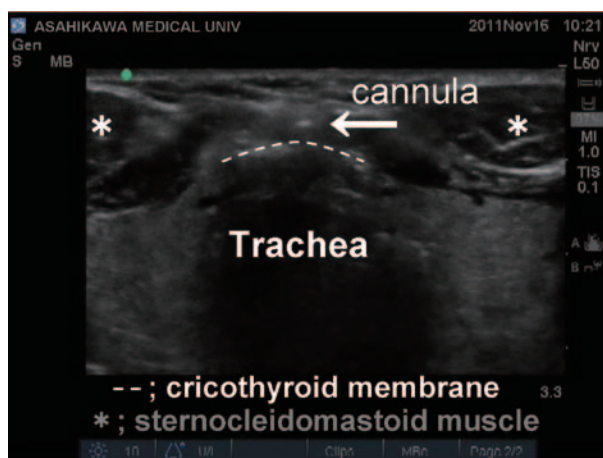


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Ultrasound-guided Cannula Cricothyroidotomy

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WHEN difficulty with airway management is anticipated, standard guidelines recommend that the airway is secured in the awake patient.¹ In the “cannot intubate, cannot ventilate” situation, surgical or cannula cricothyroidotomy is required.¹ However, identification of the cricothyroid membrane by palpation is frequently inaccurate, even under elective conditions.² Preoperative evaluation of the anterior neck with an ultrasound may be a viable technique of increasing the safety of cricothyroidotomy. An 82-yr-old man with a difficult intubation profile as a consequence of cervical spine disease was scheduled for percutaneous nephrolithotripsy in the prone position. Before awake fiberoptic intubation, his neck was scanned with an ultrasound linear probe to identify the cricothyroid membrane. Because he had a history of hypertension and ischemic heart disease, we decided to apply tracheal anesthesia

before intubation. The distance from skin surface to the membrane was measured as 0.84 cm, and neither vessel nor abnormal structure was observed. Cannula cricothyroidotomy was then performed with a 22G intravenous catheter under ultrasonographic guidance in an out-of-plane configuration, because this is a more reliable technique of achieving exact midline puncture.³ The figure shows the anterior-posterior view of the larynx and sternocleidomastoid muscle (asterisk) as the cannula (arrow) enters the cricothyroid membrane (dashed line) from the 12 o'clock direction. As soon as loss-of-resistance sensation was detected, air was aspirated. Lidocaine was injected through the cannula, and then fiberoptic bronchoscope intubation was performed uneventfully. Preoperative examination of the larynx with sonography can accurately identify the cricothyroid membrane and may provide other anatomical information. Though the cricothyroid membrane puncture is less frequently used to achieve airway anesthesia, ultrasound guidance may improve safety whenever this technique is used, including prophylactic and emergency cannula cricothyroidotomy.

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