

## The Difficult Airway Algorithm of the American Society of Anesthesiologists

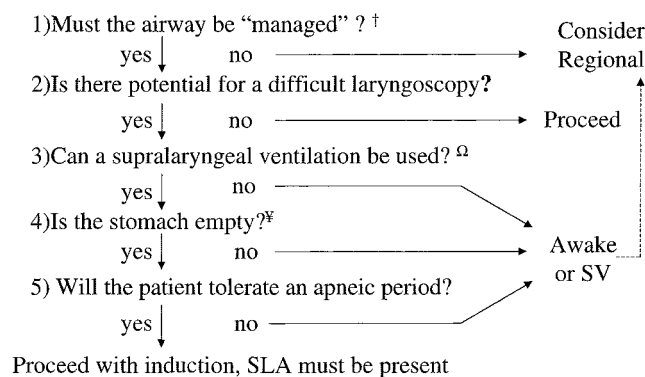
To the Editor:

The Difficult Airway Algorithm of the American Society of Anesthesiologists (ASA) was developed to guide clinicians in the management of the patient who is either predicted to have a difficult airway or whose airway cannot be adequately managed after induction of anesthesia (1). Though the ASA's task force did not attempt to enumerate the features which identify those patients who may prove difficult to manage, they did recognize that an airway evaluation should be performed. In their algorithmic approach, the task force also did not contemplate the possibility of using supralaryngeal airway devices in the routine anesthetic care of patients whose preoperative evaluation predicted difficulty with direct laryngoscopy. This concept was broached by Takenaka et al (2). These authors suggested that when a patient presents with inconclusive evidence of a difficult airway, it is reasonable to proceed with the induction of anesthesia, with a plan to use a laryngeal mask airway should direct laryngoscopy fail. In their algorithm, these authors suggested that conclusively identified difficult airways should be managed with awake intubation.

While we agree with the premise that all patients anticipated to be a "difficult direct laryngoscopy" do not require awake intubation, the Takenaka et al algorithm was incomplete in defining those situations where the clinician may proceed with the induction of general anesthesia and laryngoscopy, with a supralaryngeal airway acting as a contingency and/or "rescue" device.

In response to this, we have developed a preoperative decision tree, the goal of which is to aid the clinician in organizing pertinent information regarding the patient, so that a rational choice in airway management can be made (Fig. 1). Like the ASA Algorithm, the Airway Approach Algorithm (AAA) is not meant to help identify all difficult airways, but rather to manage all airways in a safe and rational fashion. However, unlike the ASA Algorithm, whose most significant contribution is in airway rescue, the AAA is meant to be a cognitive exercise prior to the induction of anesthesia. Once the AAA has been completed, the ASA algorithm is applied as appropriate.

The AAA consists of five questions. A positive answer to any question leads the clinician onto the next, whereas a negative answer suggests an airway management option. The algorithm makes no pretense as to be able to direct how a clinician should answer each question: for example, a particular Mallampati grade, thyromental distance or similar index does not trigger a difficult laryngoscopy "arm." The answer to each question will depend on the individual practitioner's clinical experience and review of the evidence based data.



† consider procedure, and patient, surgical and anesthesiologist's preference  
Ω face mask, LMA, combitube, etc. ‡ i.e., is there an aspiration risk?

Figure 1. The Airway Approach Algorithm.

Though seasoned clinicians who have casually reviewed the AAA concept have acknowledged that it agrees with their subjective assessments, this concept has been especially helpful for our trainees who are still trying to organize their perioperative assessment thoughts. We put forth the AAA concept as a tool for the novice (or more experienced clinician) to use in formulating airway management strategies. We are currently designing protocols to test the usefulness of this algorithm, and invite comments from readers.

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### References

1. Practice guidelines for the management of the difficult airway: A report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology* 1993;78:597.
2. Takenaka I, Kadoya T, Aoyama K. Is awake intubation necessary when the laryngeal mask is feasible? (letter). *Anesth Analg* 2000;91:247-7.

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## Massive Hemorrhage During Radiofrequency Ablation of a Pulmonary Neoplasm

To the Editor:

I read with great interest the paper of Vaughn et al (1) who presented the PFA<sup>®</sup> (platelet function analyser) as a device sensitive and useful in the evaluation of platelet inhibition seen with clopidogrel. This is not true. There is good evidence to indicate that the thienopyridines clopidogrel and ticlopidine has similar platelet inhibitory effects (2,3). A literature search on the National Library of Medicine's Medline system was performed for the following terms: PFA, clopidogrel, ticlopidine. Two well-conducted studies were identified. Fischetti et al and Kottke-Marchant et al determined platelet function with use of the PFA<sup>®</sup> in patients receiving aspirin+ticlopidine+heparin (4,5) and glycoprotein inhibitor abciximab (4). In their studies, the PFA<sup>®</sup> was not significantly affected by ticlopidine when given in conjunction with aspirin. These findings contrasted with earlier observations from ADP-induced platelet aggregation which was significantly inhibited by aspirin+ticlopidine compared to aspirin alone (6,7). The PFA<sup>®</sup> is a test cartridge system. The collagen/ADP cartridge has a high local concentration of ADP (50µg adenosine-5'-diphosphate) and this may explain the lack of ticlopidine effect on the PFA<sup>®</sup> (4). Evidence about the performance of the PFA<sup>®</sup> in predicting platelet dysfunction associated with clopidogrel therapy is lacking.

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### References

1. Vaughn C, Mychaskiw G, Sewell P. Massive hemorrhage during radiofrequency ablation of a pulmonary neoplasm. *Anesth Analg* 2002;94:1149-1151.
2. Di Minno G, Cerbone AM, Mattioli PL et al. Functionally thrombosthenic state in normal platelets following the administration of ticlopidine. *J Clin Invest* 1985;75:328-338.
3. Boneu B, Destelle G. Platelet anti-aggregating activity and tolerance of clopidogrel in atherosclerotic patients. *Thromb Haemost* 1996;76:939-943.
4. Fischetti D, Sciahbasi A, Leone AM et al. Ticlopidine and aspirin fail to suppress the increase platelet aggregability that follows percutaneous coronary interventions. *J Thromb Thrombolysis* 2000;10:265-269.
5. Kottke-Marchant K, Powers JB, Brooks L et al. The effect of antiplatelet drugs, heparin, and preanalytical variables on platelet function detected by the platelet function analyser(PFA-100<sup>®</sup>). *Clin Appl Thromb* 1999;5:122-130.
6. Van de Loo A, Nauck M, Noory E et al. Enhancement of platelet inhibition of ticlopidine plus aspirin vs aspirin alone given prior to elective PTCA. *Eur Heart J* 1998;19:96-102.
7. Rupprecht HJ, Darius H, Borkowski U, et al. Comparison of antiplatelet effects of aspirin, ticlopidine, or their combination after stent implantation. *Circulation* 1998;97:1046-1052.

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