

Topical Thunder! An Awake Intubation Technique That Works

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It's Go Time!



Learner Outcomes

1. Examine current research, expert opinion, and consensus guidelines for an awake tracheal intubation (ATI) procedure.
2. Identify appropriate indications requiring the use of an awake tracheal intubation technique.
3. Demonstrate an effective and timely topical anesthesia technique in preparation for awake intubation.



Awake Intubation: Is It Still Relevant?

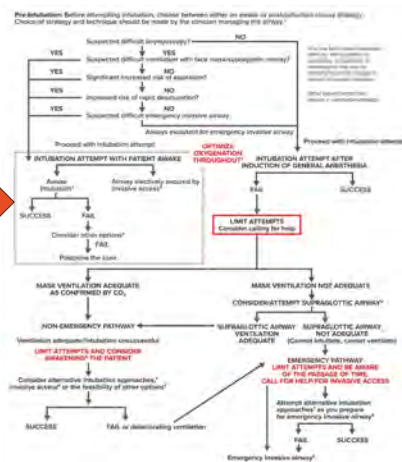


- ...the last week?
- ...the last month?
- ...the last six months?
- ...the last year?

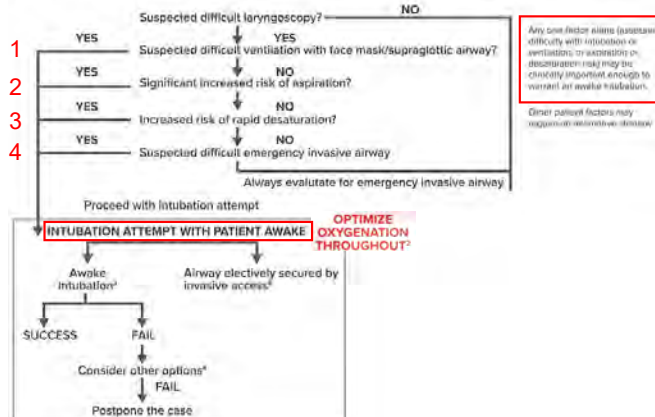
“How do I become an expert with a procedure that I rarely perform?”

Figure 2 The Difficult Airway Society awake tracheal intubation (ATI) technique. This figure forms part of the Difficult Airway Society guidelines for ATI in adults and should be used in conjunction with the text. HFNO, high-flow nasal oxygen; LA, local anaesthetic; FB, flexible bronchoscopy; MAD, mucosal atomising device; TCI, target-controlled infusion; Ca, effect site concentration; W_{awake} , awake tidal volume; W_{awake} , awake tidal volume; W_{awake} , awake tidal volume. © Difficult Airway Society 2019

Practice Parameter | January 2022
2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway [PDF](#)
 Jeffrey L. Apfelbaum, MD; Gail A. Hargis, MD; Robert T. Conroy, MD; Susan B. Ableseth, MD; Hagitha Agor, MD; Richard B. Dutton, MD; John E. Pappas, MD; Robert Orlitzky, MD; R. Aron Glick, Jr., MD; David Hirsch, MD; ...
 * Author and Article Information
 Anesthesiology January 2022, Vol. 136, 21-81



Pre-intubation: Before attempting intubation, choose between either an awake or post-induction airway strategy. Choice of strategy and technique should be made by the clinician managing the airway.¹



Awake Intubation: What are the issues?

Reports of Original Investigations | Published: 24 April 2015

The incidence, success rate, and complications of awake tracheal intubation in 1,554 patients over 12 years: an historical cohort study
 Incidence, taux de réussite et complications de l'intubation trachéale chez 1554 patients
 > *Can J Anaesth*. 2023 Jan;70(1):88-78. doi: 10.1007/s12630-022-02344-8. Epub 2022 Oct 26.

The incidence of awake tracheal intubation in anesthetic practice is decreasing: a historical cohort study of the years 2014-2020 at a single tertiary care institution
 Chen et al. *BMC Anesthesiology* 2020;20:79
<https://doi.org/10.1186/s13011-020-02940-3>

Major complications of airway management in the UK
 4th National Audit Project of The Royal College of Anaesthetists and The Difficult Airway Society

A Retrospective Study of Success Needed to Perform Awake Intubation
 Meta-Analysis > *Br J Anaesth*. 2021 Oct;127(4):636
 Epub 2021 Jul 22.

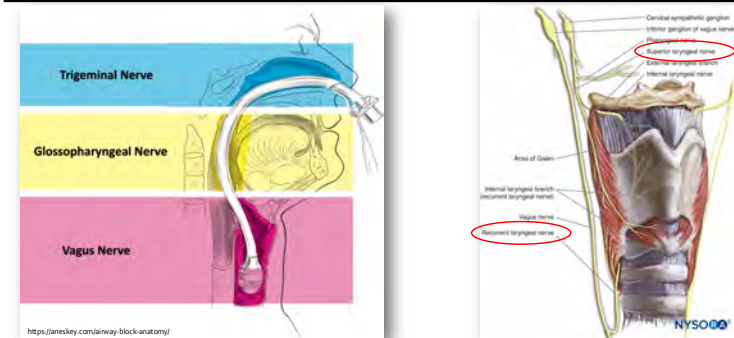
Airway devices for awake tracheal intubation in adults: a systematic review and network analysis
 Neel Desai¹, G. Imran Ahmad²

Videolaryngoscopy versus Fiberoptic Tracheal Intubation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials
 Raffaele Merola¹, Maria Vargas², Annachiara Marzà, Pasquale Buonanno, Antonia Coviello, Giuseppe Servillo and Carmine Iacovazzo

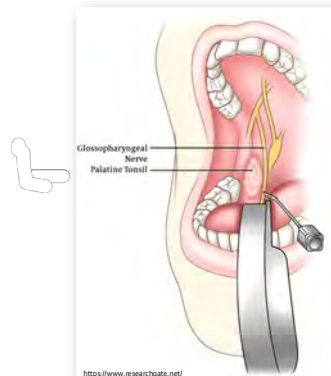
Guideline recommendations on the assessment and management of awake airway intubation: a systematic review
 SYSTEMATIC REVIEW Open Access

Airway Anesthesia Nerve Blocks/Topical

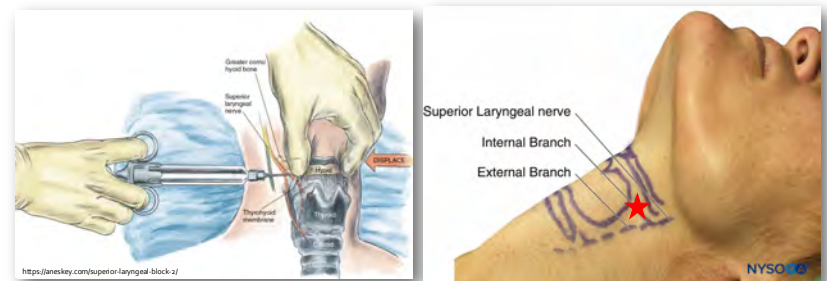
Nerve Innervation of the Airway



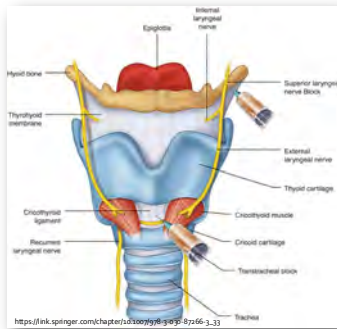
Glossopharyngeal Nerve Block



Superior Laryngeal (Internal Branch) Nerve Block



Transtracheal Nerve Block



Nebulized versus Atomized Lidocaine



Topical Anesthetics for Awake Intubation

- Lidocaine
 - 2%, 4%, 5%
- Benzocaine
 - Hurricaine spray
 - Cetacaine spray (also contains butamben & tetracaine)
- Prilocaine



Medications for Topical Thunder



5 mcg/kg or
0.2 - 0.4 mg IV

Lidocaine Toxicity

- Traditional recommended maximum dose of 4.5 - 7 mg/kg
- Difficult Airway Society guidelines say not to exceed 9 mg/kg (topical)
- Toxicity is rare
 - NOT all topical lidocaine is absorbed
- Reduce dose in:
 - Elderly
 - Liver or cardiac disease
- *Avoid IV lidocaine on induction of anesthesia*

“Sedation should not be a substitute for a properly anesthetized airway”

- Midazolam
- Ketamine
- Dexmedetomidine
- Propofol
- Remifentanyl
- **Avoid:**
 1. Over sedation
 2. Respiratory depression



Topical Thunder Patient Preparation

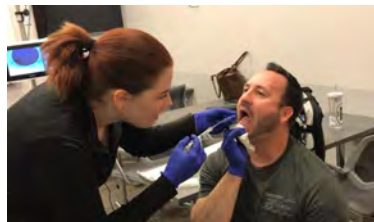
1. Psychological preparation
 1. Sedation *as needed*
 2. Lidocaine tastes awful
 3. Coughing will occur
2. Loss of subjective sense of airflow in airway
3. Sit patient up-right
4. Allow patient to hold suction yankauer (as needed)



3-Step Sequential Technique Spray – Paint – Spray

Topical Thunder Step 1 - Spray

1. Retract tongue with gauze.
2. **SPRAY:** 3 - 5 mL 4% lidocaine into the oropharynx/hypopharynx with a MADgic or EZ Spray atomizer.



Topical Thunder Step 2 - Paint

1. Retract tongue with gauze.
2. **PAINT:** Use a "lidocaine lollipop" applied to posterior tongue (1 - 2 gm 5% lidocaine paste).
 - 1 gm 5% lidocaine paste = small pea
 - 2 gm 5% lidocaine paste = small bean
 - 1 gm 5% lidocaine paste = 50 mg
3. Lidocaine paste melts down the posterior tongue.



Topical Thunder Step 3 - Spray

1. Load ETT on flexible scope.
2. Use flexible or video scope to guide atomizer.
3. **SPRAY:** 2 - 3 mL 4% lidocaine solution directly onto the periglottic structures and directly onto the vocal cords.
4. **SPRAY:** 2 - 3 mL 4% lidocaine directly into trachea.



Awake Intubation Tools



- Flexible Intubating Scope
- Non-channel Video-Laryngoscope (Glidescope)
- Channel Video-Laryngoscope
- Supraglottic Intubating Device

<https://link.springer.com/article/10.1007/s12630-016-0273-0#figure4>

Video-laryngoscopy Including Flexible Intubation - VIFI -



First-person view

Third-person view

Nasal Approach

1. TWO sprays of phenylephrine or oxymetazoline into each nostril
2. Identify nasal passage with most airflow (right usually largest)
3. THREE inhalations with 0.5 mL 4% lidocaine from atomizer
4. Lubricate NPA/ETT 2% lidocaine gel or 5% lidocaine paste
5. Advance ETT to 13-14 cm



Flexible Intubating Scope Tips

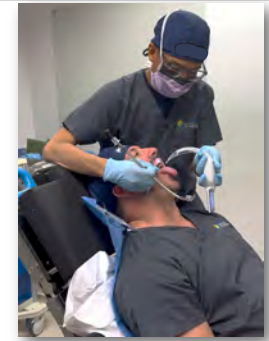


1. Stand facing patient with handle in dominant hand
 - Screen view is reversed
2. Use dominant hand to manipulate scope
 - Up & down
 - Left or right
3. Keep channel straight with non-dominant hand
4. Use ETT that fits snug against flexible scope channel
5. If difficult ETT delivery – retract ETT & turn 90°
6. **The Nurse Anesthesia Guide for Driving a Flexible Scope**



Awake Video-Laryngoscopy “Precision Laryngoscopy”

1. Patient in sitting position with anesthetized airway
2. Get a step stool – stand on patient's left side
3. Hold handle in left hand
4. Right hand holds & steadies blade
5. Be Gentle:
 - Advance blade until it reaches the hypopharynx
 - Contact tissue with gentle pressure to provide video view



Summary of Key Points

1. Awake intubation continues to be relevant in certain airway cases.
2. Whether using injection nerve blocks or topical anesthesia to prepare the airway... ***it's crucial to have a fully anesthetized airway.***
3. Sedation should be administered on a case-by-case basis.
4. Use the device for awake intubation that you're most comfortable with.
5. Practice this skill!



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