

Rigid videolaryngoscope for difficult intubation caused by mandibular tori

Hitoshi Yoshida · Masahiro Sawada ·
Norikazu Takada · Tetsuya Kushikata ·
Kazuyoshi Hirota

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To the Editor:

A mandibular torus, an exophytic bony protuberance located along the lingual aspect of the mandible, often increases in size with aging and occupies the floor of the mouth. The torus is one of the most common oral exostoses, with its occurrence reported in up to 63.4% of the population. However, it requires no treatment unless it interferes with denture fabrication or leads to recurrent traumatic surface ulceration [1]. Massive mandibular tori cause severe difficult tracheal intubation, which can require emergent cricothyrotomy [2]. A previous report recommends tracheal intubation using the flexible fiberoptic bronchoscope in such patients [3], although flexible fiberoptic bronchoscopic intubation requires an experienced user. Recently, various rigid videolaryngoscopes have been developed as alternative devices to improve glottic view and may require less operator skill [4]. We describe a case of difficult intubation caused by mandibular tori, in which the following different videolaryngoscopes were used: an anatomically shaped rigid videolaryngoscope, the Airway Scope (AWS; Hoya, Tokyo, Japan), and the Macintosh blade-based videolaryngoscope, the V-MAC Storz Berci DCI (V-MAC; Karl Storz, Tuttlingen, Germany). The

AWS provided a superior view of the vocal cords, whereas the V-MAC failed to even visualize the epiglottis.

A 66-year-old man with mandibular tori was scheduled to undergo radiofrequency ablation for metastatic liver tumor. On physical examination, he had a class II Mallampati airway, 8 cm of thyromental distance, and 3.5 cm of interincisor distance. He was anesthetized with propofol, ketamine, remifentanyl, and rocuronium. When an anesthesiologist first attempted laryngoscopy with the V-MAC, only half of the blade of the laryngoscope could be inserted into the mouth because mandibular tori (Fig. 1a) prevented compression of the tongue, and even the epiglottis could not be seen on the display monitor despite head and neck repositioning and external compression. When the videolaryngoscope was changed, the blade of the AWS could be inserted without any obstruction to obtain a full view of the vocal cords. Tracheal intubation was then accomplished successfully.

Both the V-MAC and the AWS can improve glottic exposure in patients with poor direct glottic visualization using the standard laryngoscope [4, 5]. In this present case, however, the V-MAC could not be inserted into the mouth sufficiently whereas the AWS could. The difference in effectiveness between these videolaryngoscopes may result from the different types of blades. Figure 1 shows a simulated view because the real laryngoscopic view was not recorded. Mandibular tori that override the mylohyoid muscles and occupy the floor of the mouth do not affect head, neck, and jaw movement but do restrict tongue movement [3]. It is necessary to compress the tongue and soft tissue into the mandibular space or sweep them aside to achieve full view of the vocal cords when using the Macintosh blade, which maneuver failed in the present case (Fig. 1c). In contrast, an anatomically shaped blade such as the AWS follows the curvature of the tongue, similar to the

H. Yoshida (✉)
Department of Emergency and Disaster Medicine,
Hirosaki University Graduate School of Medicine,
5 Zaifu-cho, Hirosaki, Aomori 036-8562, Japan
e-mail: hyoshida@cc.hirosaki-u.ac.jp

M. Sawada · N. Takada · T. Kushikata · K. Hirota
Department of Anesthesiology,
Hirosaki University Graduate School of Medicine,
Hirosaki, Japan

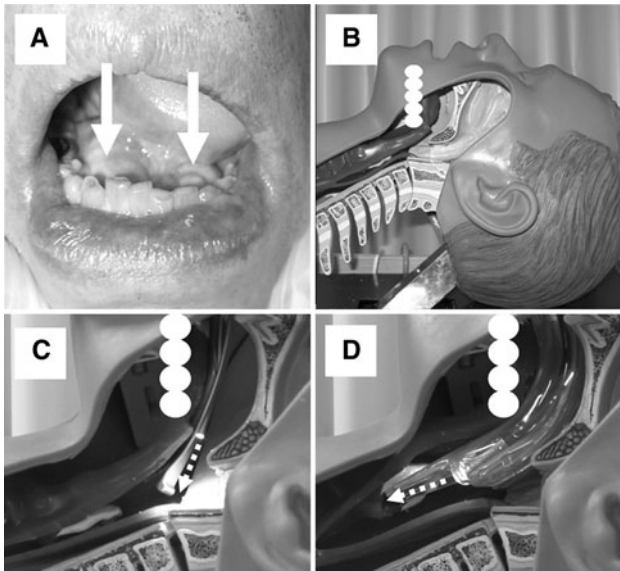


Fig. 1 Mandibular tori and simulated view. Actual (a) and simulated (b) mandibular tori occupy the floor of the mouth (*solid arrows* and a series of *circles*, respectively). Views of V-MAC Storz Berci DCI (V-MAC) (c) and Airway Scope (AWS) (d): *dashed arrows*, direction of view. The V-MAC blade could not be advanced because of the mandibular tori whereas the AWS blade reached the glottis

oral airway. It does not require compressing the tongue and soft tissue into the mandibular space as the V-MAC does (Fig. 1d). An anatomically shaped rigid videolaryngoscope such as the AWS should be considered as an alternative

noninvasive device for difficult intubation in patients with mandibular tori, although successful endotracheal intubation should depend on the relationship between the distance from the mouth to the larynx and the length of the AWS blade.

Conflict of interest None.

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