

distal part of which is also relatively noncompliant compared with a polyvinyl chloride endotracheal tube. We suggest that this tip be rounded or smoothed by the manufacturer in the production process. We do not recommend that the anesthesiologist cut the tube prior to its use; though it may produce the desired effect, the cutting will most likely damage the reflective coating and compromise the sterility of the tube.

STEPHEN A. VITKUN, M.D.  
*Clinical Assistant Instructor in Anesthesiology,  
Research Associate in Anesthesiology and Medicine  
(Pulmonary/Critical Care Division)*

UPINDERJIT S. SIDHU, M.D.  
*Assistant Professor of Anesthesiology*

Anesthesiology  
62:835, 1985

*In reply:*—Xomed has manufactured and sold thousands of the Laser-Shield™ laser-resistant tubes to hospitals. In the entire time that we have manufactured these tubes, we have received very few comments regarding the tip of the tube.

We did recognize the fact that the tube was somewhat more pointed than our standard silicone endotracheal tubes and decided to change our manufacturing process. We currently do not coat the distal end of the tube up to the inflation balloon (fig. 1). This improvement now provides an all-silicone atraumatic tip. We feel that this modification will alleviate concerns regarding trauma during intubation.

E. A. VENNERSTROM  
*Product Manager  
Xomed Inc.  
6743 Southpoint Drive North  
Jacksonville, Florida 32216*

(Accepted for publication January 4, 1985.)

Anesthesiology  
62:835-836, 1985

### Multiorificed CVP Catheters and J-Wires: A Word of Caution

*To the Editor:*—The use of multiorificed central venous catheters for optimal air aspiration in patients at risk for air embolism is becoming increasingly popular.<sup>1</sup> We wish to call attention to a possible hazard associated

MARIA R. G. LAGADE, M.D.  
*Assistant Professor of Anesthesiology*

PAUL J. POPPERS, M.D.  
*Professor and Chairman of Anesthesiology*

*Department of Anesthesiology  
Health Sciences Center  
State University of New York at Stony Brook  
Stony Brook, New York 11794-8480*

### REFERENCES

1. Norton ML, DeVos P: New endotracheal tube for laser surgery of the pharynx. *Ann Otol Rhinol Laryngol* 87:554-557, 1978
2. Skaredoff MN, Poppers PJ: Beware of sharp edges in metal endotracheal tube. *ANESTHESIOLOGY* 58:595, 1983
3. Weibel S, Mathews M. In reply. *ANESTHESIOLOGY* 58:595, 1983

(Accepted for publication January 4, 1985.)



FIG. 1. Laser Shield™ laser-resistant endotracheal tube with new silicone atraumatic tip.

with the unintended misuse of the Bunegin-Albin Air Aspiration CVP Set® (Cook Inc., P.O. Box 489, Bloomington, IN 47402). This set consists of a 5.8 F 60-cm (for antecubital veins) or 40-cm (for jugular and subcla-

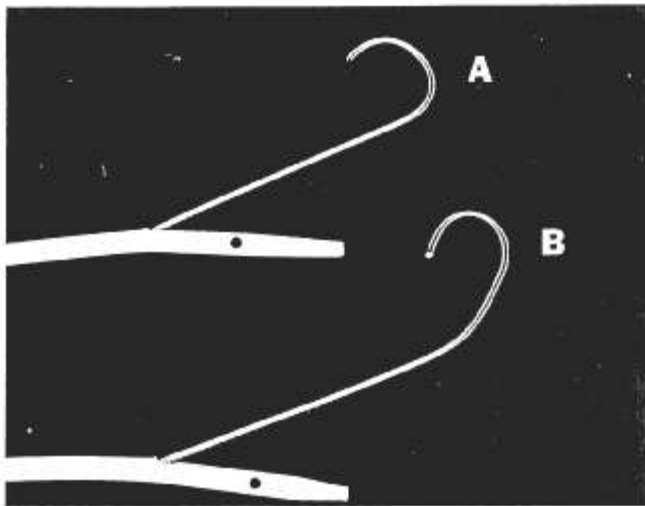


FIG. 1. Multiorifice catheters showing "fork tip" configuration. A. J-wire intact. B. J-wire with slight kink.

vian veins) catheter, a flexible-tip guidewire of corresponding length and an 18-gauge thin-wall introducer needle. Using a Seldinger technique, the catheter is threaded over the guide wire, whose J-tipped end allows for improved success of passage along tortuous venous channels in the arm and shoulder regions.

Although routine use of these catheters usually does not necessitate the reinsertion of guide wires (after initial wire removal), certain situations may occur during which the physician may desire to reinsert the J-wire. This might be the case, particularly during difficult cannulations and multiple attempts at placing the catheter tip near the right atrial-superior vena cava junction, as recommended for optimal air aspiration.<sup>2</sup> However, we have observed *in vitro* that a J-tipped guide wire, when inserted into a multiorifice catheter, may exit through one of the side apertures (fig. 1A). The J-tip is particularly prone to do this if the end section of the catheter is excessively curved or if the guide wire is even slightly deformed near its J-tip (fig. 1B). Either condition can

Anesthesiology  
62:836-837, 1985

*In reply:*—We are most appreciative of the insight shown by Dr. Schubert and co-workers in describing a potential problem with our multiorificed catheter. We have looked carefully at the multiorificed catheter and have tried various sideport orifice configurations and sizes in an attempt to eliminate the accidental passage of the "J" wire through the sideports of the catheter. The present four 0.045-inch-diameter sideports have been replaced by six 0.025-inch sideports that are positioned around the catheter in a spiral formation. The reduction in sideport orifice size prevents the 0.035-inch-diameter "J" wire from penetrating the ports and

easily develop during repeated attempts at central venous cannulation via the antecubital approach. When the flexible *straight* end of the guide wire was inserted, it always exited through the aperture at the catheter tip. As the J-tip leaves through a side aperture, it may cause the portion of the catheter distal to the point of wire exit to deviate, creating a relatively rigid "fork-tip" configuration, as illustrated in figure 1. When the catheter-wire assembly is advanced as a unit, the "fork-tip" may damage vessels and intracardiac structures. It is also conceivable that the catheter may kink and fray at the wire exit site when manipulated excessively.

We therefore urge caution if it is deemed necessary to reinsert a guide wire through these catheters and furthermore recommend use of the flexible straight tip (rather than the J-tip) should reinsertion be necessary. If the J-tip feature of the guide wire is needed to negotiate a tortuous section along a venous pathway, the catheter should be appropriately withdrawn or removed prior to readvancing the guide wire J-tip first.

ARMIN SCHUBERT, M.D.  
*Neuroanesthesia Fellow*

RONALD C. RUSK, CPT

MICHAEL M. TODD, M.D.  
*Assistant Professor of Anesthesiology*

*Department of Anesthesiology  
University of California at San Diego  
La Jolla, California 92093*

#### REFERENCES

1. Hicks HC, Hummez JC: A new catheter for detection and treatment of venous air embolism. *J Neurosurg* 52:595-598, 1980
2. Bunegin L, Albin MS, Hesel PE, Hoffman A, Hung TK: Positioning the right atrial catheter: A model for reappraisal. *ANESTHESIOLOGY* 55:343-348, 1981

(Accepted for publication January 4, 1985.)

after over 200 attempts at passing the "J" wire past these ports, we have not observed any violations by the "J" wire through the sideports. The addition of the two extra ports appears to have substantially increased the catheters aspiration efficiency. Using the right atrial model under experimental conditions described in a previous publication,<sup>1</sup> we tested a 14-gauge single-orificed catheter, the original 4 sideport (0.045 inch diameter) multiorificed catheter, and the new redesigned 6 sideport (0.025 inch) multiorificed catheter. Catheter tip position was located at the confluence of the superior vena cava and the right atrium, with the axis of the