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Original Research

Evaluation of Fastrach Laryngeal Mask Airway (LMA) and Air-Q LaryngealMask Airway (LMA) as a conduit for Endotracheal Intubation

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Abstract

Background: Various supraglottic devices have been used as a conduit for tracheal intubation especially in difficult airway situations when an endotracheal tube is desired. Designed for the anticipated or unanticipated difficult airway situation and for cardiopulmonary resuscitation, LMA Fastrach™ facilitates continuous ventilation and intubation. The rigid handle of the device facilitates one-handed insertion, removal and adjustment to enhance oxygenation and alignment with the glottis. Air-Q™ ILMA is a newly developed supraglottic airway device, which in addition to its normal usage is also intended to be used as a reliable tool for intubation.

Aim: To evaluate success rate of endotracheal intubation through Fastrach LMA and Air-Q LMA**.**

Methods: The present observational study, "Evaluation of Fastrach Laryngeal Mask Airway (LMA) and Air-Q Laryngeal Mask Airway (LMA) as a conduit for Endotracheal Intubation," was carried out on 121 ASA grade I/II patients (63 in Fastrach Group and 58 in Air-Q Group) aged 20-70 years of either sex, undergoing elective surgeries under general anesthesia at Government Medical College and Associated Hospitals Srinagar, Jammu and Kashmir. Success rate in terms of number of attempts, any maneuver used and time of insertion was recorded for both LMA insertion and ETT insertion through LMA. Hemodynamic parameters were monitored continuously and recorded at the following time points: before the induction of anaesthesia, after the induction of anaesthesia, before the insertion of the LMA, after the insertion of the LMA, after tracheal intubation, and 5 min and 10 min after intubation. The observations were compiled in a tabulated manner and statistical analysis was done. Continuous data was analyzed using two sample independent t-tests and categorical variables were compared using Chi-square test / Fisher's exact test. P-value of less than 0.05 was considered to be statistically significant.

Results: There was statistically no significant difference in the success rate of insertion of LMA, any maneuver used and time of insertion of LMA between the two groups. The success of ETT insertion was higher using Fastrach LMA as conduit than Air-Q LMA and was statistically significant. Also, time taken for ETT insertion was less in Group F than Group Q which was also statistically significant. There was a similar hemodynamic response in LMA insertion and ETT insertion through LMA in both groups, which was statistically insignificant. Post-op complication of sore throat was also comparable in both groups and statistically insignificant.

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Conclusion: Both the LMAs i.e. Fastrach LMA and Air-Q LMA were proved to be useful alternatives for endotracheal intubation in comparison to conventional laryngoscopy. However, larger sample with a fiberoptic grading can throw better light on the usefulness of both these LMAs as conduit for endotracheal intubation.

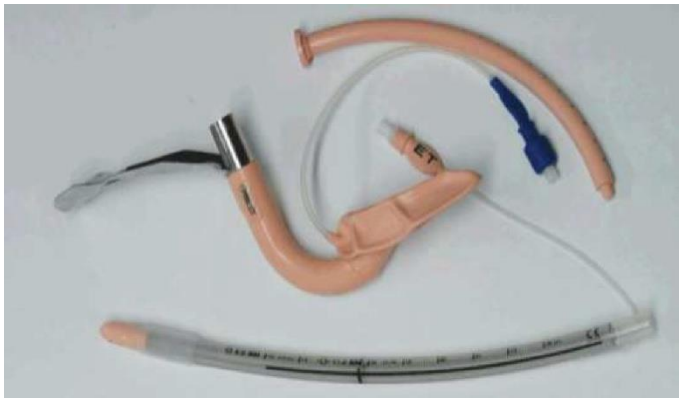
Keywords: Endotracheal Intubation, Fastrach LMA, Air-Q LMA, Maneuver, General Anaesthesia.

INTRODUCTION:

Airway management remains an important problem in the practice of anesthesia. Interruption of gas exchange, for even a few minutes, can result in catastrophic outcomes such as brain damage or death. Closed claims analysis has found that the vast majority (85%) of airway-related events involve brain damage or death, and as many as one-third of deaths attributable solely to anesthesia have been related to an inability to maintain a patent airway.[1,2]
Tracheal intubation with direct laryngoscopy is conventional way of airway management in anesthesia. It is the cornerstone in today's practice of general anesthesia. Endotracheal intubation is a definitive way of securing the airway by direct laryngoscopy and is routinely done by visualization of cords which involves displacement of the upper airway to bring glottis into the line of sight. However, training for ET intubation requires time, appropriate instruments, and adequate circumstances. Furthermore, ET intubation requires continued practice and carries with it its own set of complications.[3] In some situation tracheal intubation with direct laryngoscopy fails because of anterior larynx, facial trauma etc. Sufficient anatomical displacement is not always easy or possible which leads to difficulty in intubation in 1-3% cases and failure in 0.05-2% of cases. Failed and difficult tracheal intubation remains an important cause of mortality and morbidity in anesthesia.[1] Laryngeal mask airways were designed for maintenance of airway in emergency situation, even by untrained personnel. However, the classic LMA (CLMA) is not an ideal intubation aid as the airway tube is too narrow to accommodate an adult tracheal tube. Fastrach, a modification of the LMA, is in use from 1997, designed as a conduit for tracheal intubation, and has a success rate for endotracheal intubation of ~93%[10]. It has an epiglottic elevator bar at the mask aperture and a rigid (stainless steel) anatomically curved shaft that follows the anatomical curve ofthe palate and the posterior pharyngeal wall.[4,5]
The Air-Q Intubating Laryngeal Airway (ILA; Cookgas LLC, Mercury Medical, Clearwater, Florida, USA) is another Laryngeal Mask Airway device that in addition to allowing for airway maintenance under general anesthesia, also allows for tracheal intubation with a cuffed endotracheal tube (ETT) (up to 8.5 mm IDs) in both adults and pediatric patients. [6]

VARIOUS TYPES OF LMA ARE AS FOLLOWS:

1. The LMA classic is the original reusable design; c-LMA is a 1st LMA designed.
2. The LMA unique is a disposable version of c-LMA, making it ideal for emergency and pre hospital setting.
3. An Intubating LMA (Fastrach LMA) is designed to serve as a conduit for intubation. Although most Laryngeal Mask Airway can serve this purpose, the Fastrach has special features that increase the success rate of intubation. These features include an insertion handle, a rigid shaft with anatomical curvature and an epiglottis elevating bar designed to lift the epiglottis as the endotracheal tube passes.
4. LMA flexible has softer tubing. It is not used in the emergency setting. It was designed for head and neck surgery with wire reinforced tube.
5. LMA supreme is similar to LMA Proseal.
6. LMA Proseal is the second generation LMA with additional port for gastric aspiration, bite block, and patented introducer. It can be used for spontaneous and controlled ventilation.



Intubating laryngeal Mask Airway (Fastrach) with silicone reinforced wire tube and introducer

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METHODS:
Place of Study:

The present study was conducted in the Department of Anesthesiology and Critical Care, Government Medical College and associated Hospitals, Srinagar, Jammu and Kashmir. After approval from the Ethical Review Committee and written informed consent, this observational study was evaluated on 121 patients admitted in GMC Srinagar and Associated Hospitals, undergoing elective surgeries under general anesthesia.

Duration of Study:
This observational study was conducted over a period of 18 months from June 2021 to November 2022.

Design Of Study: Observational study.

Preoperative evaluation was carried out on the previous day of surgery and a detailed history noted. General and systemic examination of respiratory, cardiovascular and central nervous system was carried out. Airway assessment was also done. Routine laboratory investigations like complete hemogram, urine analysis, serum creatinine, BUN, blood sugar, X-ray chest and ECG were thoroughly evaluated.
Patients were instructed to remain nil per orally for 08 hours prior to surgery. Premedication with H2 Blockers like Tab. Ranitidine 150 mg given orally at 10:00 pm night before surgery and at 6:00 am on the day of surgery reduces the amount of acid in the stomach, and Tab. Alprazolam 0.25 mg given orally at 10:00 pm night before surgery causes anxiolysis.
Pre-operative pulse rate, blood pressure, continuous ECG, non-invasive blood pressure monitoring and oxygen saturation were recorded in the operation theatre after connecting to standard anaesthesia multi-channel monitor. Peripheral venous access was established and appropriate intravenous fluid started. All patients were preoxygenated with 100% oxygen for 3 minutes. Induction of anaesthesia was carried out by an intravenous administration of fentanyl 1 µg/kg, propofol 2 mg/kg.
After loss of verbal communication, 0.5 mg/kg atracurium was administered. Controlled ventilation was provided through a face mask with 100% O2 and isoflurane (1–2%) for 3 min and then Laryngeal mask airway device was inserted as per discretion of attending anaesthesiologist. An appropriate size Fastrach LMA or Air-Q LMA was selected as per manufacturer‟s recommendation according to the weight of the patient.
Airway device was checked before use as recommended and lubricated with water based gel. In neutral position airway device was introduced using the standard technique for insertion. Correct insertion of the device was assessed by the absence of audible leak and adequate chest expansion and the appearance of capnography wave form.

Group-F (Using Fastrach LMA):
In Group-F, Fastrach LMA was inserted. The size of the Fastrach LMA was as per recommendations of the manufacturer according to the weight of the patients. A maximum of two attempts were allowed, and the number of attempts were recorded. If a second attempt was required, the manufacturer's instructions were followed. For the Fastrach LMA insertion, this means applying gentle rotation of the handle in and out and side to side until ventilation was optimized, and then the handle was gently lifted anteriorly. The time taken and any maneuver used for Fastrach LMA placement were recorded. After successful LMA placement, appropriate size silicone endotracheal tube was inserted as per manufacturer's recommendations. Total of two attempts of endotracheal intubation were allowed. Number of attempts taken and any maneuver used for endotracheal tube insertion was recorded. If no resistance was felt while advancing the tracheal tube, it was fully inserted into the device. Endotracheal intubation was considered successful if ventilation through the endotracheal tube produced an adequate chest expansion and a capnography curve. The supraglottic device was removed using a stabilizing rod. If resistance was encountered during insertion of the tracheal tube, the intubation attempt was judged unsuccessful. The time taken for insertion of ETT was recorded.

Group-Q (Using Air-Q Lma):
In Group-Q, Air-Q LMA was inserted. The size of the Air-Q LMA was as per recommendations of the manufacturer according to the weight of the patients. A maximum of two attempts were allowed, and the number of attempts were recorded. If a second attempt was required, the manufacturer's instructions were followed. For the Air-Q LMA insertion, this means the device was withdrawn 5–8 cm with mandibular lift during reinsertion of the Air-Q LMA. Time taken and any maneuver used for Air-Q LMA placement were recorded. After successful LMA placement, appropriate size cuffed PVC endotracheal tube was inserted as per manufacturer‟s recommendations. Total of two attempts of endotracheal intubation were allowed. Endotracheal intubation was considered successful if ventilation through the endotracheal tube produced an adequate chest expansion and a capnography curve. The supraglottic device was removed using a stabilizing rod. If resistance was encountered during insertion of the tracheal tube, the intubation

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attempt was judged unsuccessful. Time taken, number of attempts taken and any maneuver used for endotracheal tube insertion were recorded.
Maintenance of anaesthesia was carried out with Oxygen and Nitrous Oxide in a ratio of 50:50 and Isoflurane 0.8 - 1%. On completion of surgery, the residual paralysis was reversed with Injection Neostigmine (0.05 mg / kg) IV and Injection Glycopyrolate (0.01 mg / kg) IV and patients were extubated on the table. Immediately after removal, both LMA and Endotracheal tube were inspected for traces of blood indicating airway trauma. Postoperatively and before leaving the PACU, the patients were asked whether they had any sore throat. Patients were then transferred to ward after confirming an adequate level of consciousness with intact reflexes. Any complication found was noted.

STATISTICAL METHOD

The observations were compiled in a tabulated manner and statistical analysis was done. Continuous data was analyzed using two sample independent t-tests and categorical variables were compared using Chi-square test/ Fisher's exact test. P Value of less than 0.05 was considered to be statistically significant.

CONFLICT OF INTEREST: Nil

FUNDING: Nil

RESULTS:

The demographic details of patients are shown in [table 1]. Patients‟ age, weight, gender ASA grade and MPS score were in demographic variables.

Table 1: Demographic profile of the study population

VARIBLES	GROUPF(FastrachLMA)	GROUPQ(Air-QLMA)	P-VALUE
AGE(MEAN±SD)	40.048 ± 14.65	39.81 ± 13.95	0.92
WIGHT(MEAN±SD)	62.492 ± 5.46	62.60 ± 4.64	0.90
GENDER(M:F)	31:32	24:34	0.466
ASA(I /II)	31/32	24/34	0.466
Mallampatiscore(I/II)	24/39	21/37	0.85

*(p-value less than 0.05 considered statistically significant) *(p-value less than 0.001 highly significant)*

The success rate of Laryngeal Mask Insertion (LMA) insertion of both groups was similar. There was no significant difference between the groups as p value was 0.811. In Group F success rate in 1st attempt was 82.5% and in Group Q 1st attempt success rate were 84.5 [Table 2].

Table2: Showing Comparison Of Success Rate Of LMA Insertion In (Attempts)

ATTEMPT	GROUPF(FastrachLMA)		GROUPQ(Air-QLMA)		Total	
	FREQ	%	FREQ	%	FREQ	%
I	52	82.5	49	84.5	101	83.5
II	11	17.5	9	15.5	20	16.5
Total	63	100.0	58	100.0	121	100
χ2-VALUE=0.083; P-VALUE=0.811(NS)						

(pvalue<0.05consideredstatisticallysignificant)(p-value<0.001consideredhighly significant)*

No maneuvre was used in 82.5 % of cases in Group F and 86.2% of cases in Group Q. Some maneuvre was used in 17.5% cases in Group F and 13.8% cases in Group Q. there was statistically no difference in the groups as p value was 0.625 [Table 3].

Table3: Association between any maneuvre used for LMA insertion

Maneuver Used	GROUPF (FastrachLMA)		GROUPQ (Air-QLMA)		Total	
	FREQ	%	FREQ	%	FREQ	%
No	52	82.5	50	86.2	102	84.7
Yes	11	17.5	8	13.8	19	15.7
Total	63	100.0	58	100.0	121	100
χ2-VALUE=0.307; P-VALUE=0.625(NS)						

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(p value <0.05 considered statistically significant)
(p-value <0.001 considered highlysignificant)
The success rate of endotracheal intubation through group F in 1st attempt was 84.12%, whereas through Group Q was 60.34%. 12.69% patients were intubated in
2nd attempt in Group F, whereas 18.96% were intubated in 2nd attempt in Group Q. 2 cases out of 63 (3.17%) cases in Group F failed to get intubated and 12 cases out 58 (20.68%) in Group Q failed to get intubated. There was statistically no significant difference in terms of attempts required for intubation through Fastrach LMA and through Air Q LMA. P-value was 0.20 which was statistically insignificant [Table 4].

Table4: Showing Comparison of Attempts Required for Endotracheal Intubation Through Fastrach and Air-Q LMA.

	GROUPF(Fastrach)		GROUP Q(Air-Q)		Total	
ATTEMPT	**FREQ**	**%**	**FREQ**	**%**	**FREQ**	**%**
I	**53**	**84.12**	**35**	**60.34**	**88**	**72.72**
II	**8**	**12.69**	**11**	**18.96**	**19**	**15.70**
Failure	**2**	**3.17**	**12**	**20.68**	**14**	**11.57**
Total	**63**	**100**	**58**	**100**	**121**	**100**
χ2-VALUE=5.139;P-VALUE=0.20(NS)						

(p value <0.05 considered statistically significant)
(p-value <0.001 considered highly significant)

No maneuvers were used in 84.12% of cases in Group F and 63.79% of cases in Group Q for ETT insertion. Some maneuvers were used for ETT insertion in 12.69% of cases of Group F and 15.51% of cases in Group Q. This was statistically insignificant and p valve was 0.42 [Fig 1].

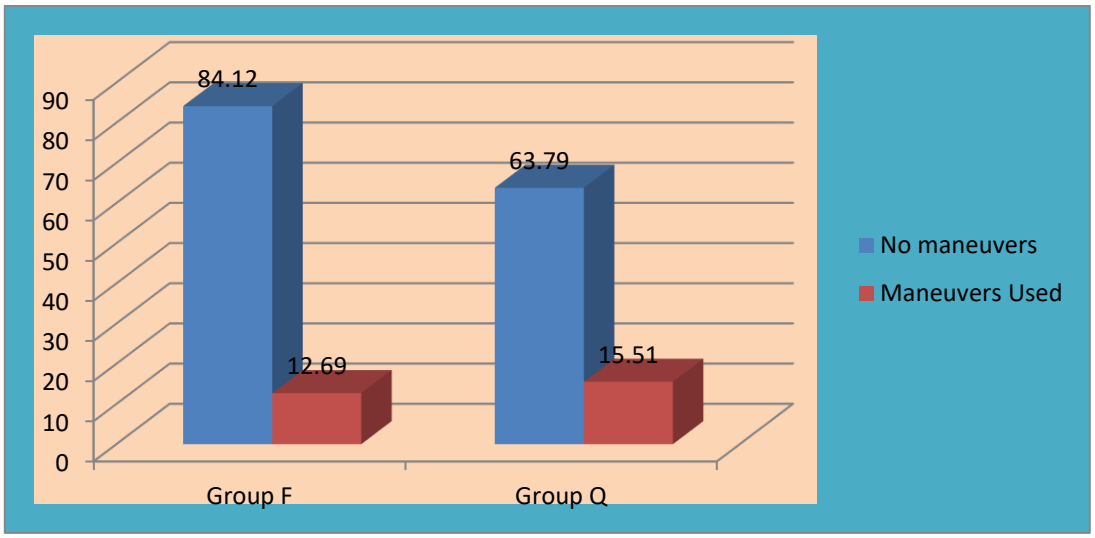

Fig 1

The insertion time of LMA in Group F was (25.492±4.77 sec) which was slightly more than Group Q (24.96±4.98 sec). This difference was statistically insignificant with p value of (0.55). The time of endotracheal tube insertion through LMA was less in Group F (23.18±3.84 sec) as compared to Group Q (26.13±6.58 sec). The difference was statistically significant with p value of 0.004. Total time taken for endotracheal intubation in Group F (48.82 ± 6.83 sec) was less than Group Q (50.47 ± 9.13 sec) and was statistically insignificant with p value of 0.28 [Fig 2].

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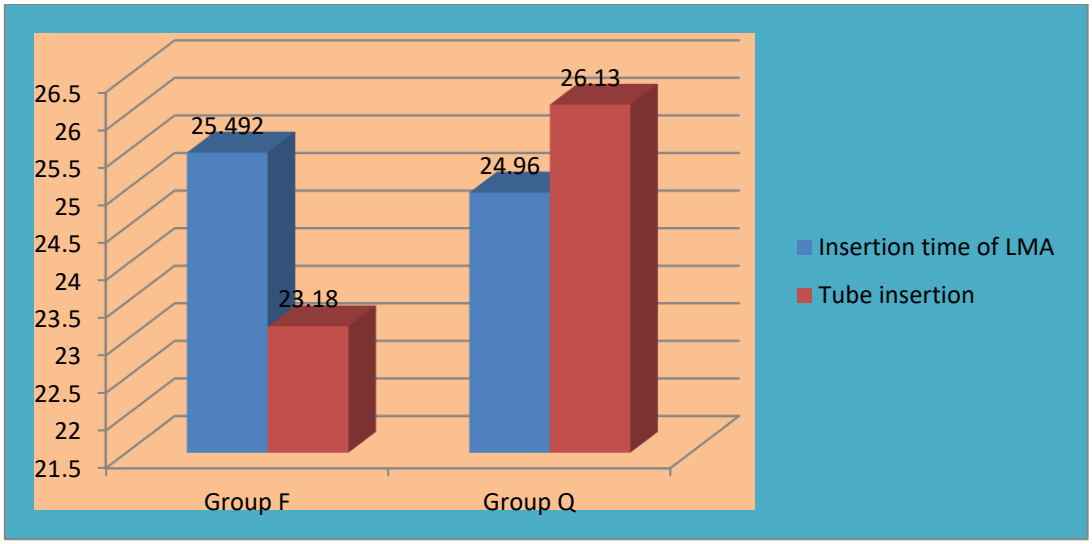

Fig 2

The successful intubation via LMA was achieved in 61 cases out of 63 cases in Group F (96.8%) and 46 cases out of 58 cases in Group Q (79.3%). This difference was statistically significant with p value of 0.003 [Fig 3].

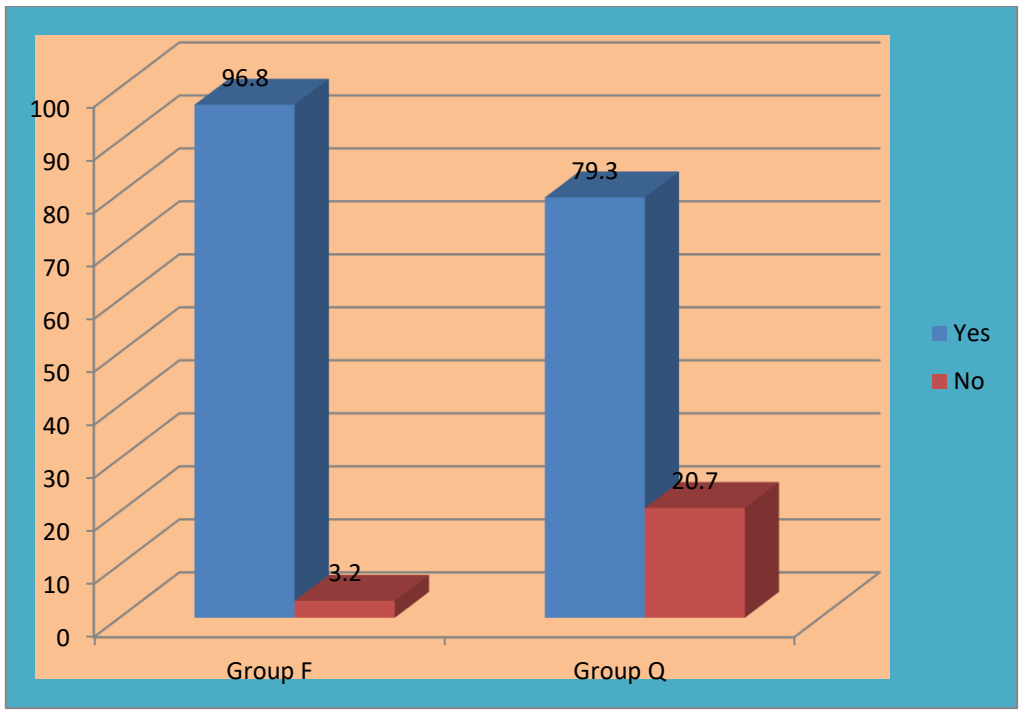

Fig 3

The post operative sore throat recorded in Group F (13 cases out of 63 cases) 20.6%was less than that recorded in Group Q (19 cases out of 58 cases) 32.8%. This difference was statistically insignificant with p value of 0.15 [Fig 4].

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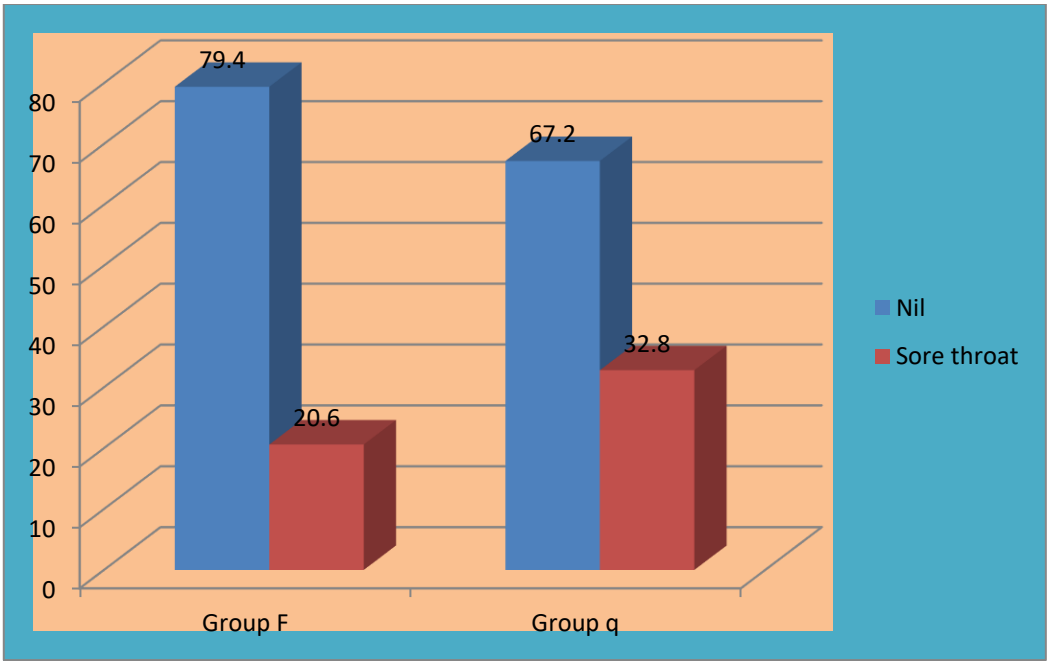

Fig 4

Discussion:

Endotracheal intubation is a definitive way of securing the airway and is routinely done by laryngoscopy by visualization of vocal cords. However, this involves distortion of upper airway to bring glottis into the line of sight and in some situations such as high larynx, facial trauma, etc., tracheal intubation may fail. [3] Supraglottic airway devices (SADs) are useful in such situations for rescue ventilation. Laryngeal mask airway (LMA) is device which is included in Difficult Airway Society guidelines for unanticipated difficult intubation.[7] Later it was modified into Intubating LMA (Fastrach LMA).[8]

In present study the success rate of Laryngeal Mask Insertion (LMA) insertion of both groups was similar. There was no significant difference between the groups asp value was 0.811. In Group F success rate in 1st attempt was 82.5% and in Group Q 1st attempt success rate was 84.5. Maneuvers were used in 17.5% cases in Group F and 13.8% cases in Group Q which was also statistically insignificant with p value of 0.625. The insertion time of LMA in Group F was (25.492±4.77 sec) which was slightly more than Group Q (24.96±4.98 sec). This difference was statistically insignificant with p value of 0.55. **Neoh EU et al., (2014) [9]** in their study concluded that it was possible to insert the supraglottic device in all 160 study patients, except in one male patient in the LMA-Fastrach group. The 1st attempt success rate in Fastrach was 96.25% whereas in Air-Q was 90%. **Shama MA et al., (2015) [10]** in their study concluded that insertion time of Fastrach LMA was 22.57 ± 6.67 sec than Air-Q LMA (23.91 ± 5.27 sec) which was statistically insignificant as in our study. **Saimdoust SS et al., (2018) [11]** in their study concluded that LMA insertion time was significantly higher in Air-Q (21.92 ± 5.4 sec) than Fastrach LMA (17.92 ± 5.94 sec). The 1st attempt success of Fastrach was 96.8% and Air-Q was 88.9% but was statistically insignificant as in our study. LMA insertion was successful in all cases similar to our study. **Bansal T et al., (2020) [12]** used parker flex tip tube for intubation via Fastrach and Air-Q LMA and observed that insertion of LMA was possible in all cases except for one case in Air-Q group. The two groups were comparable with respect to number of attempts andease of device insertion as in our study. However

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mean time of insertion was higher (25.56 ± 14.80 sec) in Air-Q group than Fastrach (20.07 ± 7.75 sec). This difference could be attributed to experience of the attending anesthesiologist with a particular device. **Wadhawa R et al., (2021) [13]** in their study concluded that the two groups were comparable with respect to number of insertion attempts and ease of device insertion. Insertion time of Fastrach group was 19.2 ± 7.8 sec and that of Air-Q was 21.42 ± 13 sec with p value of 0.301, statistically insignificant as in our study.

In the present study the success rate of endotracheal intubation through Group F in 1st attempt was 84.1%, whereas through Group Q was 60.34%. The overall successful intubation via Fastrach LMA was higher (96.8%) than Air-Q LMA (79.3%). This difference was statistically significant with p value of 0.003. Maneuvers were used for ETT insertion in 12.69% of cases of Group F and 15.51% of cases in Group Q. This was statistically insignificant and p valve was 0.42. The time taken for endotracheal tube insertion through LMA was less in Group F (23.18±3.84 sec) as compared to Group Q (26.13±6.58 sec). The difference was statistically significant with p value of 0.004. Total time taken for endotracheal intubation in Group F (48.82 ± 6.83 sec) was less than Group Q (50.47 ± 9.13 sec). This difference was statistically insignificant with p value of 0.28.

Karim YM et al., (2011) [14] studied blind intubation via ILMA (Fastrach LMA) and ILA (Air-Q LMA) and concluded that the success rate of blind intubation after two attempts via the LMA Fastrach was 75 out of 76 patients (99%) vs 60 out of 78 (77%) via the Air-Q. the results are similar to our study. **Neoh EU et al., (2014) [9]** in their study concluded that intubation via Fastrach LMA was possible in 97.4% cases and via Air-Q LMA was possible in 75% of cases. **Bansal T et al., (2010)[12]** reported intubation was successful in 54 cases (98.2%) in group A (Fastrach) and 46 cases (85.2%) in group B (Air-Q) which is similar to our results.

Reason for increased success rate of ATT insertion and less time for ATT insertion through Fastrach LMA is provision of handle and rigid body which allowed easy maneuverability. The silicone ETT which is packaged together with Fastrach LMA allowed easy passage even if tracheal inlet was not completely aligned with LMA. With adequate lubrication this allowed easy passage and higher success in ETT insertion in Fastrach LMA.

Heart rate was comparable between both groups throughout the course of study. The LMA devices offer greater hemodynamic stability to insertion, during maintenance and at extubation when compared to the intubation using conventional method. Hemodynamic parameters were comparable between the both groups throughout the course of the surgical procedures. Oxygen saturation (SPO2) between the groups was also comparable with insignificant difference.

Neoh EU et al., (2014) [9] in contrast to our study reported significant hemodynamic changes at the time of insertion of LMA and intubation (Air-Q had higher values). This might be due to patient being in lighter planes of anesthesia.

The cases were observed in PACU for any sore throat. In Group F 13 cases out of 63 (20.6%) reported sore throat whereas in Group Q 19 cases out of 58 (32.8%) reported sore throat. This was statistically insignificant.

Neoh EU et al., (2014) [9] in their study also reported similar results, they recorded that frequency of occurrence of a sore throat and hoarseness of voice between the groups did not show any statistically

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significant difference (p-value >0.05). Similar results were also reported by **Karim YM et al., (2011) [14]** in their study.

References:

1. Caplan RA, Posner KL, Ward RJ, Cheney FW. Adverse respiratory events in anesthesia: a closed claims analysis. Anesthesiology 1990; 72: 828-33.
2. Langeron O, Birenbaum A, Amour J. Airway management in trauma. MinervaAnestesiol 2009; 75:307-311.
3. Abdel Raouf El-Ganzouri, Ayman Ads; Complications of Rigid Laryngoscopyand Tracheal Intubation. Anesthesiology 2012; 117: 676.
4. Seely R, Stephens T, Tate P. Airway Physiology and Anatomy. The United States of America: The McGraw-Hill Companies, Inc; 2008; 13-32.
5. Rosenblatt WH, Murphy M, Robert FR, Martel M. The intubating laryngeal mask: use of a new ventilating intubating device in emergency department. Ann Emerg Dep 1999; 33:234-8.
6. Bakker EJ, Valkenburg M, Galvin EM. Pilot study of the air-Q intubating laryngeal airway in clinical use. Anesthesia Intensive Care 2010; 38:346-348.
7. Henderson JJ, Popat MT, Latto IP, Pearce AC. Difficult Airway Society guidelines for management of the unanticipated difficult intubation. Anesthesia 2004; 59: 675 94.
8. Brain AI, Verghese C, Addy EV, Kapila A, Brimacombe J. The intubating laryngeal masks. II: a preliminary clinical report of a new means of intubating the trachea. Br J Anaesth 1997; 79: 704-709.
9. Neoh EU, Choy YC. Comparison of the air-Q ILA™ and the LMA-Fastrach™in airway management during general anaesthesia. South Afr J Anaesth Analg. 2014;18(3):150–5. doi:10.1080/22201173.2012.10872844.\
10. Shamaa MA, Alia DA, El-sayed M. Intubating Laryngeal mask airway and air-Q for blind tracheal intubation. Res Opin Anesth Intensive Care 2015; 2: 101-10.
11. Siamdoust SS, Rokhtabnak F, Motlagh SD, Rahimzadeh P, Hassani V, Farnaghizad M. Comparison of the success rate of intubation between the LMA fastrach and Air Q-ILA methods in patients undergoing elective surgery during general anaesthesia. Anesth Pain Med 2018;8:e63424.
12. 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.
13. Wadhawa R, Singh A, Bhalotra A, Chugh V. A prospective randomized study to evaluate and compare ILMA and Air-Q intubating laryngeal airway. JARSS2021;29(4):219-25.
14. Karim YM, Swanson DE. Comparison of blind tracheal intubation through the intubating laryngeal mask airway (LMA Fastrach) and the Air-Q. Anaesthesia.2011; 66(3):185–90.