Comparison between Air Q and intubating laryngeal mask airway as intubation conduits in patients with simulated fixed cervical spine: a prospective observational study

Renu Bala, Jasmine Basumatary, Priyanka Bansal*
Department of Anesthesiology, Pandit Bhagwat Dayal Sharma, Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

*Correspondence to: Priyanka Bansal, MD, dr.priyankabansal1986@gmail.com.
orcid: 0000-0002-5900-401X (Priyanka Bansal)

Abstract

The intubating laryngeal mask airway (ILMA) can be used for ventilation and oxygenation between intubation attempts, but there is a varied success rate ranging from 33% to 96%. Air Q is a relatively new entrant. Parker flex tube aids in atraumatic intubation. The primary aim of this study was to compare Air Q intubating laryngeal airway with ILMA as intubation conduits in patients with simulated fixed cervical spine using a Parker flex tube. It was a single-blinded, randomized, prospective, and comparative study conducted on 91 patients aged between 18 to 60 years of either sex, scheduled to undergo elective surgery under general anesthesia belonging to the American Society of Anesthesiologists physical status I and II. Out of 45 patients in each group, Air Q was successfully placed in 43 patients and ILMA was successfully placed in 44 patients. 35.56% of the patients required maneuvers for placing the Air Q, whereas, for placing the ILMA, only 15.56% of the patients required maneuvers. Intubation through the AIR Q was successful in 39 patients and through the ILMA in 44 patients, but there was no significant difference between the two groups. The number of attempts and the time of device insertion were comparable. There were a similar number of attempts, maneuvers required, and time is taken for endotracheal intubation. The incidence of cough and sore throat was comparable in both groups. We conclude that ILMA has a higher success rate than Air Q for tracheal intubation with Parker Flex tube in patients with simulated fixed cervical spine. More optimized maneuvers were required for the placement of Air Q.

Key words: Air Q; cervical collar; difficult airway; endotracheal tube; intubating laryngeal mask airway; intubation conduit; intubation; manual in-line stabilisationstabilization; Parker Flex tube; simulated fixed cervical spine; supraglottic device

doi: 10.4103/2045-9912.350920
How to cite this article: Bala R, Basumatary J, Bansal P. Comparison between Air Q and intubating laryngeal mask airway as intubation conduits in patients with simulated fixed cervical spine: a prospective observational study. Med Gas Res. 2023;13(1):10-14.

Introduction

The maintenance of an airway is the chief armamentarium of an anesthesiologist. The conventional method, using a Macintosh laryngoscope, causes considerable movements at the occipito-atlanto-axial complex, which are prohibited in cervical trauma patients.

Rigid cervical collars are the most commonly used method for stabilizing the cervical spine; however, manual in-line stabilization (MILS) causes fewer effects on Cormack and Lehane grading and decreases the spine's movement in the cervical area.[1] The gold standard for airway management in such patients is awake fiberoptic bronchoscopy-guided intubation. However, it carries several disadvantages, such as the requirement of adequate training, availability issues, and difficulty to perform in the presence of blood, vomitus, secretions, or in uncooperative and agitated patients.[2-4] Supraglottic airway devices (SGAD) are primarily used for ventilation with limited success of intubation. Although intubating laryngeal mask airway (ILMA-Fastrach) has been recognized for its use in patients with limited cervical spine movements, there is a varied success rate of intubation ranging from 33% to 96%.[5-7] The Air Q intubating laryngeal airway (ILA) has a shortened, wide breathing tube and a connector, which is removable for inserting a standard polyvinyl chloride tube through the Air Q.[4,8,9] Parker Flex tube has a flexible, curved and tapered tip in the distal end for facilitating atraumatic intubation, thus a better option for blind intubation through the SGAD.

There is a lack of studies comparing these two devices for endotracheal intubation in patients with immobilized cervical spine. Haleem et al.[10] did a case series in four patients who had spine fractures and demonstrated the successful use of Air Q ILA for fiberoptic guided endotracheal intubation. So we planned the present study to evaluate these two devices in patients with cervical collars and MILS.

We primarily aimed to evaluate and compare Air Q ILA and ILMA as intubation conduits using Parker flex tube in patients with simulated fixed cervical spine. Our secondary objectives were to assess the success rate, time taken, and the number of attempts required for successful intubation, hemodynamic changes, and complications due to any of these devices. We hypothesized that intubation through Air Q and ILMA would have a similar success rate using Parkers tube in patients with immobilized cervical spine.

Subjects and Methods

The present study was a prospective, randomized, single-blinded, comparative study conducted after approval by the Institutional Ethical Review Board of Pandit Bhagwat Dayal Sharma, Post Graduate Institute of Medical Sciences (IRB No. IEC/Th/18/Anst10) on December 19, 2018 (**Additional**

file 1) and registered at Clinical Trials Registry-India (No. CTRI/2019/06/019782) on October 23, 2020. The study was conducted from February 2019 to March 2020 in accordance with the principles of the *Declaration of Helsinki*. A written informed consent (**Additional file 2**) was obtained from each subject.

Detailed airway examination was done with Wilson scoring (**Additional Table 1**) and Mallampatti grading (done to assess the oropharyngeal view by asking the patient to sit and open his/her mouth maximally and to protrude the tongue without phonation and record the structures visible upon maximal mouth opening and classified as score). Score 1 indicates the soft palate, fauces, uvula, and tonsillar pillars, which are clearly visible, Score 2 indicates the soft palate, fauces, and uvula visible, Score 3 indicates the soft palate and base of the uvula visible, and Score 4 indicates the soft palate not visible), head and neck movement, teeth (missing/buck/edentulous/loose), mouth opening, thyromental distance, sternomental distance.[11,12] Adult patients between 18 to 60 years of either sex, belonging to American Society of Anesthesiologists physical status I and II,[13] scheduled to undergo elective surgery (both open and laparoscopic cholecystectomy, mastectomy, etc.) under general anesthesia requiring intubation were included. Patients with anticipated difficult airway, inter-incisor gap < 2.5 cm, oropharyngeal anatomical abnormalities, risk of aspiration, body mass index > 30 kg/m^2, Wilson score > 4 and poor pulmonary compliance were excluded from the study.

All patients were kept fasting as per standard protocol (6 hours for solids and 2 hours for liquids prior to surgery). Premedication with tab alprazolam 0.25 mg and tab ranitidine 150 mg at bedtime and 2 hours prior to the surgery with a sip of water was given. After premedication, patients were shifted to the operating room, and a two-piece semi-rigid cervical collar (supplied by Dynamic Techno Medicals, Kerala, India) of appropriate size was placed around the neck of the patient in the supine position. All the routine vital monitors - non-invasive blood pressure, saturation probe, ECG leads - were established, and a baseline recording was done.

The sample size (SPSS version 20, IBM, Armonk, NY, USA) was determined based on the ability to detect the success rate of intubation in the two groups. We chose a 66% baseline ratio of success rate based on a previous study[14] on ILMA. With 41 patients in each group, there was 80% power at an alpha error of 0.05 to detect a 25% difference between the two groups. To compensate for potential dropouts, we enrolled 45 patients in each group.

Randomization was based on computer-generated codes that were maintained in sequentially numbered opaque envelopes. Allotted concealment was ensured using an opaque sealed envelope by a technician not involved in the study. An experienced anesthesiologist with at least 20 successful intubations using these devices conducted the intubation. Another anesthesiologist recorded the data. A total of 90 patients were equally assigned to the ILMA group and the Air Q group. Patients in the ILMA group were intubated through LMA-Fastrach™ (Laryngeal Mask Company, Jersey, UK), while in the Air Q group, Air Q ILATM (Cookgas® LLC, Mercury Medical, Clearwater, FL, USA) was used.

After intravenous access, preoxygenation was done with 100% oxygen for 3 minutes. Induction of anesthesia was done with the intravenous injection of glycopyrrolate 0.2 mg (Shree Sai Healthcare, Delhi, India), fentanyl 2 µg/kg (Med India, Delhi, India), propofol 2–2.5 mg/kg (Neon Laboratories Limited, Delhi, India). After loss of eyelash reflex, bag mask ventilation was confirmed, and vecuronium 0.12 mg/kg (Wellona Pharma Private Limited, Surat Gujarat, India) was intravenously injected. The front portion of the collar was removed, and an assistant (resident anesthesia with at least 2-year experience in anesthesia) applied MILS of the neck by grasping both sides of the head firmly.[2] Mask ventilation was continued for 3 minutes with 100% oxygen and 1% sevoflurane. Following this, depending upon the randomization number, an experienced anesthesiologist, who had carried out more than 25 intubations using the two SGADs, performed intubations in all the subjects. The SGAD of appropriate size (ILMA size 3 for female, size 4 for male; Air Q size 3.5 for female, 4.5 for male) was properly lubricated with water soluble jelly and introduced as per manufacturer guidelines. A maximum of three attempts were allowed, failing which intubation was done using direct laryngoscope after the release of MILS.

Ventilation through the SGAD was set to a volume control mode of ventilation with the following settings: flow 3 L/min, 100% oxygen and sevoflurane 2%, tidal volume 10 mL/kg, frequency 12 times/min, inspiratory: expiratory ratio = 1:2. Expired tidal volume and peak airway pressure were noted. Oropharyngeal leak pressure was checked at a fixed gas flow of 3 L/min with the ventilator (Draeger, Lübeck, Germany) switched off and the expiratory valve completely closed. The airway pressure at which equilibrium was reached or air leak occurred was recorded. Fiberoptic bronchoscopy-guiding was done as described later.

Intubation was attempted using Parker Flex Tip endotracheal tube (Parker Medical – Med Alliance Group, Sycamore, IL, USA). The breathing circuit was detached and endotracheal intubation (ETT) was gently introduced (size 7 mm internal diameter for Air Q 3.5 and ILMA 3; size 7.5 mm internal diameter for Air Q 4.5 & ILMA 4), and the cuff was inflated. A maximum of three attempts were allowed. First and second attempts for intubation were blinded, and the third one was done under a fiberoptic bronchoscopy-guide.

Successful placement of both the device and ETT was confirmed by reattaching the breathing circuit to see the end-tidal carbon dioxide graph in the manual ventilation mode, by looking for adequate chest rise, and also by auscultation to check for equal and adequate bilateral breath sounds. Various maneuvers such as up and down movement, flexion or extension of the handle, head and neck movements, and lifting of the posterior pharyngeal wall (Chandys maneuver) were carried out for ILMA. We did not attempt head and neck movements as the protocol of the study.

After confirmation of correct ETT placement, MILS was released, and the supraglottic airway device was removed. Attempts for supraglottic airway device placement, endotracheal intubation, and the time taken for placement and intubation were recorded. Any adverse events were noted and managed accordingly.

Following the completion of the surgery, the neuromuscular blockade was reversed, and tracheal extubation was done. Any

adverse event that occurred immediately after surgery was noted. Patients were revisited at 6 and 24 hours postoperatively to assess any oropharyngeal adverse effects, such as cough, sore throat, and hoarseness.

Time taken for airway device and ETT insertion was from picking up the device till the appearance of the capnograph waveform. Total insertion time was the sum of all attempts but did not include the time gap between attempts. Difficulty in the placement of either was subjective and categorized as none, mild, moderate, and severe. Time taken for removal of airway device was taken as the time from successful placement of ETT through the device to confirmation of placement after removal of the device from the oral cavity. Total time taken for successful intubation was taken as the sum of time taken for SGAD and ETT placement and removal of SGAD. This did not include the time for oropharyngeal leak pressure measurement, fiberoptic grading, and the time gap between attempts.

For fiberoptic grading we used a four-point assessment of the view of the vocal cords and epiglottis: 4, only vocal cords visible; 3, vocal cords plus posterior epiglottis visible; 2, vocal cords plus anterior epiglottis visible; 1, vocal cords not visible.[23]

Data analysis was done using Statistical Package for Social Sciences (SPSS) version 21.0. Categorical variables were presented in number and percentage, while continuous variables were presented as mean ± standard deviation (SD) and median. Normality of data was tested by Kolmogorov-Smirnov test. If the normality was rejected, a non-parametric test was used. Quantitative variables were compared using the independent *t*-test/Mann-Whitney *U* test. Qualitative variables were compared using the Chi-square test/Fisher's exact test. A *P* value of < 0.05 was considered statistically significant.

Results

A total of 90 patients were randomly allocated into two groups: Air Q group (n = 45) and ILMA group (n = 45) (**Figure 1**). The device could not be inserted in two patients in the Air Q group and one patient in the ILMA group. Thus 43 patients in Air Q and 44 in ILMA were analyzed statistically for intubation. Both groups were comparable in terms of age, sex, body mass index, and American Society of Anesthesiologists physical status grading (**Table 1**). No major comorbidity was present in any patient.

The detailed airway examination was comparable between the groups. The Mallampatti grading (I/II/III) was 9/31/5 in the Air Q group and 4/38/3 in the ILMA group (P = 0.209). Similarly, Wilson score (0/1/2/3) was 18/9/17/1 and 16/13/16/0 in the Air Q and ILMA groups, respectively (P = 0.599).

The difference was significant in maneuvers required to insert the SGAD (P < 0.05). Maneuvers were required in 36% of patients in the Air Q group, significantly higher than that in the ILMA group (16%). The two groups were comparable in terms of no attempts (P = 0.094) and time taken to insert the device (P = 0.24; **Table 2**).

Endotracheal intubation was successfully performed in 83 patients, including 39 in the Air Q group and 44 in the ILMA group. Both groups were comparable in terms of no attempts, maneuvers required, and time taken (**Table 2**). The first two attempts were blind, and the third was fiberoptically guided.

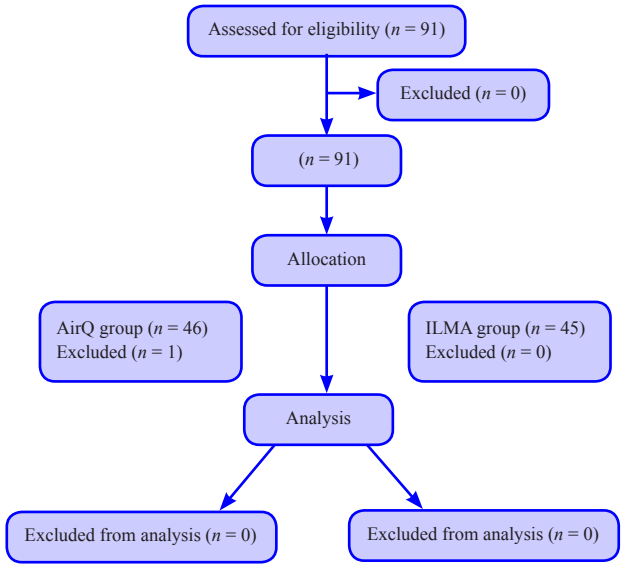

Figure 1: CONsolidated Standards of Reporting Trials (CONSORT) flow diagram.
Note: ILMA: Intubating laryngeal mask airway.

Table 1: Demographic variables of patients with simulated fixed cervical spine

Variable	Air Q group (n=45)	ILMA group (n=45)	P-value
Age (yr)	30.84±9.17 (18–60)	35.27±11.43 (18–58)	0.053
Sex			0.378
Male	18	14	
Female	27	31	
American Society of Anesthesiologists physical status			0.748
I	39 (87)	40 (89)	
II	6 (13)	5 (11)	
Body mass index (kg/m^2)	21.89±3.17 (17.63–29.41)	22.08±2.59 (18.62–28.67)	0.396

Note: Data in age and body mass index are presented as mean ± SD (range). Data in sex are presented as number. Data in American Society of Anesthesiologists physical status are presented as number (percentage). The above data were analyzed by Mann-Whitney *U* test, Chi-square test and Fischer's exact test. ILMA: Intubating laryngeal mask airway.

The fiberoptic grading and peak inspiratory pressure between the groups was similar (**Table 3**).

The hemodynamic parameters pulse rate, systolic blood pressure, diastolic blood pressure, mean arterial pressure, minimum oxygen saturation, and end-tidal carbon dioxide were stable and comparable between the groups. Minimum oxygen saturation was 100% at all times. Complications are described in **Table 3**. Immediate (< 30 minutes) postoperative adverse events were cough in 6.67% (three patients) in the Air Q group and 2.22% (one patient) in the ILMA group, followed by blood-stained ETT in 4.44% of patients in the Air Q group and 4.44% of patients in the ILMA group. The sore throat was seen in three (6.67%) patients in Air Q and 0% of patients in ILMA. The number of patients with hoarseness was one in each group. The difference was not significant between the groups.

Table 2: Success rate of SGAD placement and number of attempts of patients with simulated fixed cervical spine

	Air Q group (*n*=45)	ILMA group (*n*=45)	*P*-value
SGAD placement			
Attempts (1/2/3/failure)	29/9/5/2	39/4/1/1	0.09
Time taken (s)	22.7±6.3	20.6±5.4	0.24
Endotracheal intubation			
Attempts (1/2/3/failure)	30/5/4/4	39/3/2/0	0.11
Time Taken (s)	24.3±7.3	24.2±7.4	0.9

Note: Data in attempts are presented as mean ± SD and were analyzed by Chi-square test. Data in intubation are presented as number and were analyzed by Mann-Whitney *U* test. ILMA: Intubating laryngeal mask airway; SGAD: supraglottic airway devices.

Table 3: Ventilatory parameters and complications of patients with simulated fixed cervical spine

	Air Q group (*n*=43)	ILMA group (*n*=44)	*P*-value
Success rate (%)	87	98	0.11
Fiberoptic grading (1/2/3/4)	12/12/17/2	13/17/14/0	0.36
Oropharyngeal leak pressure (kPa)	3.5±1.7	3.8±1.4	0.05
Peak inspiratory pressure (kPa)	1.41± 0.26	1.42±0.27	0.88
Complication			
Trauma	6	1	0.08
Hoarseness	1	1	–
Cough	3	1	0.6

Note: Data in oropharyngeal leak pressure and peak inspiratory pressure are presented as mean ± SD and were analyzed by Mann-Whitney *U* test. Data in success rate are presented using Chi-square test. Data in fiberoptic grading are presented as number and were analyzed by Chi-square test. Data in complication are presented using Fischer's exact test. ILMA: Intubating laryngeal mask airway.

Discussion

In our study, we compared Air Q with ILMA as intubation conduits in patients with simulated fixed cervical spine. Intubation through ILMA is recommended with a silicone, wire-reinforced tube which is a flexible tube and directed towards the plane of the glottis without distortion of the anatomy at an angle of 35°C. But it is expensive and non-reusable. Polyvinyl chloride tubes are less expensive but are stiff, and they emerge from ILMA at an angle higher than 45°C, and the chances of impingement at epiglottis are more. Parker tubes have anterior curvature and posterior bevel, and are less expensive and thus, these tubes have a potential role for intubation through supraglottic airway device.[1,3]

ILMA can be inserted successfully in 98% of the patients. A few studies have reported a higher success in ILMA insertion.[15,16] In another study, a 100% success rate was observed in normal airways.[17] We, however, encountered two failures in Air Q. This may be that they used a tongue depressor and jaw thrust for the insertion of Air Q, but we did not perform a jaw thrust to prevent neck movements. None of the attempts required were comparable between the groups, but as compared to previous studies, ILMA required fewer attempts than Air Q.[5,6]

The time taken for placement of the device was comparable between the groups, which is consistent with previous findings. In some studies, more time was required for Air Q insertion, while in others, ILMA took much longer.[15,16] All these studies were conducted in normal airways, and their results may be different from our findings.

The overall success rate of intubation was comparable in both groups (87% in Air Q and 98% in ILMA). ILMA has earlier been used for intubation in patients with limited cervical spine movements, and the success rate ranges from 74.2% to 96%. Two studies had results similar to our findings.[6,14] The 100% success rate for Air Q has been reported in patients with limited cervical spine movements.[17,18] The former used fiberoptic guided intubation, and the later used Shikhani Optical Stylet as intubation aid. Contradictory results have been shown in these studies because of different tubes, optimization processes, and learning curves. The number of attempts required for ETT insertion was comparable, which is consistent with the study that reported 63.7% as the first attempt success rate.[19] Our results differ from some studies addressing a lower success rate,[6,18,20] because we attempted to intubate the patient after viewing the larynx by FOG, and we were well aware of anatomy and could manipulate the tube accordingly. Maneuvers required to insert ETT were comparable between the groups, but in Air Q, more number of patients required various manipulations (46.5%). Our results are consistent with a recent study on the normal airway.[21]

The time taken for intubation was comparable between the groups as found in previous studies.[15,19] Requirement of more time for tube insertion has been noticed in the ILMA group by some studies.[15,16,22,23] Both the devices are provided with very good equipment for stabilizing the tube while removing the device; stabilizing rode in case of ILMA and stylet with Air Q and thus the removal of both the devices was quick and easy.

Apart from slight changes in heart rate and systolic and diastolic blood pressure, there was no significant difference between the two groups, consistent with some previous studies.[20,22] However, two studies found exaggerated pressor responses in Air Q during its insertion and intubation.[15,16]

We encountered more cases of esophageal intubation in Air Q (20%) compared to ILMA (10%). Although not significant, trauma to oropharyngeal structures was noticed more in the Air Q group (15.5%) than the ILMA group (2.2%), which is similar to other studies.[15,16,19,22] It could be because of the wider structure and relatively rigid cuff of Air Q and more manipulations required for its placement.

There are specified ETTs recommended by the manufacturer for both ILMA and Air Q. But the high cost and other limitations restrict their use. Parker Flex Tip tube has been a boon for such devices and allows an effective, atraumatic successful intubation.

Our study was limited by the fact that it was conducted in healthy patients, American Society of Anesthesiologists physical status I & II patients; the results may not be translated to severer patients or those having difficult airways and requiring emergency airway management. There was a lack of blinding.

The intubation should be compared with the gold standard that is fiberoptic bronchoscope-guided intubation in these patients. Also, we did not measure cervical spine movements, though we followed the standard of care.

We conclude that ILMA has a higher success rate than Air Q for tracheal intubation with Parker Flex tube in patients with simulated fixed cervical spine. Nevertheless, more optimized maneuvers were required for the placement of Air Q. Air Q may be considered a possible alternative to ILMA in difficult airway scenarios; however future randomized trials in more patients and different airway scenarios are recommended.

Author contributions

RB: Study build and final patient selection, Assist and supervise research work, and Editing paper and final results and discussion; JB: Assisted in doing all preanesthesia checkups, compiling data and stats and thesis writing; PB: assisted in research work, compiling data and paper writing and editing. All the authors read and approved the final manuscript for publication.

Conflicts of interest

None.

Availability of data and materials

All data generated or analyzed during this study are included in this published article and its supplementary information files.

Additional files

Additional file 1: Hospital Ethics Approval.
Additional file 2: Informed Consent Form.
Additional Table 1: Wilson score.

References

1. Austin N, Krishnamoorthy V, Dagal A. Airway management in cervical spine injury. *Int J Crit Illn Inj Sci*. 2014;4:50-56.
2. American College of Surgeons. *Advanced trauma life support.* Chicago: 2008.
3. Cookgas. Air-Q Masked Laryngeal Airways. https://cookgas.com/air-q-disposable-2/.
4. Kanazi GE, El-Khatib M, Nasr VG, et al. A comparison of a silicone wire-reinforced tube with the Parker and polyvinyl chloride tubes for tracheal intubation through an intubating laryngeal mask airway in patients with normal airways undergoing general anesthesia. *Anesth Analg.* 2008;107:994-997.
5. Saini S, Bala R, Singh R. Evaluation of the intubating laryngeal mask airway (ILMA) as an intubation conduit in patients with a cervical collar simulating fixed cervical spine. *S Afr J Anesth Analg.* 2017;23:40-44.
6. Komatsu R, Nagata O, Kamata K, Yamagata K, Sessler DI, Ozaki M. Intubating laryngeal mask airway allows tracheal intubation when the cervical spine is immobilized by a rigid collar. *Br J Anaesth*. 2004;93:655-659.
7. Wakeling HG, Bagwell A. The intubating laryngeal mask (ILMA) in an emergency failed intubation. *Anaesthesia.* 1999;54:305-306.
8. Gabbott DA. Laryngoscopy using the McCoy laryngoscope after application of a cervical collar. *Anaesthesia.* 1996;51:812-814.
9. MacQuarrie K, Hung OR, Law JA. Tracheal intubation using Bullard laryngoscope for patients with a simulated difficult airway. *Can J Anaesth*. 1999;46:760-765.
10. Haleem S, Athar M, Ansari MM, Mahmood A, Fatima N. Air Q® LMA assisted fiberoptic tracheal tube intubation in cervical spine fracture: a rescue technique. *Austin J Anesth Analg.* 2016;4:1044.
11. Wilson ME, Spiegelhalter D, Robertson JA, Lesser P. Predicting difficult intubation. *Br J Anaesth*. 1988;61:211-216.
12. Samsoon GL, Young JR. Difficult tracheal intubation: a retrospective study. *Anaesthesia.* 1987;42:487-490.
13. Mayhew D, Mendonca V, Murthy BVS. A review of ASA physical status - historical perspectives and modern developments. *Anaesthesia.* 2019;74:373-379.
14. Bilgin H, Bozkurt M. Tracheal intubation using the ILMA, C-Trach or McCoy laryngoscope in patients with simulated cervical spine injury. *Anaesthesia.* 2006;61:685-691.
15. Shamaa M, Alia D, El-Sayed M. Intubating laryngeal mask airway and air-Q for blind tracheal intubation. *Res Opin Anesth Crit Care.* 2015;2:101-110.
16. Abdel-Halim TM, Abo El Enin MA, Elgoushi MM, Afifi MG, Atwa HS. Comparative study between Air-Q and Intubating Laryngeal Mask Airway when used as conduit for fiber-optic. *Egypt J Anaesth.* 2014;30:107-113.
17. Samir EM, Sakr SA. The air-Q as a conduit for fiberoptic aided tracheal intubation in adult patients undergoing cervical spine fixation: A prospective randomized study. *Egypt J Anaesth.* 2012;28:133-137.
18. Sharawy S, El-Shafie S, El-miteny S, Ahmed A. Intubation through air-Q and LMA-Excel using Shikani optical stylet in normal versus simulated difficult airway. *Res Opin Anesth Crit Care.* 2017;4:247-254.
19. Neoh EU, Choy YC. Comparison of the air-Q ILA™ and the LMA-Fastrach™ in airway management during general anaesthesia. *S Afr J Anesth Analg.* 2012;18:150-155.
20. Seyed Siamdoust S, Rokhtabnak F, Djalali Motlagh S, Rahimzadeh P, Hassani V, Farnaghizad M. Comparison of the success rate of intubation between the LMA fastrach and AirQ-ILA methods in patients undergoing elective surgery during general anaesthesia. *Anesth Pain Med.* 2018;8:e63424.
21. Bansal T, Singhal S, Mittal H. A study to evaluate and compare intubating laryngeal mask airway and air-Q intubating laryngeal airway for intubation using Parker Flex Tip tube. *Indian J Anaesth.* 2020;64:97-102.
22. Badawi R, Mohamed NN, Al-Haq MMA. Tips and tricks to increase the success rate of blind tracheal intubation through the Air-Q™ versus the intubating laryngeal mask airway Fastrach™. *Egypt J Anaesth.* 2014;30:59-65.
23. Malhotra SK, Bharath KV, Saini V. Comparison of success rate of intubation through Air-Q with ILMA using two different endotracheal tubes. *Indian J Anaesth*. 2016;60:242-247.

Date of submission: June 14, 2021
Date of decision: July 21, 2021
Date of acceptance: September 2, 2021
Date of web publication:August 4, 2022

Additional Table 1: Wilson score

Risk factor	Score	Level
Weight	0	< 90 kg
	1	90-110 kg
	2	➢ 110 kg
Head and neck movement	0	Above 90°
	1	About 90°
	2	Below 90°
Jaw movement	0	IG > 5 cm or SLux > 0
	1	IG < 5cm and Slux = 0
	2	IG < 5cm and SLux < 0
Receding mandible	0	Normal
	1	Moderate
	2	Severe
Buck teeth	0	Normal
	1	Moderate
	2	Severe

Note: Easy Intubation: score ≤ 2; moderately difficult intubation: score 3-7; difficult intubation: ≥ 8. SLux: maximal forward protrusion of the lower incisors beyond the upper incisors.