



Comparison of the single-use Ambu aScope2® versus the fiberoptic bronchoscope for tracheal intubation in patients with cervical spine immobilization

P. Schoettker, V. Krugel, P. Frascarolo, I. Bathory

Anesthesiology Department, University Hospital Center and University of Lausanne, Switzerland

Introduction: Despite the emergence of new videoscopes, fiberoptic intubation remains a key technique for difficult airway management. Standard reusable bronchoscopes offer high quality vision but are expensive to purchase, in addition to maintenance. Recently, a single-use flexible videoscope has been developed with an updated device being commercialised (Ambu aScope2®) integrating a better quality optical system.

Aim: We planned a prospective randomized controlled clinical study to compare the Ambu aScope2® to a standard fiberoptic bronchoscope for tracheal intubation in 100 patients with a simulated difficult airway.

Methods: 100 patients (ASA I or 2 undergoing elective surgery with oro-tracheal intubation) were randomly assigned to group "aScope2®" or "fiberoptic bronchoscope". Exclusion criteria were BMI > 35, dental instability, previous difficult intubation or ear-nose-throat surgery. After standardized induction of general anesthesia and neuromuscular blockade, the neck was immobilized with an appropriately sized semi-rigid Philadelphia Patriot® cervical collar and intubation performed by the same experienced anaesthetist. Demographics, time to identify the carina, time to intubate (from touching the device to obtaining end-tidal CO₂) and time to railroad the tube, intubation success, quality of vision as well as ease of intubation were recorded.

Results: Both groups were similar in terms of gender, ASA, weight, height and no statistically significant difference was noted in factors predictive of difficult intubation (MP, TMD and neck circumference). The median mouth opening was 2.0 cm [1.5;2.2].

All patients were successfully intubated in both groups within the set time limit (4 minutes).

The time was significantly shorter and the quality of vision significantly better in the standard fiberoptic bronchoscope group.

A jaw-thrust maneuver was significantly more often necessary in the aScope2® group (16 vs. 5 patients; p=0.01).

Four patients necessitated two attempts in the aScope2® group (secretions that lead to removal of the scope and lens cleaning), compared to eight with the fibrescope (p=0.22) due to secretions (1 patient), malpositioning of the Ovasopian split airway (2 patients) and accidental withdrawal of fibrescope during manipulation (5 patients).

	Quality of vision			Ease of intubation			Time [s]		
	Excellent	Acceptable	Unacceptable	Easy	Intermediate	Difficult	To see carina	To railroad tube	To intubate
Fibrescope	49*	1*	0	38	7	5	14.5 [11.8;22.0]*	31.5 [27.0;38.0]	49.5 [40.0;59.3]*
aScope2®	24*	22*	4	30	12	8	27.5 [22.0;45.8]*	34.0 [29.0;42.0]	69.5 [54.8;97.3]*

*: significant difference (p<0.05)

Conclusions: Evolution of technology has led to the design and commercialisation of a single-use flexible optic device. In simulated difficult airway patients, oro-tracheal intubation was always possible with this device, although with less quality of vision and longer time comparing to a standard fiberoptic bronchoscope. It might represent an alternative in cases of non-available expensive fiberoptic bronchoscopes or specific institutional situations.