In reply—It is unfortunate that the letter only described remote incidents associated with early production models of Arrow's Spring Wire Epidural Catheters. The Arrow Spring Wire Epidural Catheter has been in the marketplace now for nearly 5 years. The product has been outstandingly received by anesthesiologists all over the world for the important improvements to epidural catheterization relative to insertion reliability, prolonged utilization, and use for narcotic analgesia.1,2

As with all new product developments, it is possible for unforeseen problems to occur that are a result of a combination of underdesign and misuse in exceptional circumstances. The authors refer to problems with the fluoropolymer coating of the catheter developing minute cracks. They also describe a problem with the spring wire unraveling while attempting to remove it.

Arrow can only assure your readers that these incidents as reported are remote and associated only with the original "Racz Catheter" version of Arrow's Spring Wire

† Racz GB, Heavner J, Haynsworth: Repeat epidural phenol injec-

Fig. 1. Unraveled and normal (upper) Racz catheters.

Fig. 2. Tip of unraveled (upper) and normal catheters.

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Epidural Catheter product line. It is also important to note that although it does not appear to be the case here, in most instances, the problems were associated with misuse.  

Since the allegedly defective catheters were never returned to Arrow for examination, it is impossible to pinpoint the reason these problems occurred. Hence the exact cause remains a mystery.

In conclusion, because Arrow International takes quality very seriously, we also take complaints very seriously. Upon investigating the problems associated with the initial design of the Arrow Racz Wire Guide Epidural Catheter, Arrow, in accordance with our tradition for product excellence, continued to work on improving this catheter. The name of the newest product version is 'Thera-Cath™', which employs a heat shrunk outer plastic tube that minimizes the possibility of leakage occurring and improves overall pull strength.

Thank you for your consideration in allowing Arrow to respond to this letter.

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REFERENCES


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Hypoventilatory Hazard of an Anesthetic Scavenging Device

To the Editor—Scavenging systems have been incorporated into anesthetic circuits in order to protect operating room personnel from possible hazards associated with exposure to anesthetic gases. However, experience from using various scavenging systems indicates that certain hazards to the patient do exist. We are presenting a case of malfunction in the expiratory pressure relief (EPR) valve of the scavenging system connected to a Forreger 705® anesthesia machine.

A 25-yr-old man was scheduled for implantation of bilateral ureters. After the patient was anesthetized, paralyzed with succinylcholine, and his trachea intubated, ventilation was easily maintained. Anesthesia was maintained by 0.5%-1.0% isoflurane and 50% N2O in O2 (2:2 l/min) mixture. Tidal volume was 700 ml at a rate of 10/min. Approximately 35 min later, the heart rate increased progressively to 125 beats/min, and chest excursion was found to be inadequate. The pH was 7.19, PaCO2 66 mmHg, PaO2 150 mmHg, and base excess (BE) -5.5 mEq/l. The ventilator was turned off and hyperventilation instituted with 100% oxygen. NaHCO3 44.6 mEq was given. A thorough inspection of the breathing circuit revealed that a rubber connecting tubing at the EPR valve dome nipple was partially disconnected. Ten minutes later, the pH was 7.38, PaCO2 35 mmHg, PaO2 478 mmHg, and BE -1.2 mEq/l. The remainder of the intraoperative and postoperative period was uneventful.

During ventilation the excess gases are released only passively in the expiratory phase through the EPR valve. During inspiration, the bellows of the ventilator become a gas-tight extension of the breathing circuit only by the competent EPR valve being closed. Proper valve operation is reliant on a transmitted pressure from the working pressure chamber through a connecting tubing. This valve closing mechanism is mediated via a ¼ in ID rubber tubing that connects the EPR valve dome nipple and the bottom of the working pressure chamber (fig. 1). Thus, the pressure in the working pressure chamber indirectly determines the flow rate to the patient.

In this case, the tubing connecting the working pressure chamber and EPR valve was partially disconnected at the EPR valve dome nipple. Thus, the leakage prevented generation of a pressure adequate enough to seal the EPR valve. Consequently, adequate volumes were not being delivered to the patient, resulting in hypoventilation. In conclusion, we recommend a thorough preanesthetic machine check-up to include the scavenging system.