

## Commentary

# The Vortex Approach for Difficult Airway Management

Kemal Tolga Saracoglu<sup>1\*</sup> and Ayten Saracoglu<sup>2</sup>

<sup>1</sup>Department of Anesthesiology and Reanimation, Kartal Dr. Lütfi Kırdar Training and Research Hospital, Turkey

<sup>2</sup>Department of Anesthesiology and Reanimation, Marmara University Pendik Training and Research Hospital, Turkey

## Commentary

The Vortex approach is a method applicable to all airway crisis scenarios and originates from Australia. Vortex is simple enough to teach all employees and creates a common mental model. It supports teamwork during crisis by having the potential to improve decision-making. Suitable for anesthesiologist, nurse anesthetist, surgical team, emergency physician, nurse, Intensive Care Unit and operating theatre staff [1].

The Difficult Airway Society Guideline for the management of unanticipated difficult intubation was published in 2015 [2]. In this guideline it was clearly emphasized that the algorithm should be regularly rehearsed and made familiar to the whole theatre team. They also added that any plan to work well in an emergency situation, the plan must be known and reviewed by all the team members. These factors were not emphasized in previous published guidelines including both American Society of Anesthesiologists (ASA) and Canadian Airway Focus Group [3,4]. Cannot Intubate Cannot Oxygenate (CICO) situation is a rare but important cause of death in patients undergoing general anesthesia procedures. Tim Cook concluded that CICO appears to be more related with failure to act during crisis than because of procedural complications [5]. Even experienced physicians in airway management can make a basic mistake during emergency situations [6]. The failure usually not become due to lack of knowledge or skills but physicians make mistakes because of the pressure of environment [7].

In Vortex approach the decision to be made is taken as a team. Therefore, situational awareness develops. Thus, instead of losing time by insisting on a failed technique, the team has issued a permit for the transition to a different technique. Vortex approach ensures that the team has used each non-surgical technique in the most efficient way: this means that the emergency surgical airway is indicated before the O<sub>2</sub> saturation decreases. Besides it is possible for ensuring the continuity of alveolar oxygenation at all stages.

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**\*Corresponding author:** Kemal Tolga Saracoglu, Department of Anesthesiology and Reanimation, Kartal Dr. Lütfi Kırdar Training and Research Hospital, Istanbul, Turkey, Fax: +90-216-3520083; Tel: +90-216-4413903; E-mail: saracogluKT@gmail.com

As an airway provider, our primary duty is to provide alveolar oxygenation. The main thing that will trigger our emergency surgical airway assumption is to prove that 3 non-surgical methods are not working and desaturation is not determinant. This is the main fact that influences our decision-making here. We may have ensured that the patient does not desaturate for 8 minutes with preoxygenation, but if all 3 methods fail in the 3<sup>rd</sup> to 4<sup>th</sup> minute, the surgical technique should be prepared.

If one of the 3 non-surgical techniques works, this means that we can send oxygen to the patient, this time we are in the green zone. In green zone we have the opportunity to optimise the SaO<sub>2</sub>, mobilise resources and consider the options. In order to create a definitive airway the provider gives decision either for awaking the patient or move to the surgical/non-surgical airway step.

CICO status escalates with an unsuccessful best effort at any lifetime. We should consider additional escalation in CICO status if: The patient has predated difficult airway, a SaO<sub>2</sub> of <90%, rapidly deteriorating SaO<sub>2</sub> or consecutive unsuccessful attempts at any two lifelines.

## Keywords

Airway; Airway management; Vortex; Anesthesia

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