



## Anesthetic considerations and airway management in professional singers: an “orphan disease”?

Carlos L. Errando, MD, PhD 

Received: 28 February 2015 / Accepted: 6 April 2015 / Published online: 17 April 2015  
© Canadian Anesthesiologists' Society 2015

### To the Editor,

The recent article by Tiwari *et al.*<sup>1</sup> on anesthetic considerations in the management of a professional singer outlines an interesting topic not well addressed in the literature. In this sense, due to the lack of adequate focused studies to address this issue, it would seem that singers undergoing anesthesia, professional or not, could be considered as patients suffering an “orphan disease”. Furthermore, people in other professions who extensively rely on their voices (e.g., actors, teachers, clergy, etc.) could likely be included in this group of understudied patients.

In addition to manipulation of the airway with endotracheal tubes and other supraglottic devices, certain surgical procedures can also put the vocal cords at risk, e.g., vocal cord procedures, so-called “phoniatic” surgery,<sup>2</sup> where vocal sequelae are expected. Specific preoperative clinical evaluation in these patients is warranted<sup>3</sup> in order to assess the baseline conditions of the vocal cords and to advise the patients of the potential risks related to anesthesia airway manipulation. Nevertheless, other procedures on the airway apart from those of the vocal cords can also influence voice characteristics, including interventions in the oral cavity,

hypopharynx, and thorax. From an anesthesiologist's point of view, I agree with Tiwari *et al.*<sup>1</sup> regarding their preference for supraglottic devices if possible. That said, these devices are not devoid of their own risks to the oral cavity and vocal cords.<sup>4</sup> In addition, it has been shown that certain conditions can favour dysphonia or throat pain after short-term endotracheal intubation (Table).

I modestly reviewed this topic some years ago and provided a management protocol for this type of patient that included the aspects proposed by Tiwari *et al.*<sup>1</sup> In addition, I included the preoperative aspects, otolaryngologic considerations, and both the immediate and delayed postoperative management<sup>3</sup> for these patients (Table).

The risk of transient or permanent voice alterations is usually very small but can nevertheless still occur despite careful perioperative management.<sup>5</sup> If this is the case, voice function can be quantified. Indeed, consultation with a voice pathologist, otolaryngologist, phoniaticist, and even a music teacher has been recommended.<sup>3</sup> These specialists can evaluate the voice, including acoustic and voice aerodynamics and sound perception characteristics. If dysphonia appears, videostroboscopy and electroglottography can be used to evaluate the integrity of the vocal cords, including the presence of any anatomic trauma or asymmetric oscillation. The patients should be clearly informed of these unlikely though potentially significant risks both before and after anesthesia.

---

**Editor's Note:** The authors of the article: Can J Anesth 2015; DOI: [10.1007/s12630-014-0259-x](https://doi.org/10.1007/s12630-014-0259-x), respectfully declined an invitation to submit a reply to the above letter.

---

C. L. Errando, MD, PhD (✉)  
Servicio de Anestesiología, Reanimación y Tratamiento del  
Dolor, Consorcio Hospital General Universitario de Valencia,  
Valencia, Spain  
e-mail: errando013@gmail.com

**Funding** Departmental funding only.

**Conflicts of interest** None declared.

**Table** Suggested anesthetic protocol for professional voice users (derived from Errando *et al.*<sup>3</sup>)

General considerations	Preoperative visit, adequate patient information and discussion, informed consent*
Conditions that can favour dysphonia or throat pain**	Obesity Sex (male > female) Surgical factors (e.g., thyroid surgery and surgical duration*) Endotracheal intubation vs other airway management* Difficult tracheal intubation* Endotracheal tube characteristics (over-sized, high cuff pressure, inflation with air when using N <sub>2</sub> O, no cuff inflation pressure control, uncuffed)
Anesthetic aspects	Regional anesthesia preferred* Gastroesophageal reflux prophylaxis* Humidify inhaled gases Endotracheal intubation by experts* Avoid N <sub>2</sub> O* Sevoflurane/O <sub>2</sub> /air preferred (i.e., lowest irritant halogenated agent) Use of nondepolarizing neuromuscular blocking agents* Neuromuscular blockade monitoring (in order to maintain adequate block to reduce sudden movements or coughing) Consider deep extubation when indicated* Postoperative nausea and vomiting prophylaxis*
Airway considerations	Face mask preferred over endotracheal intubation Consider supraglottic airway devices over endotracheal intubation* Endotracheal intubation with lower diameter, 6-7 mm for males, 6 mm for females Use saline or air/N <sub>2</sub> O to inflate the balloon (if N <sub>2</sub> O anesthesia is being used) or a non-permeable cuff Continuous or intermittent cuff pressure monitoring* Avoid repeated laryngoscopies Prevent excessive head and neck movements* Avoid nasogastric tubes, but if needed, insert with direct visualization and Magill forceps Use gentle airway suctioning under direct vision

Note that some of the recommendations are evidence-based while others are extrapolated from general population studies

\*Aspects mentioned by Tiwari *et al.*<sup>1</sup> \*\*After short-term endotracheal intubation

## References

1. Tiwari AK, Wong DT, Venkatraghavan L. Anesthetic considerations and airway management in a professional singer: case report and brief review. *Can J Anesth* 2015; 62: 323-4.
2. Zeitels SM, Hillman RE, Desloge R, Mauri M, Doyle PB. Phonomicrosurgery in singers and performing artists: treatment outcomes, management theories, and future directions. *Ann Otol Rhinol Laryngol Suppl* 2002; 190: 21-40.
3. Errando CL. Anesthésie des chanteurs professionnels: le point de vue spagnol. *Prat Anesth Reanim* 2004; 8: 227-36.
4. Chun BJ, Bae JS, Lee SH, Joo J, Kim ES, Sun DI. A prospective randomized controlled trial of the laryngeal mask airway versus the endotracheal intubation in the thyroid surgery: evaluation of postoperative voice, and laryngopharyngeal symptom. *World J Surg* 2015; DOI:10.1007/s00268-015-2995-7.
5. Lundy DS, Casiano RR, Shatz D, Reisberg M, Xue JW. Laryngeal injuries after short- versus long-term intubation. *J Voice* 1998; 12: 360-5.