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Difficult Airway Society awake intubation guidelines: supraglottic airway-guided flexible bronchoscopic intubation as an alternative

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Letter to the Editor

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The Difficult Airway Society guidelines on awake tracheal intubation have recently been published [1]. We agree that the use of supraglottic airway devices (SADs) as a conduit for awake tracheal intubation warrants future investigation. We recently reported a case series of awake supraglottic airway-guided flexible bronchoscopic intubation (SAGFBI) [2], a technique that may offer additional advantages to conventional FBI.

The technique allows three preliminary tests in the awake patient before proceeding with SAGFBI and the subsequent induction of anesthesia.

1. "Awake test insertion" of the SAD determines if it can be inserted into a patient with moderately restricted mouth opening. The oral route may be preferred for awake intubation because of issues with surgical access, the presence of nasal pathology, or an increased risk of epistaxis. In our case series [2], we successfully inserted an Ambu Auragain™(Ambu A/S, Ballerup, Denmark) size 3 into patients with interdental distances of 16 and 20 mm despite the product specifications recommending a required distance of 21 mm for insertion. We warmed the SAD to soften it in order to facilitate its insertion.

2. The "awake look" (along with other awake intubation techniques) allows evaluation of the periglottic region to identify any anatomical distortion or local pathology that may cause difficulties with intubation or indicate that a different technique for securing the airway should be used, e.g., front-of-neck access.

3. "Awake test ventilation" confirms whether ventilation via SADs is possible or not in an awake patient. A normal square capnograph waveform indicates satisfactory SAD positioning, which makes obtaining a partial or full glottic view during

SAGFBI more likely [2]. By ruling out the "cannot ventilate" scenario, it provides some reassurance before proceeding with the induction of anesthesia and administration of muscle relaxants. The latter should be avoided in cases of difficult airways since the preservation of spontaneous ventilation is indicated. Failed ventilation may result from SAD malposition or anatomical factors. Both are likely to cause failure of SAGFBI, and corrective SAD strategies [3] or a different technique to secure the airway, respectively, should be considered.

Other aspects of awake SAGFBI may make it preferable to other awake intubation techniques, including patients' tolerance for the SAD during insertion and SAD functionality. Awake SAD insertion may be more tolerable compared to awake direct or video laryngoscopy for three reasons. First, SAD cuffs are relatively soft, as they are made of silicone (LMA Classic™ [Intavent Orthofix Ltd., Maidenhead, United Kingdom]), polyvinyl chloride (LMA Supreme™ [LMA™ North America, Inc., USA]), or medical-grade thermoplastic elastomer (I-gel® [Intersurgical Ltd, United Kingdom]), compared to a hard plastic or metal laryngoscope blade. Therefore, SAD insertion may cause less oropharyn-

geal trauma, which is associated with the use of direct and video laryngoscopy [4]. Second, the tip of the SAD sits above the upper esophageal sphincter and is less likely to stimulate the gag reflex compared to the pressure in the vallecular from a laryngoscope blade tip [2]. Third, after SAD insertion, no additional force, torque, or head extension is required for SAGFBI; these are often required to optimize the glottic view during direct or video laryngoscopy [2].

The SAD component of SAGFBI yields desirable functionalities that are not possible during direct or video laryngoscopy or FBI. First, intermittent ventilation via the in-situ SAD can be performed during awake SAGFBI, if necessary. Second, the use of a second-generation SAD separates the respiratory and gastrointestinal tracts, thereby decreasing the risk of aspiration during SAGFBI. Third, SADs can also displace secretions and tamponade bleeding in the oropharynx, which may interfere with laryngoscopy or FBI.

The SAD acts as a conduit for FBI, decreasing the manipulation of the bronchoscope and reliance to identify the upper airway anatomical structures compared to conventional awake FBI. This is associated with high success rates in asleep SAGFBI in both normal and difficult airways (81–100% and 96–97%, respectively) [2], even when performed by a novice [5]. One explanation for this is that a partial or full glottic view is seen once the bronchoscope exits the SAD bowl in normal and difficult airways (66–96% and 77–84%, respectively) [2]. However, there have been no studies on the glottic view in awake SAGFBI, and therefore, further research is warranted in this area.

Patients with difficult airways may not be able to lie flat, such as those with severe cardiorespiratory compromise or neck pathology, e.g., ankylosing spondylitis or immobilization in a halo traction. Awake direct and video laryngoscopy is difficult to perform with the patient sitting up, as the operator would need to reach over the head of the patient to insert the laryngoscope. However, SAGFBI lends itself well to being performed in such patients, as the operator can insert the SAD and perform SAGFBI while being positioned face-to-face with the sitting patient. The sitting position has additional advantages: Gravity helps maintain airway patency and lung functional residual capacity; the stomach is lower in relation to the glottis, so the risk of aspiration is potentially reduced; and by facing the operator, the procedure is less distressing for patients [2].

The limitations of awake SAGFBI include situations where 1) SAD placement is not possible (e.g., patients with severe trismus or restricted mouth opening) or contraindicated (e.g., obstructing supraglottic lesions); 2) nasal intubation is required to allow surgical access to the oropharynx; and 3) the size of the tracheal tube used is limited by the diameter of the SAD ventilation port.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

Author Contributions

Patrick Wong (Conceptualization; Data curation; Supervision; Validation; Writing – original draft; Writing – review & editing)
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