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LETTER TO THE EDITOR

Kinking and breakage of the Rusch Lasertube

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Dear Editor:

The Lasertube (Rusch, Kerner, Germany) is a laser-resistant tube which is made of white rubber and reinforced with corrugated copper foil and a laser-resistant foam. The laser-resistant foam surrounds the lower 17 cm of the tube, proximal to the cuff. The manufacturer states that when the laser-resistant foam is immersed in water, the water evaporating from the sponge material consumes the energy of the laser beam, thereby preventing overheating of the tube. Here, I report a case of breakage of the laser-resistant foam of the Lasertube.

A middle-aged man with laryngeal tumor was scheduled for laser laryngomicrosurgery. After the induction of anesthesia and neuromuscular blockade, a new 6.0-mm (inner diameter) Lasertube (after the laser-resistant foam had been immersed to water) was inserted into the trachea. The tube was fixed to the patient's face with adhesive tape so that approximately the distal tip was approximately 22 cm from the gap between the right upper and lower molars. The breathing system was connected to the tube via a swivel connector and was supported by an acrylic holder.

Insertion of a direct laryngoscope by an otolaryngologist did not affect the position of the tube or peak airway pressure, and laser surgery was started. About 30 min into the surgery, it became difficult to ventilate the lungs. The tube was found to be kinked at the level of the mouth. It was also apparent that the laser-resistant foam and copper foils were broken at the kinked segment, exposing the inner rubber. Because surgery was planned to continue for another 1 h or so, the tube was replaced with a laser-resistant metal tracheal tube. Surgery restarted uneventfully.

Subsequent examination of the removed tube revealed that the kink had occurred at approximately 23 cm from the tip, where the rigid plastic coat and laser-resistant foam overlap. There were also numerous cracks to the laser-resistant foam, resulting in exposure of the inner rubber tube.

I examined a new Rusch Lasertube as a bench work and found that the tube not only kinked easily and but that the laser-resistant foam and metal foil broke when only a gentle force was applied to the tube, indicating that the weakness is not limited to the tube used (Fig. 1). I therefore

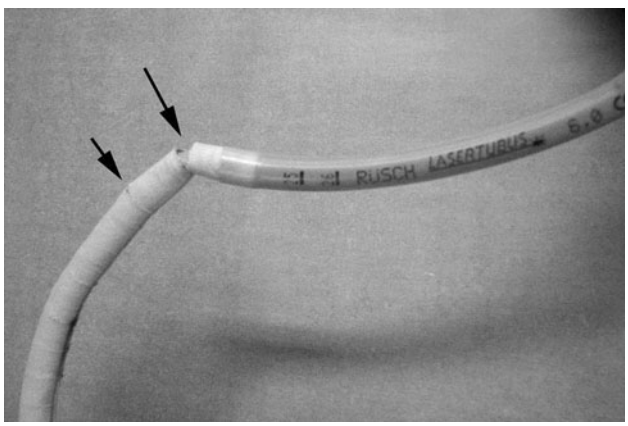

Fig. 1 Kinks in a new Rusch Lasertube and cracks in the outer laser-resistant coating

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suggest that the Rusch Lasertube is prone to kinking and that a laser beam could overheat the tube through cracks in the laser-resistant foam.

Conflict of interest The devices used were from hospital resources. The author has no associations with the manufacturer of the device described, nor with any other manufacturers.