of this complication is understandable. The value of EEMG is unquestionable. Evoked electromyography is of prognostic value, and is advisable even in a case where trauma is the only plausible explanation.

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**References**


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_In Reply—_Dr. Spielberger misinterprets me when he implies that I recommend discarding the practice of providing anesthesia via a mask and indiscriminately encouraging the “exercising of prowess” at non-indicated tracheal intubation.

The point is that, if it becomes necessary to exercise sustained and strong forward pressure behind the mandible in order to maintain a clear airway, then there is a small but significant risk of encountering this complication. In these circumstances, early endotracheal intubation is recommended.

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**Monitoring Bilateral Breath Sounds**

_To the Editor:_—Every anesthesiologist is aware of the importance of bilateral breath sounds (BBS) as a diagnostic tool of intraoperative complications, such as endobronchial intubation, obstructed airway, and pneumothorax.1–4 Continuous auscultation using a weighted chest stethoscope bell or esophageal stethoscope has become the standard technique for monitoring breath sounds and heart tones.1,5-6 However, intermittent auscultation using a stethoscope is still required to determine the presence of BBS. Unfortunately, limited access to the chest during surgical procedures (e.g., thoracic or head and neck cases) does not allow for easy detection of BBS. Furthermore, head movement may displace an endotracheal tube, leading to inadvertent endobronchial intubation, a complication not recognizable by continuous esophageal auscultation. The small preterm infant is at a considerable risk of intraoperative endobronchial intubation due to their particular anatomical characteristics. Their tracheal length has been measured at only 3 cm,7–10 while lateral head tilt may displace the endotracheal tube tip 1.2 cm. To deal with this challenging and common problem, we have developed a simple, inexpensive method to monitor BBS using readily available OR supplies.

The method employs 2 iv extension tubes which are

![Fig. 1. The photograph details two disposable chest pieces connected via extension tube to a three-way stopcock.](image_url)
connected to standard chest pieces located in both axillae or on both sides of the chest for auscultation, and then attached to a three-way stopcock (fig. 1). A standard earpiece is connected to the third port of the stopcock. Chest locations can be altered according to need, or can be substituted for with an esophageal stethoscope. A simple turn of the stopcock allows each chest to be auscultated individually or both to be examined simultaneously.

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REFERENCES

Unusual End-tidal CO₂ Waveform

To the Editor:—End-tidal CO₂ monitoring is being utilized with increasing regularity by anesthesiologists in the operating room. Many of the new CO₂ monitors provide, in addition to a digital readout, a CO₂ excretion waveform. The shape of the CO₂ waveform can provide additional information, such as evidence of airway obstruction and spontaneous respiratory effort superimposed on mechanical ventilation. During our use of such a monitor (Saracap), we encountered a CO₂ waveform which we were unable to explain on a physiologic basis (fig. 1, upper panel). The explanation for the unusual waveform was discovered to be a loose luer-lock fitting between the disposable sampling line and the capnograph. The abnormal waveform could easily be reproduced by simply loosening the connection, and the waveform reliably returned to normal when the fitting was tightened (fig. 1, lower panel).

We believe that the plateau portion of the abnormal waveform is caused by entrainment of room air at the loose connection. Note that the oxygen and nitrous oxide concentrations measured when the connection was loose reflect entrainment of room air. The beginning of the end-expiratory peak in the abnormal waveform occurs precisely with the onset of the next positive pressure inspiration; the pressure gradient across the sampling line causes increased flow of the end-expiratory gas in the sampling line and less entrainment of room air. The mea-


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