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Two-handed Mask Ventilation of the Difficult Airway by a Single Individual

When an anesthetized, paralyzed patient cannot be intubated, gas exchange becomes dependent on the effectiveness of mask ventilation.¹ Benumof stressed that a best attempt at mask ventilation should be made before abandoning the technique.¹ Because better mask seal, jaw thrust, and tidal volume can be achieved with two persons *versus* one person, he defined an optimal best attempt at mask ventilation as a two-person effort using appropriately sized oropharyngeal and nasopharyngeal airways.¹⁻³ Depending on the level of training, the second person can either perform jaw thrust or squeeze the reservoir bag.¹ Unfortunately, when unanticipated difficult airway is encountered, a second person knowledgeable in airway management is not always available. Thus, a lone anesthesiologist may be faced with a situation where optimal-best attempt at conventional mask ventilation is urgently needed.

We herein report a simple technique that renders optimal-best attempt at conventional mask ventilation possible by one person. Rather than squeezing the reservoir bag, the ventilator is used to deliver the required tidal volume and respiratory rate. This allows the lone anesthesiologist to perform two-handed jaw thrust, while applying a better mask seal. Obviously this technique cannot be performed when no ventilator is present, but it can certainly be used in the operating rooms and delivery suites where ventilators are typically available. The use of the ventilator for mask ventilation is by no means new. It has been used in studying the efficacy of bag-and-mask ventilation in children.⁴ Alternatives to the use of the ventilator by the lone anesthesiologist include squeezing the reservoir bag between the knees, under the axilla, or under the foot. These maneuvers, however, require a reservoir bag connected by a long corrugated hose.

Currently, "one-person, two-handed mask ventilation" is being taught to our resident staff as part of their training in airway manage-

ment in patients undergoing elective procedures. Familiarity with one person, two-handed mask ventilation should enable anesthesiologists to use this technique when difficult intubation is encountered and help is unavailable.

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