and 04 series patient cable is excellent electrical equipment, which has functioned reliably for us over the last 5 years. As a result, we evolved a policy of replacing reusable electrical equipment only when damage was obvious or suspected. In retrospect, the lack of a regular replacement schedule is what enabled a damaged system to simulate intermittent artifactual S-T segment depression.

Since discovering this problem with apparently undamaged lead wires, we have instituted an informal but regular replacement schedule for NDM lead wires and patient cables. We offer this information in the hope that other departments will benefit from our experience.

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An Unusual Source of Leak in the Anesthesia Circuit

To the Editor:—Equipment-related complications and hazards are well known to the anesthesiologist.[1] Leaks in the anesthesia machine circuit are common occurrences and usually are discovered during a routine machine checkout.[2,3] Disposable circuits commonly are used and can be the cause of leaks and airway obstruction.[4–6] This report illustrates a previously undescribed serious leak in a disposable anesthesia circuit that could not be detected by routine machine check-out.

REPORT OF A CASE

Patient 1, a 16-year-old prima gravida at term underwent emergency cesarean section because of fetal distress. We preoxygenated the patient and induced anesthesia with thiopental and succinylcholine, utilizing a standard rapid-sequence induction. We performed an uneventful laryngoscopy and intubated the trachea with a 7.0-mm endotracheal tube. After inflating the endotracheal tube cuff and connecting the endotracheal tube to a semiclosed anesthesia circuit, we were unable to ventilate the patient adequately, and there was a significant audible leak. In an attempt to isolate the source of the leak, we independently documented the integrity of the endotracheal tube cuff and the anesthesia circuit. A second attempt at ventilation localized the leak to the plastic elbow of the disposable circuit (fig. 1). We removed the plastic elbow from the circuit and were able to ventilate the patient easily. The infant was delivered with Apgar scores of 7 and 9 at 1 and 5 min, respectively. At the completion of the operation, the patient was extubated awake without problems.

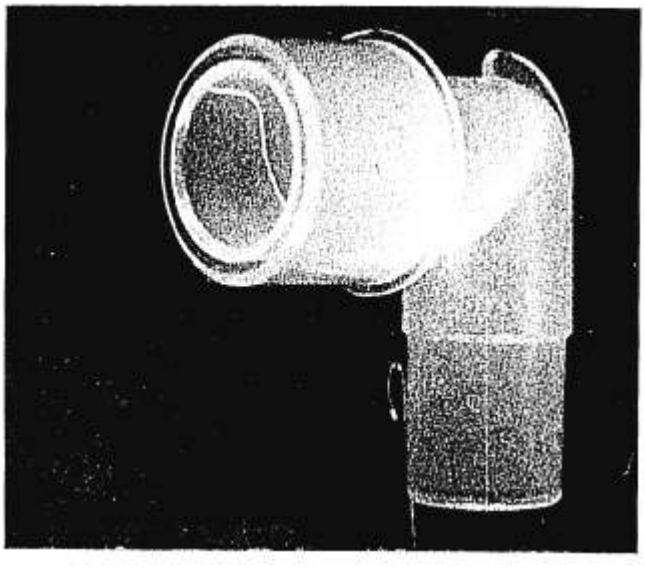

FIG. 1. View of the elbow from the NARDA® disposable anesthesia circuit (N1310DN) demonstrating a defect of the inner ring.

Thorough checkout of the anesthesia machine does not always ensure that leaks significant enough to interfere with ventilation will be detected.[7] In spite of following a standard protocol that includes pressurizing the breathing system to 40 cm H_2O against a closed relief valve and an occluded patient port,[3] we failed to demonstrate a significant hazard. Figure 1 demonstrates a defect in the inner ring of the elbow of a NARDA® nonconductive disposable anesthesia breathing circuit (N1310DN). This leak can be detected if only the *inner* ring is occluded during the breathing system checkout. This case emphasizes the importance of inspecting as well as testing all anesthesia equipment prior to use.

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A New Partial Spiral Tube for Nasotracheal Intubation

To the Editor:—Nasotracheal intubation is one of the solutions for both maintenance of an airway and providing an adequate surgical field in oral and maxillo-facial surgery. However, problems still arise with respect to connection of the endotracheal tube to the breathing system. Several types of connectors have been developed for these needs. Although nylon-embedded latex connectors partially can meet these needs,[1] disconnection may still occur, and gas flow resistance is increased due to the internal diameter of the connection part being smaller than that of the endotracheal tube, especially in children. A newly developed connector, FLEXIBEND®, may be one of the best presently available.[2] An armored latex spiral endotracheal tube has been advocated in an attempt to avoid using connectors in nasotracheal intubation, but obstruction may occur because of its laminated construction.[3] In addition, the use of this device is limited in children. Recently, an improved partial spiral endotracheal tube* made of silicon (3.5–9.0 mm ID) has been developed to meet the special needs of oral and maxillo-facial surgery. The distal portion of the tube consists of a conventional curved Magill type tube and the proximal portion of a spiral tube. The length of the two portions of the tube are designed according to the anatomic differences in children and adults (fig. 1). For example, the tube with an 8.0 mm ID consists of Magill type tube of 20 cm length and spiral tube of 16 cm length. When the patient is intubated, the junction of the two portions can be placed inside the nostril. Further, the thickness of the spiral tube is less than that of the Magill type tube so that the tube easily bends at the nostril in any direction for convenient attachment to the breathing system. Blind nasotracheal intubation can also be easily performed. Nasotracheal intubation with this device has proven useful, regardless of the patient's age, for airway management in oral and maxillo-facial surgery in our department.

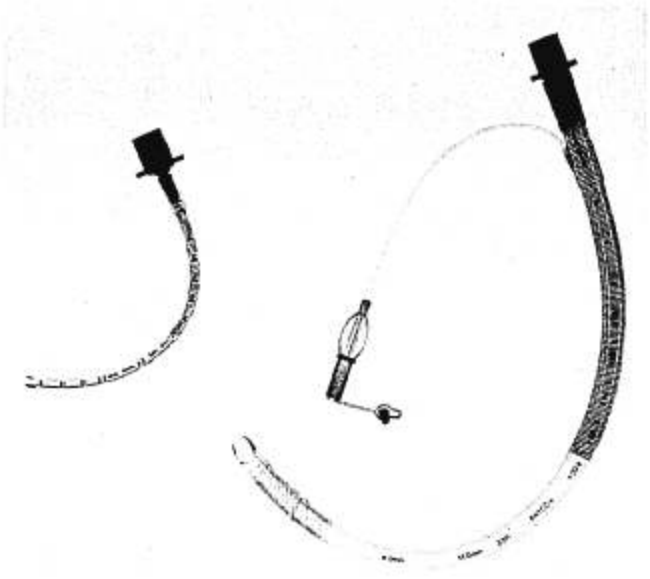

FIG. 1. Partial spiral tubes for children (*left*) and adults (*right*).

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* This partial spiral tube named SWAY TUBE® now is produced by Fuji Systems Co., Ltd., 1-11-1, Ebisu, Shibuya-ku, Tokyo 150, Japan.

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