CORRESPONDENCE

Anesthesiology
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In Reply:—Although Kubota *et al.* are correct in pointing out that several reports describing lung collapse during anesthesia secondary to mucous plugging have appeared in the anesthesia literature since 1942,[1-4] these cases were distinctly different from the case we described.[5] In contrast to the previous reports describing mainstem bronchus obstruction by mucous plugs following tracheal intubation, our case involved a young, healthy unpremedicated outpatient with *no* preexisting pulmonary disease. In addition, the mucous plugging in our patient occurred *prior* to tracheal intubation.

The primary objective of our report was to make clinicians aware of the possibility of this life-threatening complication occurring in otherwise *healthy* outpatients. Because the right lung obstruction in our patient developed coincident with the administration of mivacurium, a known histamine-releasing drug, it is possible that the muscle relaxant was a contributing factor in this case. We strongly disagree with the suggestion that pulmonary collapse during anesthesia is a common problem.

Finally, we agree with Kubota *et al.* that the straight suction catheter we passed through the tracheal tube may have entered the left mainstem bronchus because of the marked mediastinal shift following collapse of the right lung. However, our inability to suction out the mucus plug also may have been due to the solid consistency of the plug. Kubota *et al.*'s curved-tipped catheter[6-11] or the J-shaped catheter[12,13] might have been helpful in the management of this case. Unfortunately, these special catheters are not available at our institutions.

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Clever Cure for an Endotracheal Tube Cuff Leak

To the Editor:—Every anesthesiologist has agonized over the problem posed by a leaking endotracheal tube cuff and the risk of exchanging the problem endotracheal tube for a new one. We have evolved a simple and effective solution for defective or broken endotracheal tube cuff one-way valves and pilot balloons. If the endotracheal tube cuff cannot be inflated or will not stay inflated and the problem can be localized to the one-way valve, the pilot balloon, or the distal portion of the inflation tube, this technique will effect a simple, long-term solution.

Cut the inflation tube to remove the defective elements. Cut a

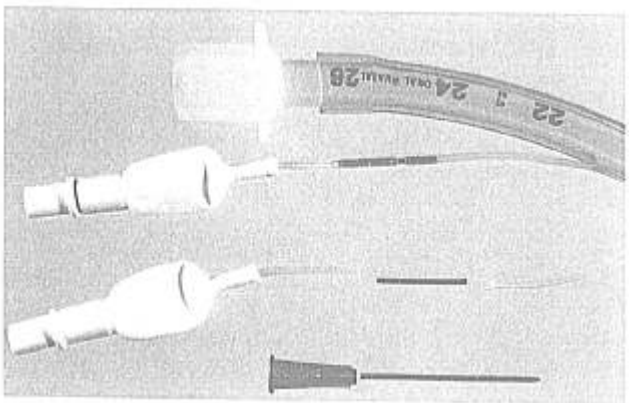

Fig. 1. (*Bottom*) The needle used to form the joint before it has been bent and broken into the section shown in the *middle* with the two pieces of inflation tubing to be joined. (*Top*) The assembled repair.

similar length of intact inflation tube, pilot balloon, and one-way valve from an unused endotracheal tube. Be sure to use a tube that is the same size and from the same manufacturer as the defective tube. Connect the intact one-way valve, pilot balloon, and inflation tube to the remaining section of inflation tube on the patient's endotracheal tube using a 0.5–1-inch section of a standard hypodermic needle. This will provide a secure air-tight fit that will last for days. Use another section of inflation tube to determine which gauge needle provides the best fit. Figure 1 shows the pieces separate and assembled. A piece of tape across the joint may provide extra security; however, in our tests, we were able to inflate endotracheal tube cuffs to bursting before the needle joint failed.

There is a trick to obtaining a short section of the needle so that the ends are not sharp, deformed, or crimped closed. Using two hemostats, bend the needle back and forth, never exceeding a 30° bend, until it breaks. Repeat this to obtain a section of the needle of the desired length.

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Tec 6 Recall

To the Editor:—Ohmeda would like to inform your readers of a medical device recall initiated on July 8, 1994, involving a certain group of Ohmeda Tec 6 (desflurane) Vaporizers. Letters detailing this action were sent to users of the affected Ohmeda Tec 6 Vaporizers and Ohmeda Tec 6 NAD Variant Vaporizers. This field action addresses two conditions.

Regarding the Ohmeda Tec 6 (desflurane) Vaporizer (serial numbers ACTV32001 to ACTV51502 and serial numbers ACTW01001–ACTW30093) for use with Ohmeda Anesthesia Systems and Ohmeda Tec 6 NAD Variant Vaporizer (serial numbers ACWW14001–ACWW30288) for use with North American Drager Anesthesia Systems, Ohmeda has received a limited number of reports from the field and has confirmed from its own investigation that a few Ohmeda Tec 6 Vaporizers, manufactured before August 1, 1993, have delivered higher concentrations of the anesthetic agent desflurane than indicated by the vaporizer dial setting. This condition appears to be caused by the improper operation of a control valve inside the vaporizer and may not be detected by the internal vaporizer alarms. In the majority of the reports, it was noted that the higher agent concentrations were detected with the use of an anesthetic agent monitor capable of measuring desflurane. In other instances, it was reported that the bobbins in the flowmeters of the anesthesia system were noted to jump frequently.

Investigation to date by Ohmeda of the vaporizers identified in the reports has indicated the condition occurs at high flow rates and concentrations. Therefore, to help avoid the potential for high output, Ohmeda recommends a maximum vaporizer dial concentration of 6% at a flow rate of 4 l/min. At flow rates of 3 l/min or less, the concentration may be increased to a maximum of 9%. Concentrations above these limits should not be used as the investigation of some user reports have identified delivered nominal concentrations of 17–20% at a dial setting of 12% and flow rate of 5 l/min. At full scale, which is 18%, and with a flow rate of 5 l/min, concentrations in the nominal range of 21–25% have been seen. If it is suspected that,