

A Simple Solution for a Big Obstacle in Bag-Mask Ventilation

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Dear Editor,

Maintenance of airway patency and oxygenation are the main objectives of facemask ventilation¹. Correctly predicting difficulties in facemask ventilation may reduce the risk of morbidity and mortality among patients at risk².

Beard is a well-known contributing factor for difficult Bag-Valve-Mask (BVM) ventilation due to its tendency to cause leaks and may lead aerosolization. This is of increased importance in COVID-19 patients who might need Non-Invasive Ventilation (NIV) (where delivery is done through harnessed tight-fitting face masks) for continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) ventilation, where aerosolization carries a significant risk for healthcare workers^{3,4}.

Kheterpal et al. found the presence of a beard had an adjusted hazard ratio of 1.9 times risk of impossible mask ventilation. Furthermore, presence of a beard is an independent risk factor for difficult mask ventilation combined with difficult laryngoscopy¹.

In this report, we demonstrate how the application of a transparent dressing (OPSITE®, Smith & Nephew, Croxley Park, Watford, Hertfordshire, UK) to the entire lower face with holes cut off for both mouth and nares, enabled the harnessed mask, which was applied to a fully bearded patient, to have an improved seal and tidal volumes without significant leak.

We had a 54-year-old male, who was admitted to the High Dependency Unit (HDU) due to COVID-19 pneumonia. He was on 15 L/min of O₂ via non-rebreather mask (NRM) with no improvement in his SpO₂ on monitor or PaO₂ obtained from blood gases (ABGs). Chest X-Ray was suggesting deterioration, hence the

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Received: 23 May 2024; Accepted: 6 June 2024

decision to escalate to NIV. The patient had a long and thick beard, but otherwise had a normal airway examination.

We noticed that our respiratory therapist (RT) was struggling to diminish leaking from the harnessed facemask as tidal volumes were not being attained by the ventilator and generated aerosol from such big leakage.

The RT tried different interventions such as sealing the mask's sides with plaster tape and padding gauze between the mask and the beard, all to no success. The patient refused to shave his beard and escalation to endotracheal intubation had been discussed with him in view of failing treatment.

We applied a 10 cm x 14 cm transparent dressing (OPSITE®) to the entire lower face of the patient; covering the nose, upper and lower jaws along with the beard. Holes were cut out for both mouth and nares and the harnessed mask was then applied. Tidal volumes significantly improved and were being attained without significant leak. The patient did not complain about the dressing and was comfortable.

Over the next 36 hours on CPAP ventilation, oxygenation and ventilation parameters were improving, both on ABGs as well as clinically. A simple trick was able to save the day and prevent an unnecessary invasive procedure and prevent pollution of the room by patient infected aerosol.

This simple maneuver is also very useful during difficult bag mask ventilation due to large and thick beards during induction of anesthesia, cardiac arrest and pre-hospital airway management. This creative solution is both life-saving and convenient.

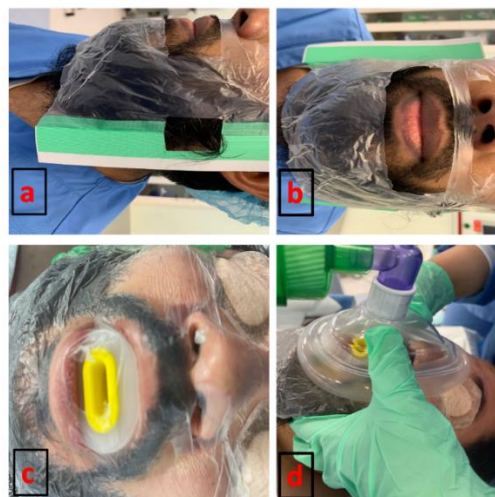


Figure 1: Application of OPSITE® Transparent Dressing to full face beard. (a, b) Preparing the transparent dressing before use according to measurements from patient's face (awake patient) (c, d) For mask ventilation during induction of anesthesia.

Acknowledgement

The authors declare no conflict of interest, and no external funding. Informed consent was taken from the patient prior to publishing.

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For citation:

Shallik N., Abdul-Rahman M., Kily L., Shallik A., Hammad Y. (2024), A simple solution for a big obstacle in bag mask ventilation. MEJMMS, 1(1), 1001-3; mejmmms.org/2024/06/04/simple-solution-for-a-big-obstacle-in-bag-mask-ventilation/