

Nasal Mask PC Ventilation to Deliver CPAP in a Morbidly Obese OSA Patient During EGD

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Abstract: Patients under monitored anesthesia care (MAC) receive intravenous sedation and O₂ via NC. Over-sedation and/or airway obstruction may cause severe desaturation, especially in obese patients with OSA. Obese OSA patients may require frequent chin-lift, jaw-thrust and/or insertion of nasal airways. Inserting nasal airways may cause bleeding despite using small, well lubricated nasal airways.

In January 2013, a nasal TSE-PAP mask/circuit was developed using an infant face mask. The nasal TSE-PAP mask is especially useful for EGD and TEE under MAC. With the bite block in place, CPAP is about 1-2 cm of H₂O even with the APL valve completely closed. However, the nasal TSE-PAP circuit becomes a CF mask with fresh O₂ flow of 4-5 L/min. Fresh air can be added to keep FiO₂ under 0.8 to avoid causing absorption atelectasis.

In March 2019, a 77y/o female, BMI 35.2kg/m², with OSA, pulmonary HTN on home NC O₂, CAD s/p 3xstents, thoracic/AAA s/p aorta-bifem bypass and melena presented for EGD/colonoscopy. SpO₂ was 94% on NC O₂ (4L/min). A TSE Mask was used which increased her SpO₂ to 100%. During sedation with lidocaine/propofol, her airway was obstructed and she desaturated to 80% SpO₂. A modified infant face mask was immediately secured to increase her saturation.

Methods: Inflate the air cushion of an infant face mask with about 10 cc of air. Then secure a hook ring from a toddler mask or an adult face mask with tape. Connect to the anesthesia circuit/machine to deliver CPAP (15cm H₂O) with 4L O₂ /min.

Results: The patient's SpO₂ promptly raised to 99%. Her ventilation was then supported with nasal pressure-control ventilation (PIP 17cm H₂O, PEEP 14cm H₂O, RR 10/min) maintaining 98-100% SpO₂. She recovered without any complications.

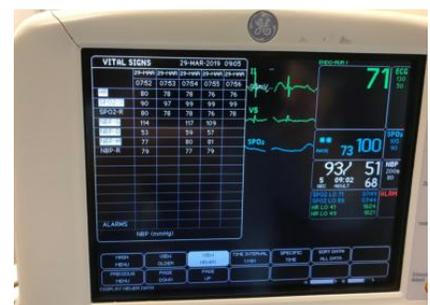
Conclusion: The Nasal TsePAP strategy has demonstrated an elegant and highly effective use of a pediatric facemask, slightly modified, to generate nasal pressure as an induction strategy or as a rescue method. The advantages of this method include ease of ventilation in large range of patients (obese, pediatric) and use in patients having failed facemask ventilation. The nasal TsePAP method pressurizes the nasal channels and tends to push the soft palate and tongue forward while delivering positive pressure effects.



Monitor showing SpO₂ decreased to 80% due to airway obstruction



A modified infant mask provided immediate nasal CPAP and PC ventilation



Monitor showing prompt recovery of oxygenation with nasal mask PC ventilation

