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9:00 AM - 11:00 AM
Room Hall E, Area A

Laryngoscopy vs. Optical Stylet vs. Optical Laryngoscope (Airtraq) for Extubation Evaluation

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Introduction : The ASA Task Force on the Management of the Difficult Airway regards the concept of an extubation strategy as a logical extension of the intubation strategy. Evaluation of the airway in patients being readied for extubation is imperative to stratify their risk potential of airway management difficulties that may hinder the reintubation process.

Methods: A preliminary study of known difficult airway patients in the ICU involved examining the airway to determine the potential ease of laryngoscopy and reintubation. 15 patients who were previously difficult intubations were evaluated by one anesthesiologist in preparation for extubation. Each ICU patient had optimal head and neck positioning, a propofol induction to render them accepting of the oropharyngeal-laryngeal examination without muscle relaxation and suctioning of the airway to optimize viewing capabilities. Each patient underwent a 1. direct laryngoscopy (DL) with an appropriately sized curved blade combined with optimal laryngeal manipulation for viewing, 2. an optimal DL exam combined with rigid fiberoscopy (Shikani scope), and 3. an exam with a new, disposable rigid optical laryngoscope (Airtraq, Prodol-AJL, Spain). Viewing of the periglottic structures was based on a Lehane Cormack format. The best view was recorded for each examination technique and compared.

Results: Patients with known difficult airway that required fiberoptic or accessory airway device assistance to secure the airway, were evaluated for extubation by a three-step evaluation. Each received IV propofol (120-200 mg total) to allow the optimal airway examination. The DL view was relatively poor with only 20% of the patients achieving partially or completely observed periglottic structures (grade I, II) despite optimizing maneuvers (Table. 1). Both the DL-Shikani and Airtraq afforded a much improved view (grade I) for the each of the grade II & III DL views. However, there was only partial improvement of the DL grade IV views (no view) with the DL-Shikani; 4 of 10 grade IV became grade 1, 4 of 10 became grade II and 2 of 10 improved only to grade III. The Airtraq improved the DL grade IV view to a full view (grade I) in each case allowing for a wide-angle view of the previously unvisualized airway.[table1]

Discussion: Evaluation of the difficult airway being readied for extubation is a potentially valuable exercise for the practitioner to stratify the risk potential of airway management difficulties due to altered anatomy or limitations that may hinder the reintubation process. DL provided little opportunity to observe the periglottic structures. The Shikani scope improved the ability to observe the otherwise hidden periglottic structures due to a limited "line of sight". However, the Airtraq, a disposable optical scope, with its specially designed lenses and mirrors, offered a wide angle (panoramic) view of the periglottic structure regardless of the extent of swelling or edema or any limitation of a restricted "line of sight". In this small data collection, the Airtraq performed extremely well compared to standard laryngoscopy and an optical stylet. Continued data collection is needed to evaluate this important aspect of difficult airway management.

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Table 1. Glottic View by Airway Device

	Grade I view	Grade II View	Grade III view	Grade IV view
DL alone	1	2	2	10
DL-Shikani	9	4	2	0
Airtraq	15	0	0	0