

Title: The videolaryngoscope Airwayscope™ makes the bronchial aScope™ videoscscopy easier.

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Background

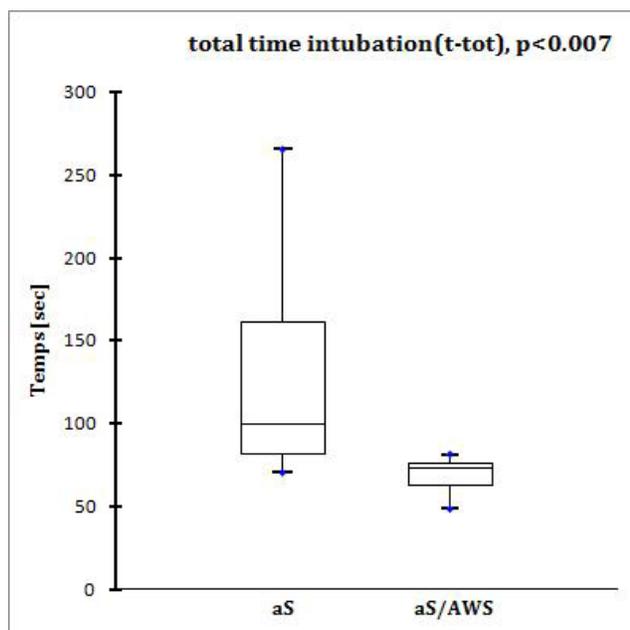
The aScope™ (aS, Ambu, Le Haillan-France) is a new hand held, single patient use videoscope, for visual guidance during intubation without fiberoptic bundle technology (LED bulb, distal micro camera). It solves some of the core problems of traditional fibrescopy as: sterilization, availability, maintenance, fragility. The Pentax Airwayscope™ (AWS, Ambu, Le Haillan-France) is a video laryngoscope with an inbuilt screen and a single use blade with an integrated channel to guide an endotracheal intubation without a stylet. It allows indirect visualization of the glottis. The association of a videolaryngoscope was shown to facilitate the fibrescopic intubation in humans [1]. This study, evaluates the association of the aS with the AWS in the preclinical setting.

Methods

After informed consent, anesthesiologists who had previously performed < 20 fibrescopies and < 5 AWS intubations were enrolled in this study on a difficult airway management mannequin (Intubation trainer, KarlStorz, Germany). After theoretical training they attempted, in a randomized sequence, an endoscopic intubation (EI) with either the aS alone or the aS under AWS control (aS/AWS group). The primary endpoint was the total time of the EI (t-tot). Secondary endpoints were : the mouth-glottis time (t-MG, from the passage of the lips to vocal cords visualization), the mouth-carina time (t-MC), a validated check list score (0 to 4) [2] and a five-point global rating scale score [2]. Each EI procedure not completed in 4 min was stopped and was considered as a failure. Anesthesiologist's satisfaction was noted on a digital scale (0 to 10). Statistical analysis was performed with Wilcoxon test.

Results

20 EI were performed by 10 anesthesiologists (4 residents and 6 senior physicians). All the EI assisted by AWS (n=10) were successfully completed at the first attempt. When performed with the aS alone (n=10), 5 EI required more than one attempt : 4 were then completed in the allotted 4 min and one case ran out of time. The median t-tot was 140 sec [70-265] in the aS alone group and 69 sec [48-81] in the aS/AWS group (p<0.007). Secondary endpoints are presented in the table. Anesthesiologist's satisfaction was 6.2 [5-9] with the aS alone and 8.5 [8-9] with the aS/AWS association (p<0.002).



Results							
t-MG (sec)		t-MC (sec)		checklist (0-4)		global rating scale score	
aS	aS/AWS	aS	aS/AWS	aS	aS/AWS	aS	aS/AWS
37	6	110	15	1.9	3.3	3	4.5
5-89	1-13	43-214	10-30	0-4	2-4	1-5	4-5
p<0.007		p<0.005		p<0.026		p<0.011	

all values as median, minimum and maximum

[1] N. Greib. A combined rigid videolaryngoscopy-flexible fibrescopy intubation technique under general anesthesia. *Can J Anesth* 2007 ;54 :492-3.

[2] S. Boet. Learning fibreoptic intubation with a virtual computer program transfers to 'hands on' improvement. *European Journal of Anaesthesiology* 2010, 27:31-35

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Summary: In this preclinical series, AWS makes aS use easier according to the defined criteria, allowing a fast and effective catch in hand by beginners in EI. These results need to be confirmed in the clinical setting.

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