

Catheter mount used as tracheostomy interface in high-flow oxygen therapy

Dear Editor

High-flow oxygen therapy (HFOT) has become an important means of oxygen delivery, especially after the COVID-19 pandemic. With the benefits of administering heated and humidified air-oxygen mixture, HFOT via tracheostomy is gaining popularity, especially among patients who are having difficulty weaning.^[1]

HFOT results in effective alveolar ventilation by decreasing inspiratory effort, increasing tidal volume, and increasing positive end-expiratory pressure (PEEP), favoring the reduction of respiratory rate and PCO_2 . The humidified and warmed gas mixture also promotes mucociliary function and lowers upper airway resistance.^[2,3] However, the main disadvantage of using the available tracheostomy tube (TT) interface is the cost, and there is no significant benefit with PEEP when compared to high-flow nasal oxygen (HFNO).^[4] We tried a novel technique of replacing the existing TT interface with a cost-effective and readily available standard catheter mount which is generally used as a connection between endotracheal or tracheostomy tube and the breathing circuit. The catheter mount minimizes the jerk of breathing to the endotracheal or tracheostomy tubes, thereby reducing trauma to the trachea. It comes with a standard 22-mm female connector on both ends with an inner diameter of 15 mm, dead space of 30–40 ml and an elbow port for easy suctioning.

The following are the advantages of using a catheter mount as TT interface in HFOT:

- 1) Existing catheter mounts can be used as TT interface, saving money on the purchase of a new standard TT

HFOT interface, which costs nearly 15–20 times the catheter mount.

- 2) Easy availability in the market.
- 3) The PEEP effect, which could not be achieved with HFOT via the available TT interface,^[4] might have been achieved with this more acute angulation between the main stem and connector at the proximal end towards the patient or by creating a resistance to expiratory flow through the narrow orifice at elbow point generating PEEP which favored the successful weaning of our patients, though validation is required.

We used this novel technique in three of our patients—Patient 1, a 36-year-old female post-pulmonary tuberculosis patient who presented with ARDS; patient 2, a 32-year-old male case of fat embolism shock syndrome; patient 3, a 64-year-old female case of ARDS—who were having difficulty weaning, with regular monitoring for respiratory distress, PO_2 , PCO_2 , consciousness, and hemodynamics [Figures 1 and 2]. None of the patients developed any complications, and all of them responded positively with improved blood gas parameters and liberation from the ventilator. All of the patients were

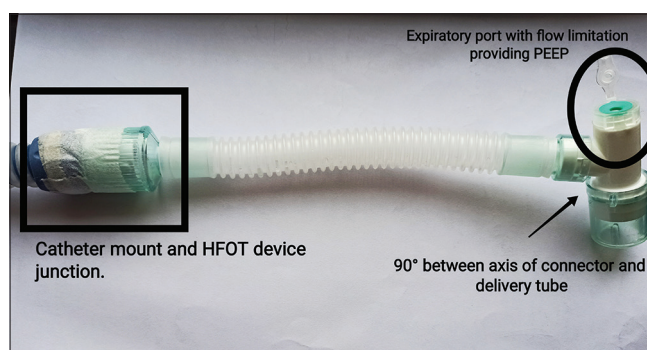


Figure 1: Catheter mount as tracheostomy tube (TT) interface for high-flow oxygen therapy (HFOT)



Figure 2: Catheter mount attached to TT for HFOT

fully conscious and oriented patient's subjective dyspnoea and comfort were regularly assessed every five minutes for first one hour and every 30 minutes for the next six hours. None of them complained of any discomfort with the HFOT through catheter mount. Two patients were decannulated by 48 hours and the third patient was decannulated on the third day of HFOT, supported by data from earlier case reports.^[5]

However, the clinical validation with randomized control trials and large sample size is required

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Conflicts of interest

There are no conflicts of interest.


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