CORRESPONDENCE

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Pharyngeal Mucosa Pressures

To the Editor:—We wish to register our concern regarding the methodology and conclusions of the report by Keller and Brimacombe[1] of pharyngeal mucosal pressures produced by the laryngeal mask airway (LMA) and the intubating laryngeal mask (ILM). The authors used a microsensor designed for measuring cerebrospinal fluid pressure. The sensor membrane is recessed within a rigid metal cylinder of approximately 1-mm diameter. It is difficult to fix this cylinder firmly to any surface in such a way that its membrane exactly faces the opposing surface. The rather stiff cable that connects the sensor to its processing unit tends to transmit any rotation to the cylindrical housing, thereby invalidating measured values. However, if the probe is strapped firmly to the surface, it presses down on the membrane, causing spurious pressure rise. Even if these problems are overcome, the recessed position of the sensing membrane within its housing results in pressure measurements that are lower than actual when the probe is placed between two soft surfaces (i.e., LMA cuff), or higher than actual if the surface on which the cylinder rests is relatively hard (*i.e.*, ILM metal tube).

Using identical materials, we replicated the method of probe attachment described (*i.e.*, taping it on the most posterior part of the curved metal tube of the ILM, the position in which the highest mucosal pressure readings were obtained by the authors). We immediately found that the recorded pressure varied considerably with minute changes in ILM position (figs. 1 and 2). If the ILM was correctly positioned to obtain the best fit against the anatomy, the recorded pressure was approximately 12 mmHg; however, moving the device handle 1 cm posteriorly produced a 12-fold pressure increase. We repeatedly found that the highest pressures were obtained if the metal handle of the ILM was pressed toward the nose. We wonder if this is the maneuver resulting in the device being "firmly wedged against the cervical bones."[1]

It is important to note that the ILM should be inserted until it fits comfortably into the oropharyngeal curve, the contour of which it is intended to imitate. When the correct position is reached, there is a characteristic loss of resistance that is entirely different from the "firm wedging" described by the authors. The conclusions of the study, namely that the ILM should be immediately removed once intubation has been accomplished and that it may be unsafe in the unstable neck, are based on measurements of doubtful significance and have yet to be confirmed by demonstrated pathology. We do agree that it is prudent to remove the ILM once intubation has been accomplished, because inadvertent minor changes in head and neck position might occur during surgery and result in the less than ideal positioning of the device. Alternatively, the device should be deflated and regularly checked to ensure that the tube is lying freely within the oropharynx.

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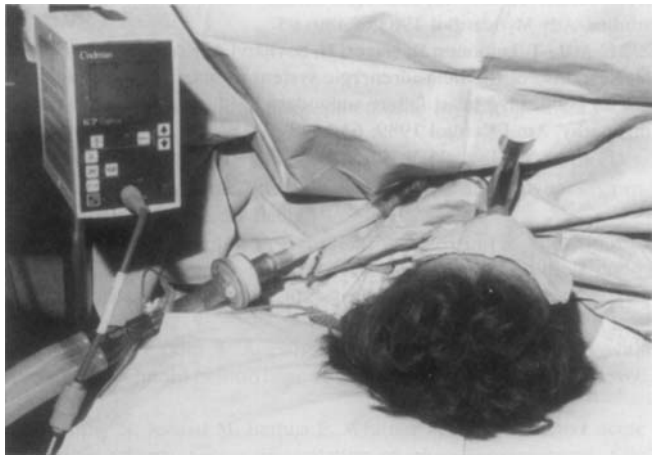

Fig. 1. Showing the FASTRACH in the correct position lying loosely in the throat. Correctly positioned the FASTRACH does not cause significant pressure. However, small posterior movement of the handle may cause significant increases in pressure.

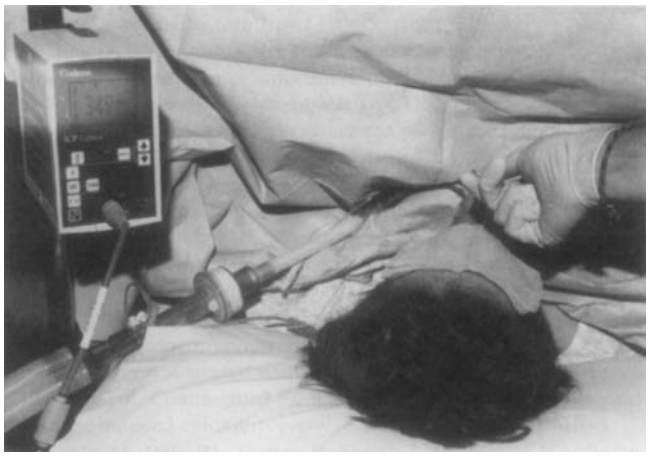

Fig. 2. Showing the Fastrach with the handle held posteriorly.

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Reference

1. Keller C, Brimacombe J. Pharyngeal mucosal pressures, airway sealing pressures and fiberoptic position with the intubating versus the standard laryngeal mask airway. ANESTHESIOLOGY 1999; 90:1001–6

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