Fiberscope Versus Single Use Ambu aScope® Bronchoscope
For Control of Double-lumen Tubes and Bronchial Sutures

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Introduction

The conventional fiberscope is the reference bronchoscope used for the control of double-lumen tubes. There is a potential infectious risk in the case of insufficient sterilization, and otherwise high maintenance costs. The single-use bronchoscope allows to get rid of these disadvantages, but has not yet been sufficiently evaluated for the control of distal bronchial sutures.

Type of study: Observational, prospective clinical trial

Purpose: Comparing a conventional fiberscope with a single-use bronchoscope (Ambu aScope®) in terms of handiness, picture quality and visualization of distal bronchial sutures.

Materials and methods

- 30 patients: 9 females and 21 males, aged 20 – 81 years, informed consent
- Conventional fiberscope (n = 15) versus Ambu aScope® (n = 15)
- Double lumen tubes 35 – 41 Fr, 12 right and 18 left tubes
- Indications: left and right thoracotomies and thoracoscopies

- Evaluated parameters (1 – 10 scale):
  - Picture quality of the carina and the stem bronchus
  - Control of the bronchial suture
  - Light intensity and contrast
  - Handiness and easiness of use
  - Success and time of endoscopic control
  - Suction possibilities

Source: Ambu, Ballerup, Danemark

Results

- Success of endoscopic control
  - Fiberscope 15 / 15 cases
  - Ambu aScope® 14 / 15 cases → type of tube > 35 Fr

- Mean time of control
  - Fiberscope 224 sec → right tubes
  - Ambu aScope® 171 sec

  } p = 0,6155

- Suction possibilities
  - Fiberscope YES
  - Ambu aScope® NO

- Global satisfaction
  - Fiberscope 8 / 10
  - Ambu aScope ® 6.4 / 10

  } p = 0,0011

Picture quality

Score	1	4	5	6	7	8	9	Mean	Median	p
Picture quality carina										
aScope® n=14	0	0	1	5	3	3	2	7.0	7	
Fiberscope n=15	0	0	0	0	4	5	2	8.1	8	0.0133
Picture quality stem bronchus										
aScope® n=14	1	0	1	7	3	2	0	6.1	6	0.0073
Fiberscope n=15	0	1	0	1	5	6	2	7.4	8	
Picture quality bronchial suture										
aScope ® n=11	0	0	2	3	3	3	0	6.6	7	0.0049
Fiberscope n=11	0	0	0	0	2	7	2	8.0	8	

Easiness and handiness of use

Score	5	7	8	9	Mean	Median	P
Easiness of use							
aScope® n=14	1	1	0	12	8.6	9	0.0021
Fiberscope n=15	0	5	8	2	7.8	8	
Handyness							
aScope® n=14	0	2	1	11	8.6	9	0.0004
Fiberscope n=15	0	7	7	1	7.6	8	

Light intensity and contrast

Score	4	5	6	7	8	9	Mean	Median	p
Light intensity									
aScope ® n=14	0	0	5	6	3	0	6.9	7	0.0217
Fiberscope n=15	0	0	4	1	3	7	7.8	8	
Contrast									
aScope® n=14	1	3	7	1	2	0	6.0	6	0.0004
Fiberscope n=15	0	0	0	4	5	6	8.2	8	

Conclusion

This clinical trial suggests that the single-use bronchoscope (Ambu aScope®) is easy and handy to use. However, it seems not be as efficient as the conventional fiberscope in controlling distal bronchial structures after a double-lumen tube intubation. Picture quality transmitted to the monitor, suction possibilities and the diameter of the flexible part should be improved.