

from a nasal cannula-and-tubing assembly (Airlife[®]; no.001310, American Pharmaseal Co.), which then fit a 4.0-mm endotracheal tube adaptor. The adaptor in turn fit the 15-mm gas outlet of the anesthesia machine. The proximal end of the cannula assembly was firmly applied to the cut-off barrel of a 1-cc syringe. The Luer taper was applied to a catheter placed transtracheally. This assembly readily sustained the 55-psig pressures available at the gas outlet fitting when oxygen was applied at the "flush" valve.

This system is identical to that described by Benumof and Scheller, except that their system used oxygen supply tubing, whereas ours used the tubing from a nasal cannula. We also found that the suction tubing (Bard/Davol no. 3428; 4.8 mm [ID]) used in our operating rooms can sustain these pressures; it can be attached to the common gas outlet *via* the adapter from an 8.0-mm endotracheal tube and to the transtracheal catheter *via* a cut-off 3-cc syringe.

In the process of testing these systems, two problems of which the practitioner should be aware emerged. First, the polypropylene endotracheal tube adaptor must be applied to the gas outlet *very* firmly in order to avoid *its* being blown out of the gas outlet fitting. This is less of a problem with the metal adaptors. Second, some modern machines are equipped with pressure relief valves in the "flush" circuit which prevent their delivering oxygen at the theoretical 55 psig. The Narkomed 2B is equipped at the vaporizer outlet with a relief valve

that opens at about 20 psig (1034 torr); the Ohmeda Excel is equipped with a pressure relief valve that opens at 3–7 psig (155–362 torr). Other machines vary in their delivered pressure; in fact, older machines deliver 55 psig oxygen at the gas outlet fitting.

The practitioner therefore should evaluate his or her machine before planning on transtracheal jet ventilation *via* the gas outlet as an emergency "back-up" system.

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REFERENCE

1. Benumof JL, Scheller MS: The importance of transtracheal jet ventilation in the management of the difficult airway. *ANESTHESIOLOGY* 71:769–778, 1989

(Accepted for publication July 5, 1990.)

Anesthesiology
73:788, 1990

Transtracheal Jet Oxygenator from Capnographic Monitoring Components

To the Editor:—Benumof and Scheller recently recommended that every anesthetizing location have the immediate availability of transtracheal jet ventilation for the rare cannot-ventilate or cannot-intubate

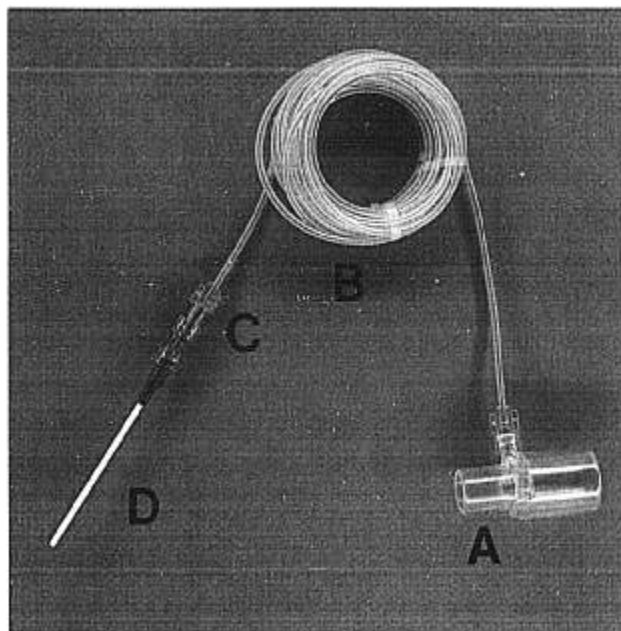


FIG. 1. Transtracheal jet oxygenator formed from capnographic monitoring components. A = T-piece capnographic adapter; B = capnographic sampling tubing; C = double male adapter; D = intravenous catheter.

emergency.¹ I fully support this recommendation and the use of the more efficient systems described in their paper. However, anesthesiologists should be aware that an effective transtracheal jet oxygenator can be made quickly from the capnographic monitoring components in use in many hospitals. The T-piece capnographic adapter with attached sampling tubing is placed in the common gas outlet, and the other end of the sampling tubing is attached *via* a double male adapter to a catheter inserted in the trachea (fig. 1). By activating the flush valve of the anesthesia machine and intermittently closing the opening of the T-piece at the common gas outlet, effective oxygenation can be produced.

Advantages of this system include Luer lock connections, noncompliant tubing, and immediate availability wherever these capnographic components are used. Disadvantages include the limitation of flow by the small diameter tubing (<4,000 cc/min) and the need for a double male adapter. The anesthesiologist can ensure that a double male adapter will be available by attaching an adapter to the safety pin holding the keys to his or her scrub clothes.

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REFERENCE

1. Benumof JL, Scheller MS: The importance of transtracheal jet ventilation in the management of the difficult airway. *ANESTHESIOLOGY* 71:769–778, 1989

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