

## Difficult tracheal intubation using the Airway Scope in a patient with unexpected mouth-opening difficulty

Kenji Kayashima · Hitomi Matsushita ·  
Koji Murashima

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To the Editor:

Some reports show that the Airway Scope facilitates tracheal intubation in patients with difficult airways [1–3]. We report a difficult tracheal intubation using the Airway Scope in a patient with unexpected mouth-opening and laryngoscopic difficulty.

A 37-year-old woman, 161 cm in height and weighing 55 kg, underwent ovarian resection under general and epidural anesthesia. (Written informed consent was obtained from the patient to publish this report.) The patient was diagnosed with mild asthma and hypertension, with no medicine prescribed. She had been treated with a mouthpiece from 16 years ago until 5 years ago because of temporomandibular joint (TMJ) disorder. Physical examination before anesthesia showed that the Mallampati score was class 1 and the width of mouth opening was more than two fingerbreadths.

Anesthesia was induced with 100 mg propofol. Neuromuscular blockage was monitored with the TOF-Watch during anesthesia. After administering 30 mg rocuronium, waning of thenar muscle contraction and a TOF count of 0 were observed. Continuous infusion of remifentanyl was started at a speed of 0.27  $\mu\text{g}/\text{kg}/\text{min}$ . The patient showed restricted mouth opening of one fingerbreadth. Jaw movement within this breadth was straightforward, but we did not apply a jaw thrust maneuver. Direct laryngoscopy with Macintosh laryngoscopy was difficult, and the Cormack–

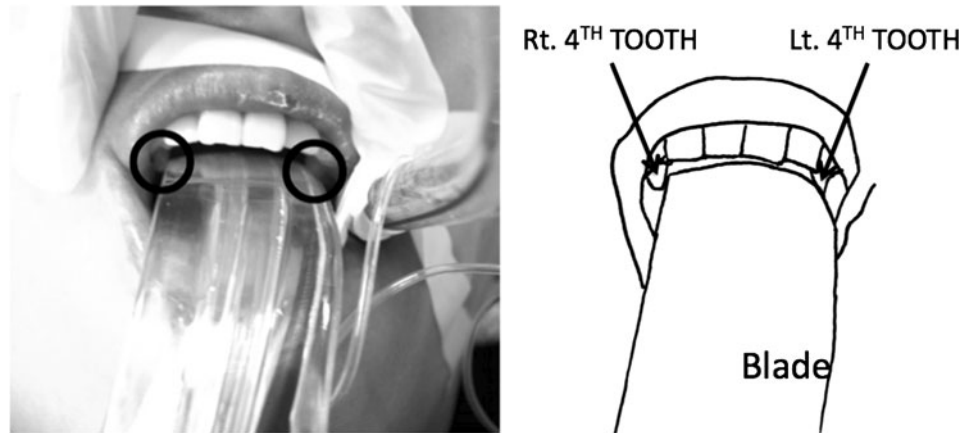
Lehane view was grade IV even after administering 10 mg additional rocuronium. The blade of the Airway Scope could not be advanced into the mouth. Finally, tracheal intubation was successful using the Trachlight. The operation was completed without problems. The patient could voluntarily open her mouth to 30 mm 3 h after the operation.

In our case, the TMJ disorder might have been the cause of restricted mouth opening after the induction of anesthesia. Two case reports of women with mouth-opening difficulty described jaw locking on anesthesia [4, 5]. One report showed that an approximately 30-mm oral opening could be achieved with lateral manipulation of the mandible in one of the women [4]. The other report showed that the patient could readily open her mouth under general anesthesia, but forward thrust of the mandible was noted [5]. The jaw of the present patient may incidentally become unlocked, and so she could voluntarily open her mouth. We could have moved the jaw during the jaw thrust maneuver under general anesthesia.

The thickness of the blade, placed inside the mouth, is 18 mm. Tooth distances of 20 mm are necessary for the insertion of an adult-size Airway Scope. It was reported possible to insert the blade in a patient with an inter-incisor distance of 21 mm [3]. The width of the blade gradually increases from 22 mm at its tip to 33 mm at its body, and the width of the blade is 24 at 13 mm distant from the tip of the blade. In our case, the mouth opening was 18 mm, and the distance between the left fourth tooth and the right fourth tooth in the maxilla was 24 mm (Fig. 1). The blade could not be advanced into the mouth because of the restricted mouth opening and narrow space in the mouth resulting from the unique alignment of the teeth. We expect to use a smaller size blade for patients with restricted mouth opening.

K. Kayashima (✉) · H. Matsushita · K. Murashima  
Department of Anesthesiology, Kyushukoseinenkin Hospital,  
Kishinoura 1-8-1, Yahatanishi-ku, Kitakyushu,  
Fukuoka 806-8501, Japan  
e-mail: ken5ji5ka5ya5shi5ma@nifty.com

**Fig. 1** Mouth opening was restricted; the blade of the Airway Scope hit against the teeth (*circled*), and could not be advanced into the mouth after tracheal intubation



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