

A simple modification of the Trachlight for pediatric use

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To the editor: The Trachlight (Laerdal Medical, Wappingers Falls, NY, USA) is a useful device for tracheal intubation in various clinical settings [1–3]. In pediatric patients, however, the intensity of transillumination that it produces is frequently too strong to identify the tube tip position, because of the thin soft tissues of these patients' necks, as recently reported by Nishikawa et al. [4]. These authors also described the necessity for improvements in the device for optimal use in newborns and infants. We have incorporated a current-limiting unit into the circuit of the Trachlight (Fig. 1), which enables continuous adjustment of the light intensity. The resistor in

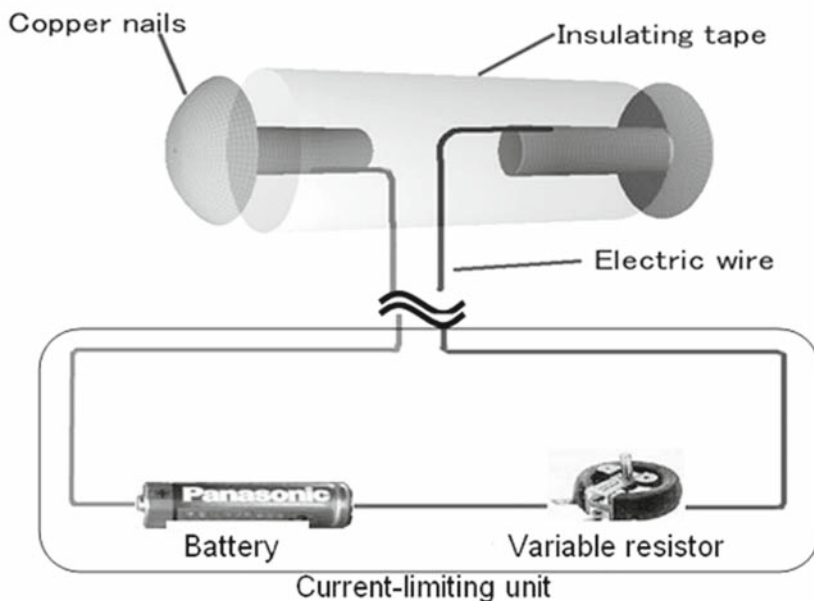
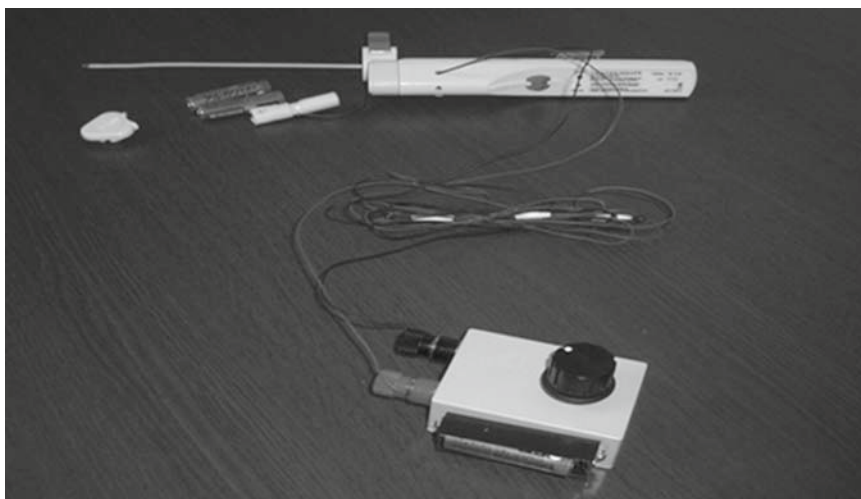


Fig. 1. Modified Trachlight (Laerdal Medical). The original Trachlight requires three batteries. One of these was replaced with a dummy battery, which was hand-made from two copper nails rolled up with insulating tape and wired to the current-limiting unit. The current-limiting unit consists of a real battery, a variable resistor (0–100 ohms) and electric wires

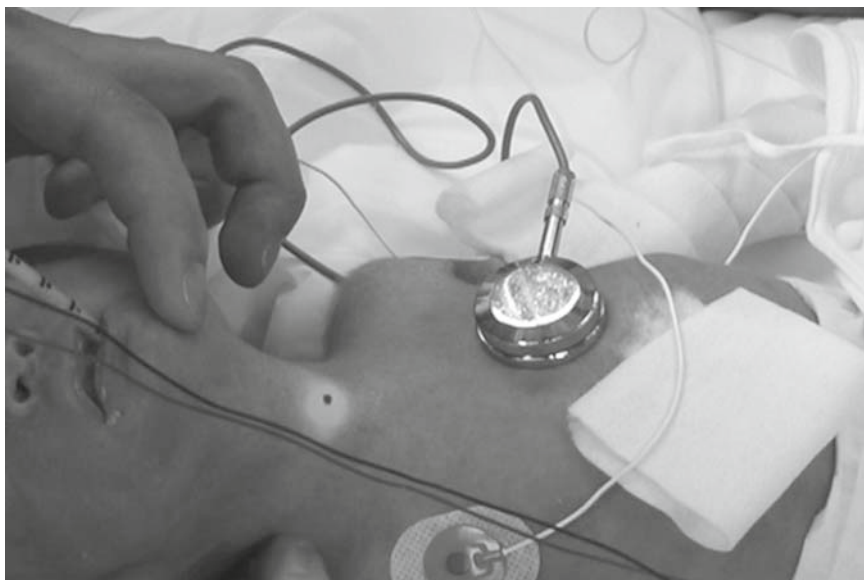


Fig. 2. Use of the modified Trachlight in 2-day-old male neonate, weighing 1800 g. We marked at the cricothyroid membrane. When we reduced the light intensity, transilluminated light focused on the mark

the unit is about 100 ohms, enough to limit the intensity of the lightwand for infants. A small hole was made in the handle in order to lead wires through it. Also, one of the batteries in the original unit was replaced by a dummy battery.

We applied this modified Trachlight for tracheal intubation in a 2-day-old male neonate weighing 1800 g. In an initial attempt with normal light intensity, we could not determine whether or not the tube tip was in the trachea, because the infant's neck was uniformly and powerfully transilluminated, but as we reduced the light intensity, the transilluminated light converged to the anterior neck, and this allowed us to identify the position of the tube tip (Fig. 2). In addition, we have confirmed usefulness of this device with other experiences in small children.

The modification we made only reduces the light intensity and we do not believe that the application of this raises a possibility of injury. But we consider that obtaining informed consent is necessary, because this is an arbitrary modification of an already approved device.

Another advantage of this modification is its reversibility. If necessary, we are able to return to the original configuration by simply replacing the dummy battery with a real one.

References

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Received: January 19, 2008 / Accepted: March 25, 2008