Evaluation of the Ambu® aScope™ 3 System for difficult intubation

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The Ambu® aScope™ 3 scopes (aScope 3-Slim: 3.8mm external diameter and aScope 3: 5.0mm external diameter) connect to a separate, portable aView™ monitor. Together, the system was evaluated in 20 fibre-optic intubations where the airway was predicted to be 'difficult' using recognised clinical criteria. Our aim was to evaluate the functionality and ease of use of the aScope™ 3 system.

All procedures were performed electively by one of 2 experienced consultant anaesthetists with expertise in difficult airway management. Indications for fibre-optic intubation included oral and laryngeal carcinomas, previous radiotherapy, fractured mandibles, obesity and a large thyroid mass. Intubation was successful in all cases (15 orally and 5 nasally; 4 awake and 16 following induction of general anaesthesia). Ten 3.8mm and ten 5.0mm scopes were evaluated, with a number of 5.0mm scopes used for awake oral and nasal intubations. Bleeding and sputum were encountered in a number of cases, although suction was not required or used in all cases. One case involved the successful use of a Cook Aintree Catheter® with an aScope™ 3 Slim.

A 5-point Likert scale was used (1: fully disagree, 3: neutral, 5: fully agree) to evaluate functionality and ease of use of the system. Overall functionality and performance was rated as satisfactory in all procedures and the system was evaluated as to be able to replace the existing non-disposable system in all cases.

Table 1. Mean Likert scores for functionality and ease of use

	Mean	Trimmed 95% CI
Easy to advance the scope	4.7	4.2 – 5.0
Functionality of working channel satisfactory	4.3	2.7 – 5.0
Ease of performing suction	4.3	3.5 – 5.0
Suction capability adequate	4.3	3.5 – 5.0
Lens cleared adequately when secretions encountered	3.5	1.9 – 5.0
Image quality entirely adequate to intubate	4.9	4.7 – 5.0
Image quality equal of better than usual scope	4.5	2.9 – 5.0
Ergonomics satisfactory	4.3	2.7 – 5.0
Lightweight handle was a benefit	3.8	1.4 – 5.0
Intuitive to navigate aView™ monitor	3.0	1.7 – 4.3
Easy to record images	2.3	0.3 – 4.3
Easy to record images	2.7	1.7 - 3.6

Our evaluation by 2 independent, experienced clinicians has demonstrated that the Ambu® aScope™ 3 system performs well when used for elective fibre-optic intubation where the procedure was predicted to be 'difficult'. The lowest scores concerned the recording capabilities of the aView™ monitor, since this had pre-release software installed during this trial. The suction was subjectively less effective when using the aScope™ 3 Slim (suction lumen 1.2 mm) as compared with the larger 5.0mm 'scope (suction lumen 2.2 mm), but worked well enough to facilitate intubation when suction was required.

In conclusion, the immediate availability and portability of the system were perceived as advantages and the image quality was equal to or better than our non-disposable 'scopes in the majority of situations.