accepted greater amounts of air at pressures below 400 mm Hg, in association with decreased endotracheal-tube lumens.

The Foregger Company was notified of these findings in July 1974. They independently tested the CD 051 tubes, determined this lot to be defective, and had all Foregger CD 051 9.0 mm pre-cut tubes returned in August 1974.

Stanley found that 50 per cent nitrous oxide diffuses into the latex cuff of an endotracheal tube, causing a 30 to 40 per cent increase in cuff volume over one hour. Further in-vivo investigations indicate that 60 per cent nitrous oxide also diffuses into polyvinyl chloride cuffs, increasing cuff volume and pressure. Nitrous oxide diffusion, coupled with the defective CD 051 tube, probably resulted in reduction of the lumen and caused the abnormal sounds heard in this patient.

Caution must be exercised in the design and testing of any tracheal tube, disposable or otherwise. Injecting a small amount of air into the cuff during manufacture or prior to use to verify the integrity of the inflation system may not reveal the potential for lumen collapse. Pre-inflation with 25 ml of air will reveal this defect, and this volume exceeds that which would usually occur in clinical anesthesia.

REFERENCES

A Simple and Rapid Method for Evacuation of Embolized Air

JOHN DE ANGELIS, M.D.*

Air embolism occurs in a variety of neurosurgical procedures done with the patient in the sitting position. When this potentially catastrophic event occurs, the anesthesiologist directs his attention to the anesthetic dose level, elevation of cerebral venous pressure, treatment of ventricular arrhythmias, hypotension, and the evacuation of intracardiac air. A simple and effective means of automatic evacuation of air by merely turning the handle of a stopcock allows the anesthesiologist freedom to perform the other vital procedures.

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After radiographic demonstration of the position of a catheter within the superior vena cava or right atrium, the catheter is attached to the tube receiving fluid from a three-way stopcock. Fluids are permitted to run through the catheter by opening the stopcock. An empty 250-ml container (Haemo-Vac Blood Container, McGaw Laboratories) is penetrated by a fluid-filled intravenous extension tube from the stopcock. The rubber stopper of the evacuated container has an extension tubing with a 16-gauge needle attached to the distal end of the tube. A male–male adapter is needed between extension tube and needle. The puncture is performed with the stopcock turned off to the extension tube. When air embolization is suspected, the stopcock
Fig. 1. Negative pressure-containing bottle in communication with superior vena cava catheter by way of three-way stopcock.

handle is turned in order to open to the evacuated container, thus allowing withdrawal of the intracardiac air. The evacuation is accomplished by the negative pressure within the evacuated container. During the actual evacuation of the superior vena cava, one must be certain that air or an air-blood mixture is removed rather than blood. Evacuation must be discontinued in the event that blood is continuously returned to the collecting system. Although a similar evacuated container with a 500-ml capacity is available, the 250-ml size was selected in order to prevent significant blood loss. The evacuated container described contains ACD solution; thus, the blood may be returned to the patient. This simple procedure utilizing intravenous tubing, a stopcock, a male-male adapter, and an empty 250-ml container allows automatic evacuation of embolized air by merely turning a stopcock handle.

REFERENCE