

undue pressure on the mucosa of the trachea. Furthermore, this endotracheal tube with the metal adaptor and cuff is too expensive to be manufactured for disposable use. Washing, cleaning and sterilizing are time-consuming, expensive in manpower and damaging to the life of the tube.

Dr. Weiss developed a disposable endotracheal tube, as shown. The male adaptor which is fixed on the tube (*C*), is of the same material as the tube itself and fits into the standardized size of the female connector (*D*). The inflatable cuff (*F*) is replaced by a disc (*E*) of thin, soft latex of the diameter of the larynx, which is placed distal to the vocal cords. Since there is positive pressure during the respiratory cycle, this disc acts like a valve and seals off the space around the endotracheal tube. No continuous pressure on the larynx

wall is exerted. The endotracheal tube itself is a transparent plastic.

Experience shows that the disc does not obstruct vision during intubation if it is at the proper distance from the distal end of the endotracheal tube ($1\frac{1}{2}$ -2 inches). The soft, thin latex disc must be pushed through the larynx (which is as easy as passing the usual cuff in a relaxed patient) and then pulled slightly back until a faint resistance is felt, placing the disc just distal to the vocal cords. Immediately after intubation, there is often a leak by the latex-disc valve but it usually adapts itself after a few respirations and seals off the space tightly.

This plastic endotracheal tube is transparent and nonkinkable. With the built-in connector and a disc replacing the cuff, it is inexpensive and disposable.

CORRESPONDENCE

Vomiting and Aspiration During Anesthesia

To the Editor.— I have very much enjoyed reading the article entitled, "Vomiting and Aspiration during Anesthesia" by Drs. Bannister and Sattilaro (ANESTHESIOLOGY 23: 251, 1962). It contains, however, one substantial error of fact, which should, I think, be corrected. On page 258, it is stated:

"Mendelson reported that liquid vomitus was aspirated in forty of forty-five *fatal* cases." Referring to the original paper, I find that what Mendelson actually said was:

"The character of the aspirated material in the forty five *recorded* cases was liquid in forty and solid in five." (Mendelson: C.L.: Amer. J. Obstet. Gynec. 52: 191, 1946.)

Speaking of mortality, he says (p. 195):

"The two deaths in the series were due to suffocation from complete obstruction by solid, undigested food." Later, speaking of the forty patients who aspirated liquid vomitus, he says (p. 202):

"The majority of patient had an afebrile recovery, with complete clearing of the chest, in seven to ten days."

I think you will agree that this gives quite a different idea of the outlook in Mendelson's syndrome than that given by Drs. Bannister and Sattilaro.

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Correction Factor for Wright Spirometer

To the Editor.—I was interested to read the article of Hall and Reeser,¹ in which they propose a correction factor for the Wright respirometer² when used to measure tidal flow. Their factor was based on the intermittent flow of air into a Palmer pump. The inflow into our own Palmer-Starling 'ideal'³ pump is associated with a higher response than that

found with other pumps and is, indeed, higher than with the outflow phase of the same pump. Thus the inflow of the Starling pump is rather a special case and is therefore perhaps an unsuitable model for deriving a correction factor for general application. We are in agreement with the statement in the Manual produced by British Oxygen Company that

the response of the respirometer on sinusoidal flow is as though the whole tidal volume were delivered at the peak flow.

There appear to be a number of possible reasons why the respirometer should overread on the *inflow* phase of the Starling pump. Firstly, its peak flow to minute volume ratio is high (5 compared with 3.14 for a pump generating a sine wave). Secondly, the pneumotachogram of the inflow phase of our own Palmer pump (see figure) shows backflow, valves opening during movement of the piston and a tendency towards oscillation. The respirometer has a remarkable capacity to respond to rapidly alternating gas flows, but it will record only the forward component of such flows.

The response of the respirometer during tidal flow is governed by at least four factors—minute volume, wave-form, temperature and gas composition. All must be considered when assessing the likely error when it is used during anaesthesia. After studying the influence of these factors Dr. Ezi-Ashi and I concluded that no correction factor was required under the conditions of anaesthesia and we were able to demonstrate that, between minute volumes of 3.8 and 8.2 l./m. (BT_{PS}) when the patient was breathing 70 per cent nitrous oxide, the minute volume indicated by the respirometer lay between the minute volume simultaneously recorded by a spirometer (AT_{PS}) and this volume corrected to BT_{PS}.³ This we thought adequate for clinical monitoring.

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Function of the Anesthesiologist

To the Editor.—I could not be in more complete agreement with the statements made in the Letter to the Editor by Drs. Brown, King and McLaughlin (ANESTHESIOLOGY 23: 272, 1962). To me it appears axiomatic that a consultant (anesthesiologist) who finds himself in "serious or basic disagreement" with the referring doctor (surgeon) has no choice but to withdraw from the case. It is rare indeed that one can truthfully say there is one and only one agent, method or technique which is applicable or safe in a particular situation.



Pneumotachogram of inflow into Palmer-Starling 'ideal' pump.

References

1. Hall, K. D., and Reeser, F. H.: Calibration of Wright spirometer, ANESTHESIOLOGY 23: 126, 1962.
2. Wright, B. M.: A respiratory anemometer, J. Physiol. 127: 25P, 1955.
3. Nunn, J. F., and Ezi-Ashi, T. I.: The accuracy of the respirometer and ventigrator. Brit. J. Anaesth. 34: In press, 1962.

To the Editor.—I agree with Dr. Nunn that the Starling pump may have exaggerated the coasting error of the Wright meter because of its flow characteristics and thank him for his fine analysis of this. We have observed some coasting, however, when breathing through the meter as well as when pumping through it. I certainly agree, as mentioned previously, that for usual clinical use, no correction is necessary. I am very glad that the corrosion problem has now been solved by using stainless steel rotor shafts.

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I have found it necessary to decline to serve for this reason on only one occasion in more than twenty years, without either abrogating the responsibilities of an anesthesiologist or enforcing a dogmatic and arbitrary opinion upon a reluctant surgeon. He who frequently finds himself in basic disagreements which cannot be reconciled should either strengthen his powers of persuasion or seek out less recalcitrant surgeons.

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