

Ultrasound-guided superior laryngeal nerve block and translaryngeal block for awake tracheal intubation in a patient with laryngeal abscess

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To the Editor:

When airway management is anticipated to be difficult, awake intubation using a fiberoptic bronchoscope (FOB) is indicated [1].

To achieve successful awake intubation, patient cooperation in combination with appropriate local anesthesia is essential. Superior laryngeal nerve block (SLNB) is an airway anesthesia technique that can paralyze the lingual radix, epiglottis, and cricothyroid muscle, and is thus expected to suppress the gag and cough reflexes.

SLNB has conventionally been performed with palpation of the greater horn of the hyoid as an anatomical landmark. The needle is inserted in an anteroinferomedial direction until the lateral aspect of the greater horn is contacted, and local anesthetic is then injected while the carotid artery is displaced posteriorly. However, it is sometimes difficult to recognize landmarks when the patient is obese or has an anatomical abnormality due to a pathology.

The work was attributed to both the Department of Anesthesiology and Critical Care Medicine and the Department of Emergency Medicine and Intensive Care at Asahikawa Medical University.

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Ultrasound-guided nerve block has been widely used recently, and this technique can provide visual information on the anatomy [2]. Here, we report a case in which awake tracheal intubation was performed under ultrasound-guided bilateral SLNB.

A 19-year-old female complained of submental pain after odontotherapy, and she was scheduled for incisional drainage of a laryngeal abscess. As the abscess involved the medial pterygoid muscle (Fig. 1a), she presented restricted mouth opening (less than one finger).

After obtaining written informed consent, semi-awake FOB intubation under nerve block was scheduled. Prior to nasal FOB intubation, 2 mg of midazolam and 50 µg of fentanyl were administered. Nasal mucosa was topicalized with 8 % lidocaine.

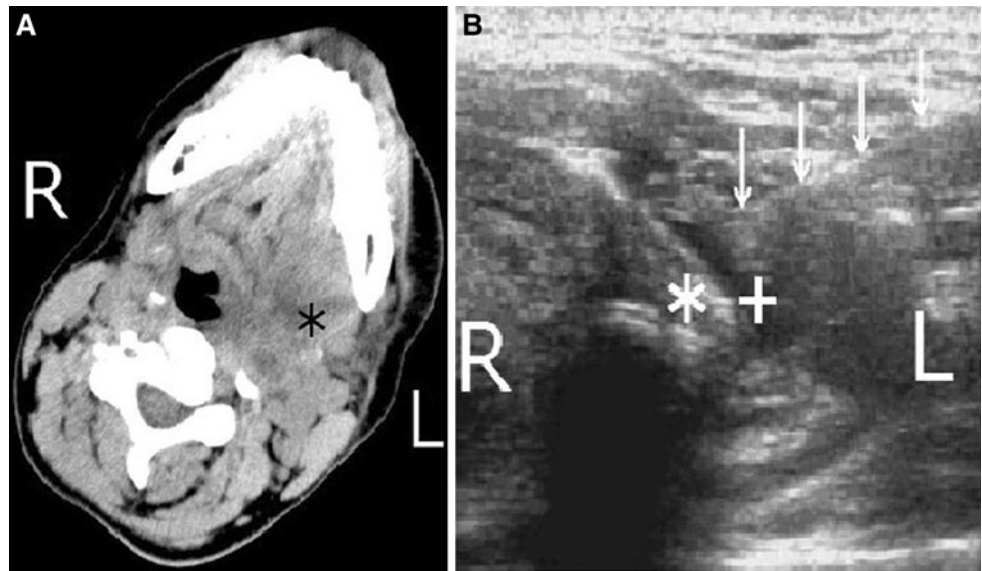
Although we attempted to perform SLNB, her left hyoid bone was difficult to find by palpation. However, when we scanned her neck using US (5–10 MHz linear probe, S-Nerve, Sonosite Japan, Tokyo, Japan), the bone was easily identified in the transverse view. The distance from the skin surface to the bone was measured as 1.1 cm, and neither vessel nor abnormal structure was observed.

With a 22G needle, 2 ml of 2 % lidocaine were injected into the surface of the greater horn of the hyoid under ultrasound guidance in an in-plane configuration (Fig. 1b). The procedure was repeated on the right side. The tracheal membrane was also topicalized with ultrasound-guided translaryngeal block through the cricothyroid membrane.

Ultrasound-guided SLNB seemed effective and FOB intubation was successfully performed while the patient was semi-awake without any discomfort. The patient complained of slight hoarseness after surgery but this disappeared within a day. There was no other notable complication.

We have previously reported ultrasound-guided translaryngeal block through the cricothyroid membrane for awake

Fig. 1 a Transverse view using computed tomography. * indicates the abscess.
b Transverse sonographic view of the patient neck at the level of the hyoid bone. An in-plane method was used to inject regional anesthesia. *Arrow* indicates the entry of the needle from the 2 o'clock direction. * indicates the greater horn of the hyoid, + indicates the injected anesthetic agent



intubation [3]. However, that technique alone may not be sufficient to reduce the adverse reflex of the lingual radix, epiglottis, and cricothyroid muscle [4]. SLNB facilitates awake FOB intubation by reducing the gag and cough reflexes. We injected local anesthetic in the same manner as in the landmark technique, but some authors suggest that the anesthetic should be injected into the SLN space [5].

This report shows that ultrasound-guided SLNB can be an alternative approach for airway anesthesia when the landmark SLNB technique fails because it is difficult to palpate the hyoid bone due to swollen tissue.

Conflict of interest None.

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