

To test the hypothesis² that halothane in the presence of copper and oxygen forms butene, we (1) examined our distillation residue¹ which contained the less volatile residue from 1 liter of old halothane removed from 5 Copper Kettles, (2) examined 28 samples of halothane removed from 14 Copper Kettles, (3) shook halothane, copper compounds, and oxygen for 6-8 hours with and without exposure to ultraviolet light, and (4) evaporated halothane in a stream of oxygen with and without copper filings.

All samples were chromatographed on each of the three columns. All samples showed the presence of butene and between 3 and 5 of the other trace contaminants. The values ranged from 0.01 to 0.05 per cent (100-500 p.p.m.). The overall mean value was 0.03 per cent (300 p.p.m.). In no instance was the butene concentration as much as twice its concentration in the freshly opened halothane.

We do not believe that hexafluorodichlorobutene is formed by a reaction involving

copper and halothane nor do our data support this conclusion. Rather we believe that the moderate increase in butene which does occur is due to the preferential evaporation of the more volatile halothane. It does not appear to us that any impurity is formed from halothane used or stored in copper vaporizers. As yet there is no evidence which leads us to change our conclusion¹ "We do not believe that these substances (residues in Copper Kettles) represent any hazard to patients but do find them undesirable from an esthetic view-point."

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REFERENCES

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Schema for Premedication Dosage and Selection of Endotracheal Tubes for Children

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It is my intention to present a schema that I have used for several years and one which will enable residents in anesthesia to be able to determine premedication and select endotracheal tubes for children without having to refer to charts.

The schema is based on the assumption that the patient's weight is the best basis for determining medication dosages. The schema is designed to facilitate calculation of ideal weights for children based on their age, especially those patients who cannot be weighed for various reasons, or who may have an erroneous weight recorded on their chart. For children less than 1 year of age, 10 added to the age in months will

give the average weight expected for that age; for example 4 months plus 10 equals 14 pounds. For children 1 year and up, use the following schema: Age in years times 5 plus 20 equals the average weight, and subtracting 5 from this will give the average range. (Example: 3 years times 5 equals 15, adding 20 equals 35, and subtracting 5 gives a weight range of 30-35 pounds for age 3 years.)

By working backwards the chronological age can also be calculated; as will be seen later, this is useful in determining endotracheal tube size. Endotracheal tube sizes needed can be calculated from a schema based on the age in years. This gives a size in the French system, and if this number is divided by 3 or 4 the diameter in millimeters for external and internal diameters is given re-

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spectively. For children less than 1 year of age a tube range of 8-18 French will usually be correct. For children 1 year of age and over, put a 2 in front of the age in years and this will give the largest size tube that can be accommodated and, by selecting this and a tube one size smaller, you can be sure one will fit. For example, a 4 year old child will take a 22 or 24 endotracheal tube, as stated

above divided by 3 or 4 for external or internal diameters in millimeters. For children 10 years and up, add the 2 to the first digit, thus a 10 year old child will need a 28 or 30 French sized tube. After the age of 12 years, if the child has not matured, this schema will apply, for those children who have matured physically, endotracheal tubes are selected as for any adult.

GADGETS

A Buccal Mask

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Currently available face masks may have several drawbacks. They have to be available in a range of sizes, they may leave pressure marks on the face and most types increase dead-space. Also, it is often difficult to achieve a good fit in edentulous patients, and in patients who have beards, burns of the face, facio-maxillary injuries or a naso-gastric tube in situ.

To circumvent these difficulties a buccal mask† was designed (fig. 1.) It fits between the lips and gums. Because it has a considerably smaller capacity than most conventional masks and it is applied intra-orally, it causes relatively little increase in dead-space. To minimize soft tissue injury it is made of soft rubber.

Its distal opening is oval to accommodate the flange of an oropharyngeal airway. If there is a leak of gases through the nose a nose clip is used.

During two years of use it was found that the same size mask can be used for all patients above the age of seven. With a buccal mask a good fit can be obtained in many patients where this would not have been possible with conventional masks. There is the added advantage that in the edentulous patient it will prevent the apposition of the lips. For positive

pressure respiration the lips are held by the thumb and forefinger against the mask to ensure an airtight fit.

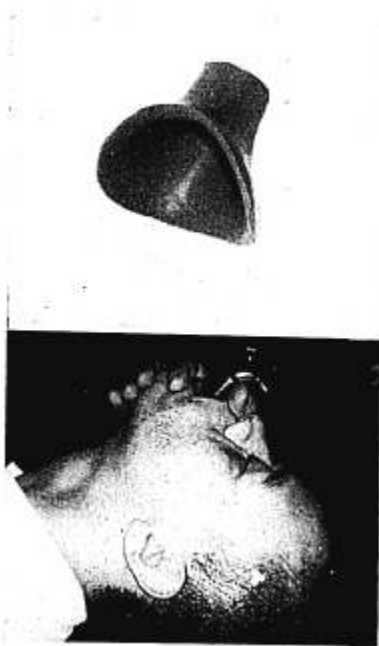


FIG. 1. Upper: View of buccal mask. Lower: Buccal mask in use.

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