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Replacing the combitube by an endotracheal tube using a fibre-optic bronchoscope during spontaneous ventilation

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Abstract
We present a case of microlaryngoscopy in a patient with an unexpectedly difficult airway. The airway was managed by using an oesophageal-tracheal Combitube (Kendall-Sheridan, Argyle, NY) (ETC) and a fibre-optic bronchoscope (Pentax-Japan-5mm).

Key words: Laryngoscopy; Intubation, intratracheal; Bronchoscopy

Introduction

Suspension laryngoscopy with Venturi ventilation is a safe and well-established technique for surgery of the larynx (Collins *et al.*, 1983). In some cases the laryngoscope cannot be introduced and intubation is required. We think it would be of interest to present a case in which no airway difficulties were expected but the operating laryngoscope could not be introduced and intubation proved to be difficult.

Case report

A 65-year-old woman was admitted to the Bnai-Zion Medical Centre for hoarseness. On examination an irregularity of the anterior third of the right vocal fold was found and it was decided to biopsy the lesion. The pre-operative evaluation of the airway revealed a Mallampati I score, and no airway difficulties were expected (Mallampati *et al.*, 1985). After the induction of anaesthesia with propofol 140 mg and succinylcholine 100 mg, two attempts to introduce the operating laryngoscope failed and it was decided that the patient should be intubated. Two attempts to perform standard endotracheal intubation using a Macintosh laryngoscope also failed.

We decided not to cancel the procedure and to try an alternative way to assure the airway by the exchange intubation technique with the aid of fibre-optic bronchoscopy. A 37F ETC was inserted blindly, as per the manufacturer's instructions and connected to the breathing circuit. The left nostril was treated with cocaine five per cent to avoid bleeding. A lubricated fibre-optic bronchoscope threaded into an armoured endotracheal tube (nr. 6.5) was inserted into the left nostril and advanced while the patient was breathing spontaneously, under inhalational anaesthesia. Partial deflation of the pharyngeal balloon of the ETC facilitated the passage of the fibre-optic bronchoscope and did not significantly influence the effectiveness of ventilation, continuously assessed by end-tidal CO_2 measurement. The fibre-optic bronchoscope was advanced until the visualization of the pharyngeal section of the ETC positioned supero-lateral to the larynx (Figure 1). Under direct visualization of the vocal folds 3 ml of lignocaine one per cent were locally applied and another 4 ml injected into the trachea. Then, the standard endotracheal tube was advanced into the trachea and the fibre-optic bronchoscope and the ETC were removed.

The duration of the procedure was approximately 15 minutes.

Discussion

The American Society of Anesthesiologists Task Force on Management of the Difficult Airway (1993) recommends use of the ETC, as well as the laryngeal mask and jet ventilation when intubation problems occur in patients with a previously unrecognized difficult airway.

An ETC is a new double-lumen device for emergency ventilation that can be inserted blindly into the oesophagus, without the use of a laryngoscope. Holes which exist at the pharyngeal level allow ventilation of the patient. The use of an ETC for emergency ventilation in cases of difficult intubation has been described previously (Bigenzahn *et al.*, 1991; Ovassapian *et al.*, 1993).

Exchange of the Combitude with a standard endotracheal tube provides a secure way for management of the airway. Ovassapian *et al.* (1993), who insert the fibre-optic bronchoscope orally, while the patient is paralysed and ventilated, has described a similar technique. We think that spontaneous ventilation significantly improved the effectiveness of the technique, making identification and exposure of the epiglottis and the larynx easier (Figure 1A, B). Our difficult intubation cart is provided with a TV and a VCR, enabling us to watch the fibre-optic procedures on the TV-monitor and to make recordings.

This technique provides an effective way for a guided airway exchange while maintaining adequate ventilation. Replacing the ETC with a standard endotracheal tube while the ETC is in place, during spontaneous breathing, represents yet another intubation alternative for the management of the difficult airway.

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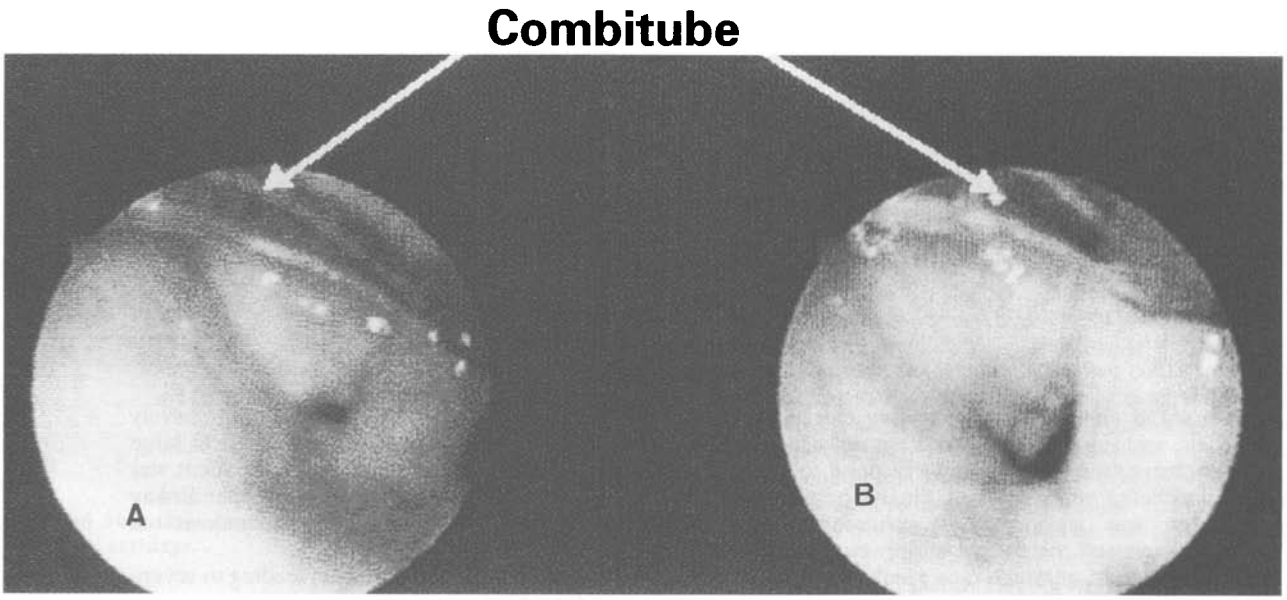

FIG. 1
ETC positioned supero-lateral to the larynx. A. expiration, B. inspiration.

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