J Anesth (2013) 27:631–632
DOI 10.1007/s00540-013-1569-9

LETTER TO THE EDITOR

Evaluation of retrograde intubation in patients with limited mouth opening

Adnan Tüfek · Musa Can Uçan · Orhan Tokgöz · Feyzi Çelik · Serkan Ağaçayak

Received: 17 December 2012 / Accepted: 28 January 2013 / Published online: 11 February 2013

Keywords Retrograde intubation · Limited mouth opening · Difficult intubation

To the Editor:

Tracheal intubation may be difficult due to limited mouth opening or other anatomical abnormalities. Fiberoptic-assisted nasotracheal intubation is the technique of choice in such cases, but a fiberoptic bronchoscope is not always available, especially in hospitals situated in rural areas. We retrospectively investigated the advantages/disadvantages of retrograde intubation in patients with limited mouth opening by evaluating the hospital records of 28 consecutive patients who had undergone retrograde intubation. The success rate, procedure time, number of attempts, and frequency of complications were recorded. A signed consent form was obtained from each patient for all surgical and anesthesia applications. The institutional ethics committee approved the study.

In our study, retrograde intubation was performed as described previously [1] in 28 patients (17 male and 11 female, mean age 27 ± 5 years). The mean body mass index was 24 ± 4. Twenty-one patients had temporomandibular joint ankylosis, and seven patients had maxillamandibular fracture. Mean time for retrograde intubation was 3.9 min. Overall success rate was 100 % and success rate of the first attempt was 67.9 %. In three patients, we performed tracheal puncture with a needle on the second attempt. If the guidewire was placed intraorally, it was withdrawn to the oropharanx position and then repositioned to the nasopharanx. In 11 (39.3 %) and 12 (42.9 %) patients, the guidewire was grasped successfully on the first and second attempt, respectively. An endotracheal tube was placed into the trachea on the first attempt in 19 (67.9 %) patients; a second attempt was performed in seven patients. The total procedure time was <5 min in 25 (82.1 %) patients.

There was no episode of hypoxemia (pulse oxygen saturation <93 %) during intubation. We found no other evidence of esophagus or airway trauma, nor of serious epistaxis. Minimal bleeding into the trachea was observed in three patients. Additionally, sore throat was present in seven patients on the second-day control after the operation. No other complications were observed during and after the procedures.

Retrograde tracheal intubation is a simple and quick procedure when performed by experienced practitioners and may be reliably used in patients with limited mouth opening, including facial trauma and temporomandibular joint ankylosis. Compared to fiberoptic bronchoscope-guided intubation, retrograde tracheal intubation has its advantages and disadvantages. It is a slightly invasive procedure with a number of potential complications, such as tracheoesophageal fistula, vocal cord damage, and bleeding [2]. The advantages of retrograde intubation over fiberoptic bronchoscope-guided intubation include its possible applicability when blood or secretions are present in the upper airway and in patients with an immobilized neck, shorter procedural duration, and a lower risk of subglottic edema and stenosis [3]. In the absence of fiberoptic bronchoscope, blind nasal intubation is another method for endotracheal intubation, but in patients with severe flexion

A. Tüfek (✉) · O. Tokgöz · F. Çelik
Department of Anesthesiology, Faculty of Medicine, Dicle University, 21280 Diyarbakır, Turkey
e-mail: adnantufek@hotmail.com

M. C. Uçan · S. Ağaçayak
Department of Oral and Maxillofacial Surgery, Dentistry Faculty, Dicle University, Diyarbakır, Turkey

deformity due to distorted anatomy, blind nasal intubation has a high failure rate [2, 4, 5]. Therefore, with an improvised nasal airway, retrograde tracheal intubation can be a suitable alternative.

In conclusion, retrograde tracheal intubation is a useful and simple technique that can be performed easily and quickly in experienced hands.

Acknowledgments We would like to thank the Anesthesia and Oral and Maxillofacial Surgery Departments of Dicle University for their invaluable assistance.

Conflict of interest None.

References

1. Waters DJ. Guided blind endotracheal intubation. For patients with deformities of the upper airway. Anaesthesia. 1963;18:158–62.
2. Arya VK, Dutta A, Chari P, Sharma RK. Difficult retrograde endotracheal intubation: the utility of a pharyngeal loop. Anesth Analg. 2002;94(2):470–3 (table of contents).
3. Shantha TR. Retrograde intubation using the subcricoid region. Br J Anaesth. 1992;68(1):109–12.
4. Bhattacharya P, Biswas BK, Baniwal S. Retrieval of a retrograde catheter using suction, in patients who cannot open their mouths. Br J Anaesth. 2004;92(6):888–901.
5. Borland LM, Swan DM, Leff S. Difficult pediatric endotracheal intubation: a new approach to the retrograde technique. Anesthesiology. 1981;55(5):577–8.