with subglottic stenosis. Also, our ENT surgeon was satisfied with the technique as it allowed better visualization and access, and reduced airway trauma when compared with alternative ventilatory techniques. Unlike other reports, our patient was intentionally ventilated via facemask at three specific moments, allowing the prolongation of apneic oxygenation through 55 minutes without a deleterious rise of carbon dioxide. THRIVE may still be an answer for longer/complicated surgeries if brief ventilation via facemask is feasible during the procedure. Individualized rescue plans and equipment should be readily available to supplement inadequate oxygenation and ventilation.

References:

1. Anesth Analg, 2013; 117(6):1352-4.  
2. Journal of Anesthesia, 2020; 34(1):134–143.

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