Reliability of Auscultation of Bilateral Breath Sounds in Confirming Endotracheal Tube Position

To the Editor.—Proper positioning of the endotracheal tube (ETT) commonly is confirmed by auscultation of bilateral breath sounds.1,2 However, Brunel et al.3 reported that 60% of mainstem bronchial intubations occurred despite the presence of equal breath sounds from the bilateral chest. Schwartz et al.4 noted that endobronchial intubation was not detected by chest auscultation. We used a fiberoptic bronchoscope (FOB) to evaluate the reliability of auscultatory confirmation of ETT position.

After nasotracheal intubation, the FOB (Olympus LF-2) was inserted through the ETT. Then, the FOB and the ETT with the cuff inflated were advanced. When it was confirmed with the FOB that the ETT tip reached the carina, a mark was made on the ETT at the nare. When unilateral breath sounds became first more bronchial in quality and then disappeared, second and third marks were made on the ETT, respectively. In this fashion, the distance from the carina to the nare and the distances from the ETT tip to the nare at change and at disappearance of breath sounds were measured.

The carina was 28.7 ± 1.2 cm from the nare in females who averaged 156 ± 7 cm in height. The ETT tip advanced beyond the carina invariably entered the right mainstem bronchus at 30.1 ± 1.3 and 31.9 ± 1.0 cm from the nare at change and disappearance of breath sounds, respectively. The ETT used in this study, Portex Blue Line Tracheal Tube (ID 7.5 mm), had a cuff 2.5 cm from the tip, a 1.0-cm bevel facing to the left, and no Murphy’s eye. Taking into consideration these structural features, it was presumed that breath sounds changed when the proximal end of the bevel was advanced about 0.5 cm into the right mainstem bronchus, perhaps because of gas flow through the narrow space between the ETT and the bronchus. Breath sounds disappeared when the cuff was advanced about 0.7 cm into the intubated bronchus, possibly because of interruption of gas supply to the opposite bronchus.3 Therefore, the ETT tip should be withdrawn at least 1.5 or 3.2 cm if breath sounds from the left side of the chest change or disappear, respectively, after intubation and during anesthesia. Our results suggest that the fiberoptic bronchoscopy is more reliable than chest auscultation in confirming ETT position.

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References

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Simple Method of Tracking Patients with Difficult or Failed Tracheal Intubation

To the Editor.—The problem of difficult or failed tracheal intubation poses potentially serious risks to patients undergoing general anesthesia.1 Adverse sequelae are common,2 and particularly when such cases are unanticipated, morbidity can be significant3 and frequently results in litigation.4 For many years, anesthesiologists focused on devising clinical techniques of predicting difficult intubation pre-

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