

Gastric tube insertion under visual control with the use of the Pentax-AWS[®]

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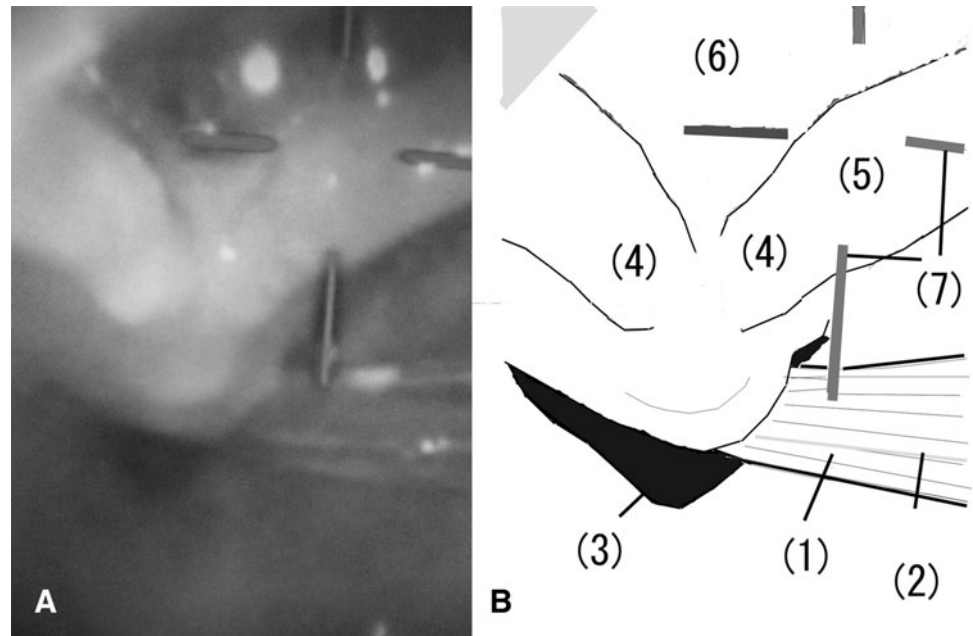
Insertion of a gastric tube (GT) in anesthetized, paralyzed, and endotracheally intubated patients can be difficult, with the risk of serious misplacement in the trachea [1] or pleural cavity [2]. Insertion under direct vision is the best method to ensure correct placement of a GT [2]. The Pentax-AWS[®] system (airway scope, AWS; Hoya, Tokyo, Japan) is a novel video laryngoscope designed to facilitate tracheal intubation [3–5]. Because the AWS allows the glottis and surrounding structure, including the inlet of the esophagus, to be visualized on the monitor of the AWS [3], it provides visual control of GT advancement. We report here the use of the AWS for safe insertion of a GT without misplacement in endotracheally intubated patients. All procedures were approved by the Institutional Ethics Committee, and informed consent was obtained from 30 patients (aged 20–64 years) scheduled to undergo abdominal surgery. After the induction of anesthesia and establishment of paralysis, the trachea was intubated with a 7.0–8.5 mm ID orotracheal tube. For oral insertion of a GT, a GT (16 Fr, 122 cm; Argyle Salem Sump tube; Covidien, Dublin, Ireland) was prepared in the main channel of the blade of the AWS. The AWS was advanced and the epiglottis was elevated directly by using the blade of the AWS. When a good view of the esophagus was obtained, the GT was advanced into the stomach through the esophagus under visual control. For nasal insertion of a GT, after the proximal end of the GT had been introduced

from the naris to the oropharynx, the AWS was advanced and the GT was inserted into the stomach through the esophagus by the same procedure as that just described. Successful placement of the GT was confirmed by air insufflation and epigastric auscultation and by aspiration of gastric juice using vacuum suction. The GT was inserted through the nose in 15 patients and through the mouth in the other 15 patients. The AWS allowed the inlet of the esophagus to be visualized in all patients, and the GT could be inserted easily into the esophagus under visual control in all patients (Fig. 1). In 4 patients, the GT bent because of impaction or could not be advanced toward the esophagus. In such patients, the AWS was temporarily removed, and then the tip of the GT was withdrawn through the mouth and was set in the tube channel of the AWS. After the AWS had been advanced again, the right index finger was introduced into the mouth so that the GT was held in the space between the finger and the posterior wall of the channel, and the GT was successfully guided along the wall into the stomach through the esophagus.

Although the Macintosh laryngoscope (ML) also provides visual control of GT advancement, we believe that the AWS has potential advantages over the ML for GT insertion because the AWS provides an improved view of the larynx compared with that provided by the ML [4]. In addition, the ML caused significant increases in heart rate and systolic blood pressure after laryngoscopy and intubation, whereas the AWS caused no increase in any of these parameters [5]. Because laryngoscopy for GT insertion seems to be as invasive as that of laryngoscopy for tracheal intubation, it is thought that gastric tube insertion with the AWS is advantageous for preventing hypertension compared with the ML. In conclusion, because the AWS provides visual control of GT advancement, it is a useful device for insertion of a GT without misplacement

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Fig. 1 Photograph of laryngeal view obtained from the Pentax-AWS[®] during insertion of the gastric tube (**a**) and schematic diagram of the photograph (**b**): (1), gastric tube; (2), radiopaque line on gastric tube; (3), inlet of the esophagus; (4), arytenoids cartilage; (5) aryepiglottic fold; (6) trachea; (7) target signal



in anesthetized, paralyzed, and endotracheally intubated patients.

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