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Jet Venturi Ventilation Via the Bullard Laryngoscope

To the Editor—During airway management of the patient with a difficult airway, a number of techniques have been used with varying success.1 We wish to report an additional method to sustain ventilation and oxygenation during attempts at tracheal intubation. The combination of the Bullard laryngoscope blade used as a suspension laryngoscope and high-volume, low-frequency, low-pressure, proximal jet venturi ventilation has proved effective in our hands in both the laboratory and the clinical setting.

In the laboratory, we studied the ability to ventilate a simulator (Vent Aide Training/test lung, Michigan Instruments, Grand Rapids, MI) as previously described2 using the Bullard laryngoscope as the suspension laryngoscope. The oxygen port that extends to the tip of the blade was used as the jet orifice. Tidal volumes, lung pressures, and tracheal oxygen were measured at lung compliances of 50, 70, and 100 ml/cm H2O (fig. 1). Jet venturi pressures reflected the driving pressure against the tear-lock connector and oxygen port, the smallest constriction of the system.

Having found acceptable ventilation parameters in the laboratory, we obtained a protocol approved by the Bowman Gray School of Medicine Institutional Review Board. Twenty consenting adult patients scheduled for laser microsurgery of the glottis and/or subglottis under general anesthesia using suspension jet ventilators as the method of intraoperative ventilation were chosen. The surgeon using first the Bullard laryngoscope indirectly exposed the larynx and judged degree of difficulty of exposure and alignment of the tip of the blade within the glottis while inspecting the degree of airway compromise by palpation. The anesthesia care team anticipated the jet venturi ventilation judged ventilation and oxygenation. After a 2-min trial, the Bullard laryngoscope was replaced with the direct vision operating Jako laryngoscope. The surgeon again compared ease of exposure and proceeded with surgery. The acceptable laryngeal exposure and blade alignment allowed successful ventilation in all 20 patients (table 1) regardless of laryngeal obstructive pathology. The ability to ventilate the lungs of those whose airway obstruction was judged advanced (45% of patients), again, demonstrates the safety of proximal large bore jet venturi ventilation.

Proper use of this system will require a laryngoscopist who suspends, visualizes, and manipulates the endotracheal tube into place by using the accompanying stylus system or a manipulative introducer (Chenoweth Stylet, Aspen Medical, Lakewood, CO) and an assistant who ventilates and observes ventilation parameters. Because the ventilator is proximal to the vocal cords, barotrauma is unlikely if the endotracheal tube placement is coordinated by cessation of jet venturi ventilation when the endotracheal tube enters the larynx. Our perfection of this intubation sequence in an intubation manikin strongly suggests such a technique would be successful in the clinical setting.

![Graph of tidal volumes versus venturi pressures at test lung compliances of 50, 70, and 100 ml/cm H2O. O = 100 ml/cm H2O; □ = 70 ml/cm H2O; △ = 50 ml/cm H2O. Mean peak inspiratory pressures in cm H2O = ( ), mean inspired peak oxygen = [ ].](image)

Table 1. Ease of Glottic Exposure

<table>
<thead>
<tr>
<th>Ranked Difficulty</th>
<th>Bullard Laryngoscope</th>
<th>Jako/Dedo Laryngoscope</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (easy)</td>
<td>13 (65%)</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>II</td>
<td>6 (30%)</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>III</td>
<td>1 (5%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>IV</td>
<td>0 (0%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>V (difficult)</td>
<td>0 (0%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Total</td>
<td>20 (100%)</td>
<td>20 (100%)</td>
</tr>
</tbody>
</table>

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A New Method of Communication between Anesthesiologists

To the Editor:—Computer systems that provide electronic mail recently became readily available. Electronic mail provides nearly instantaneous communication, making it possible to discuss safety, regulatory, or scientific matters of interest with a large number of physicians almost instantaneously. We wish to describe an anesthesiology “mailing list” that will make rapid dissemination of information possible for all members of the anesthesia community.

We have developed an anesthesiology mailing list that is open to any interested anesthesiologist, anesthesiology resident, or nurse anesthetist with no charge. It is accessible to anyone who has a computer and modem and subscribes to a computer service such as Compuserve, MCI Mail, or America OnLine. The list also is directly accessible from the Internet, a worldwide computer network. (All electronic mail addresses used below are “Internet addresses.”) Users of computer services mentioned above should contact their customer service department for directions about how to send electronic mail “to the Internet.”) This list can be used by any member to automatically forward a message to all recipients.

All that is needed to become a member of the mailing list is to send an electronic mail message to:

listserv@mcan00.med.nyu.edu

The only line of text in the message should be:

subscribe anesthesiology

When our computer receives this message, the sender’s electronic mail address will be added automatically to the mailing list. A message can be sent to all list recipients by addressing it to:

anesthesiology@mcan00.med.nyu.edu

Questions or comments about the list should be sent to

keith@mcan00.med.nyu.edu

An enthusiastic response to this invitation will result in a valuable, worldwide network of communication between members of the anesthesia community.

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A Rapid Method for Negative Inspiratory Pressure Measurement

To the Editor:—Maximal inspiratory pressure, the peak negative pressure generated against an occluded airway, is one of the most reliable methods for determining the adequacy of reversal of neuromuscular blockade.1,2 Although older sources state that an inspiratory pressure of 20–25 cmH2O indicates adequate recovery of neuromuscular function,3 more recent data from fully cooperative volunteers suggest that the appropriate pressure is 40 cmH2O.4–6

Although inspiratory pressure can be measured with a dedicated aneroid manometer, it usually is measured with the breathing system pressure gauge of the anesthesia machine. The generally used procedure is to remove the reservoir bag, turn off the fresh gas inflow, and close the adjustable pressure limiting (APL or “pop-off”) valve. The reservoir bag mount is then occluded with the palm of one hand while inspiratory pressure is read from the gauge. The bag, APL valve,