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Difficult Pediatric Intubation—An Indication for the Fiberoptic Bronchoscope

To the Editor:—Borland and associates have applied retrograde tracheal intubation in a 30-month-old child suffering from ankylosis of left temporomandibular joint, deviation of the jaw to the left with maximum oral opening of 9–10 mm and a history of intermittent airway obstruction with sleep.[1] This technique was chosen after several failed attempts at awake blind nasotracheal intubation and it was done under general anesthesia. This case is an excellent example of a difficult airway in which intubation could have been accomplished with ease, within a short time, and without the dangers of airway obstruction under general anesthesia by use of a fiberoptic bronchoscope. Borland *et al.* noted in their discussion that fiberscopes are not suitable for tracheal tubes of less than 5 mm; however, pediatric fiberscopes of 3.2 mm are on the market and their use in pediatric patients has been reported.[2,3]

Two other techniques also have been described for small children and neonates in whom the fiberscope will not pass through the tube. Stiles[4] has suggested introduction of a small cardiac catheter guide wire through the fiberscope suction channel into the trachea while the fiberscope tip is kept above the vocal cords. The fiberscope is removed and a cardiac catheter passed over the guide wire into the trachea. The tracheal tube is then fed over the catheter. This technique can be applied transnasally using small sized bronchoscopes with suction channels, such as Olympus BF-3C4.® Alfery *et al.*[5] introduced a fiberoptic bronchoscope through one nostril and a tracheal tube through the other. Under direct vision they were able to maneuver the tube into the trachea.

We fully agree with the statement that competence and familiarity of the anesthesiologist with the use of the fiberscope is important for management of a difficult airway. Although fiberoptic bronchoscopes have been in use for 15 years and their value in difficult tracheal intubation has been stressed repeatedly, many anesthesiologists appear not to have used this instrument. Analysis of 170 questionnaires completed during our Scientific Exhibit* shows that a high percentage of respondants have never used the fiberscope or have very limited experience with it (table 1). It was on the basis of similar observations that we developed a teaching program[6] for the use of the fiberscope for nasotracheal intubation and now give all our trainees the opportunity to learn the technique.

TABLE 1. Number of Fiberoptic Intubations Performed

None	51 (30 per cent)
1–5	55 (32.4 per cent)
6–10	22 (12.9 per cent)
11–25	13 (7.6 per cent)
>25	28 (16.5 per cent)
Not answered	1 (0.6 per cent)
	170 (100 per cent)

We believe that in patients such as the one presented awake fiberoptic nasotracheal intubation is the technique of choice. We also believe that every anesthesiologist should learn to use the fiberscope proficiently for management of difficult intubations. This will not be achieved unless the value of this instrument is appreciated more widely and efforts are made to teach routine use of it.

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* Ovassapian A, Yelich SJ, Dykes MHM, Krejcie TC, Linde HW: Fiberoptic intubation—A technique for popularization. Scientific Exhibit presented at the ASA annual meeting, 1980, St. Louis; the 34th NY Postgraduate Assembly in Anesthesiology, New York City; and the IARS annual meeting 1981, Atlanta.

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An Easily Overlooked Malassembly

To the Editor:—Checking the anesthesia machine for leaks immediately prior to each use is recognized as an important measure in avoiding iatrogenic problems. However, the need to ascertain proper functioning of all valves and the patency of all breathing tubes is less widely appreciated. Recently, we experienced an unusual malassembly of the circle system that emphasizes the necessity of performing both of these checks immediately before the equipment is used.

After induction of anesthesia in one of our patients and after controlled ventilation was instituted, we realized that chest excursions were inappropriate. Chest hyperinflation was occurring, compliance was decreasing, and positive pressure was developing in the circuit. On preliminary inspection of the anesthesia machine and breathing circuit, we observed no abnormalities; however, on a closer inspection, we noted a surprisingly easily overlooked malassembly of the circle system (fig. 1). The corrugated hose of the expiratory limb had been attached to the exhaust port of the relief valve, and the exhaust hose had been attached to the expiratory connection on the canister head. Although these two hoses are visibly different in diameter, their connector fittings allow such a malassembly. Once it has occurred, the common color of the hoses, the proximity of exhaust port to expiratory canister port, and the presence of multiple hoses predispose to nondetection of the problem.

This anesthesia machine had been checked for leaks, patency, and proper valve function sometime prior to its use. However, the hoses apparently had become disassembled and then were reassembled inappropriately. Immediately prior to use of the machine, it had once again been checked for leaks, and none were found. If a check for patency and proper valve function had been performed simultaneously, a potentially dangerous situation could have been avoided.

This problem has been mentioned in the literature at least twice during the previous four years.[1,2] In none of

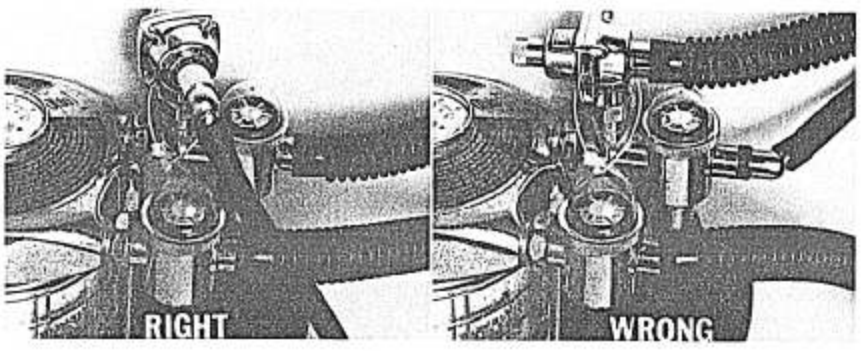

FIG. 1. Malassembly (*right*) and correct assembly (*left*) of the circle system.

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