

# EFFICACY OF THE AMBU aSCOPE 2 IN HIGH RISK ELECTIVE & EMERGENCY AWAKE INTUBATION



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## INTRODUCTION

Videolaryngoscopy has proven to be a revolutionary tool for management of the difficult airway. In many institutions, videolaryngoscopy has supplanted older techniques, and anesthesia providers may have very few opportunities to gain experience and confidence with fiberoptics. In some high-risk clinical situations, however, fiberoptic intubation remains the gold standard. In addition to requiring a high degree of operator skill, fiberoptic intubation is complicated by human factors issues, which may include the use of a monocular eyepiece to acquire a miniaturized image. When a video camera is attached to an optical bronchoscope, visualization is improved at the expense of increasing device bulk, weight, and technical complexity. Recently, Ambu (Ballerup, Denmark) introduced a lightweight, single-use video bronchoscope for intubation. The aScope 2 features CMOS imaging, LED light source, and a dedicated, detached compact LCD display. The aim of this prospective observational study was to evaluate the efficacy of this device in patients requiring awake intubation.

## METHODS

After IRB approval, 11 patients were enrolled in the study. Informed consent was obtained from 6 patients undergoing elective surgery. Waiver of consent was permitted by the IRB in 5 patients who required emergency intubation, including three patients with severe angioedema, a patient with adult epiglottitis, and a patient who was awakened after failed intubation attempts under anesthesia. Other indications for awake intubation included massive goiter (2), ankylosing spondylitis with morbid obesity (1), severe spinal cord compression (1), and history of difficult intubation (1). Measured variables included overall and first pass success rates, complications, time to intubation, and a visual analog intubation difficulty score. Airway topicalization was achieved with a combination of 5% lidocaine ointment, and 4% lidocaine solution. Intubators included MDs and CRNAs, most with minimal previous device experience aside from brief simulator training.



## RESULTS

All patients were successfully intubated with the aScope. 7 patients were intubated on the first attempt. 2 patients required 2 attempts, and 1 patient required 3 attempts due to issues with comfort. Several attempts were required in a patient with angioedema due to secretions and vomitus in the pharynx. Excluding patients who required more than 2 attempts, intubations averaged approximately 80 seconds, and average difficulty on a visual analog scale from 0-100 (0=easy, 100=impossible) was 11.

## RESULTS

There were no issues with fogging, device failure, or patient injuries. All patients were discharged from the hospital.

## DISCUSSION

The Ambu aScope 2 functions in a manner analogous to a conventional optical bronchoscope. However, from the human factors perspective, it simplifies the procedure by virtue of being lighter and shorter than a conventional bronchoscope, with the additional advantage of imaging on a video screen rather than an eyepiece. This decrease in physical complexity confers several advantages to the operator. The intubators in this study agreed unanimously that the aScope was subjectively easier to use and preferable to a conventional bronchoscope. This device has the promise of simplifying flexible intubation procedures, and may improve outcomes, particularly in the hands of less experienced providers. Further study is warranted.