



Original Article

Comparison of Conditions for Laryngeal Mask Airway Placement in terms of Oropharyngeal Leak Pressure: Blind Insertion versus Laryngoscope-Guided Insertion

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ABSTRACT

Background: LMA helps in maintenance of airway in situations like spontaneous/assisted ventilation, used in anaesthesia/Emergency/difficult airway algorithm, LMA can be placed through blind and Laryngoscope, Laryngoscope guided LMA insertion leads to better placement than blind insertion.

Materials and Methods: After institutional ethics committee approval, a comparison of 80 patients (ASA-1 & ASA-2) divided into 2 groups (40 with blind technique and 40 with the laryngoscope technique) were evaluated. An LMA was inserted using the blind approach in the blind insertion group and using laryngoscopy in the laryngoscope-guided insertion group. The OPLP, successful insertion of LMA at the first attempt, time taken for insertion, ease of LMA insertion, and adverse airway events were recorded.

Study: Prospective observational study

Result: The OPLP was higher in the laryngoscope-guided insertion group than in the blind insertion group. Rate of success in first attempt was similar in both groups. Ease of insertion and the time taken for insertion of the LMA was significantly longer in the Blind insertion group compared to laryngoscope-guided. Hypopharyngeal adverse effects were more in blind group compared to laryngoscope guided group.

Conclusion: Laryngoscope guided insertion leads to better placement of LMA and lesser incidence of hypopharyngeal adverse effects.

Keywords: LMA, OPLP, Laryngoscope.

INTRODUCTION

The laryngeal mask airway (LMA) is commonly used during general anaesthesia as an alternative to endotracheal intubation or as a bridge between endotracheal intubation and the facemask in emergency airway management. LMA is commonly placed without any aid. However, blind insertion of the LMA can sometimes be challenging causing airway pressure leakage and gastric insufflation. To overcome these challenges, various insertion techniques have been developed, including insertion with the use of a laryngoscope to control the tongue and displace the epiglottis superiorly for easier placement of the LMA. While fiberoptic assessment has been used to evaluate the anatomic position of the LMA, its reliability as an indicator of efficacy has been questioned^[1]. To address this issue, clinical signs such as oropharyngeal leak pressure (OPLP) have been suggested as an alternative assessment modality. OPLP measures the degree of airway protection during LMA insertion and high OPLPs indicate the feasibility of positive pressure ventilation and the likelihood of successful supraglottic airway placement. To evaluate the efficacy of blind LMA insertion compared to laryngoscope guided insertion, a study was conducted. The primary outcome of the study was OPLP, while the secondary outcomes

included the rate of successful first attempt at insertion, time taken for insertion, ease of insertion, and occurrence of any pharyngeal adverse events^[2]. It was hypothesized that laryngoscope guided insertion may lead to better clinical performance or function of the LMA, as indicated by OPLP, compared to blind insertion^[2]. The study results could confirm effectiveness and safety of LMA insertion and airway management during anaesthesia in operation theatre.

METHODS

This prospective observational study was performed at Central Referral Hospital, Department of Anaesthesia, Gangtok, Sikkim and was approved by the Institutional Ethics Committee. After obtaining written informed consent for participation in the study, we enrolled 80 patients scheduled to receive general anaesthesia with LMA insertion for patient's undergoing laparoscopic cholecystectomy.

Exclusion criteria:

- ASA III or IV patients
- Head & neck injury patients
- Recent history of upper respiratory tract infection
- Body mass index (BMI) >29.9
- Symptomatic hiatal hernia, or severe oesophageal reflux disease.
- Patient who are unable to communicate
- Failed first attempt of LMA insertion
- Expiratory Tidal volume < 5ml/kg body weight during the procedure

Inclusion Criteria:

- ASA I/II
- BMI -18.5 to 29.9
- Patients undergoing Laparoscopic Cholecystectomy Under general anesthesia
- Patients willing to give written consent
- Successful insertion of LMA in 1st attempt
- Expiratory tidal volume >5ml/kg body weight during procedure

The patients were randomly divided into two groups with 40 patients in each, the blind insertion group (Group 1) and the laryngoscope -guided insertion group (Group 2). They were evaluated for the study as per protocol including requisite pre-operative clinical evaluation and investigation. In the operating room, a wide bore peripheral intravenous access was secured. On arrival to the operating room, routine monitoring devices was attached and baseline blood pressure, ECG and pulse oximetry values were recorded. Preoxygenation with 100% oxygen was done for three minutes. Before induction, injection glycopyrrolate 4mcg/kg body weight was given. Induction of anaesthesia was achieved by giving injection fentanyl 2mcg/kg followed by propofol 2mg/kg. Once patients become apnoeic and lost consciousness, mask ventilation was performed. After confirming successful bag and mask ventilation, injection succinylcholine 2mg/kg was given. The patients were ventilated for 60 seconds. Patient were randomly allocated in Group L and Group B. Blind technique was used in Group B and laryngoscopic guidance was used in Group L. For Patients under Group B the following procedure will be followed: The head of the patient was placed in the dorsiflexion sniffing position. LMA was deflated and lubricated with Lignocaine gel. The shaft of the LMA was grasped with dominant hand like a pen, as near to the mark as possible. The deflated flattened mask was inserted against the hard palate downwards into the mouth along the curvature of the back of the pharynx. The index finger followed the tube into the mouth to keep pressing back and down until the aperture faces the laryngeal inlet. For Patients under Group L the following procedure will be followed: The head of the patient was placed in the dorsiflexion sniffing position. A Macintosh laryngoscope blade was placed in vallecula and the epiglottis was identified. Both tongue and epiglottis were lifted anteriorly and superiorly. The LMA which was deflated and lubricated with Lignocaine gel was inserted until it felt to be placed in the hypopharynx and/or till the proximal rim of the LMA is all that could be seen. The selection of the LMA size was based on the body weight of the patient, usually size 3 for women and size 4 for men were used. To ensure optimal inflation of LMA cuff, the LMA cuff was inflated with air and the pressure was set at 60 cm H₂O using a handheld manometer. Following successful LMA placement, the patient was kept on ventilator in CMV mode with TV of 6 to 8 mL/kg, respiratory rate of 12-14 cycles/minutes, Isoflurane 1% volume, oxygen 6 L/min. Baseline peak pressure was measured. OPLP was measured by closing the expiratory valve of the circuit at a fixed gas flow rate 6L/min, noting the airway pressure at which the gas leaked. To ensure safety, the maximal allowable OPLP was fixed at 40cm H₂O. Time taken for LMA insertion, ease of LMA insertion, whether the first attempt was successful or not and the OPLP was recorded. The location of gas leak at oropharyngeal leak pressure was determined as: Sound of gas escaping from the mouth heard using stethoscope near the mouth of the patient. A failed passage of the LMA into the pharynx or ineffective ventilation were excluded from the study. A Subjective assessment of the LMA insertion grading was given as easy (Grade I), Moderate (Grade II) or difficult (Grade III)^[8]. The haemodynamic parameters were recorded at baseline, 1min after anaesthesia induction, before insertion of the LMA and 1min after the insertion of the LMA. The LMA was removed and an ETT was placed.

STATISTICAL ANALYSIS

Data was entered in MS excel and was analyzed using SPSS 21.0 version. Data was presented as mean and standard deviation or median and inter quartile range if the data are continuous in nature. Data was presented as percentages if it is categorical in nature. Unpaired t test or Mann Whitney U test was done to compare two groups mean or median. Chi-square or Fisher exact test was done to find out association between categorical variables. p value of less than 0.05 will be considered significant.

RESULTS

A total of 80 patients consented to participate in the study. The CONSORT flow diagram is shown in Fig. 1. In our study, the mean age of patients in Group L was 36.80 ± 8.56 years, while in Group B, it was 37.60 ± 8.73 years. The difference in age between the two groups was not significant ($P = 0.680$) as shown in Table no.1. In our study, the mean height of patients in Group L was 5.18 ± 0.40 feet, while in Group B, it was 5.05 ± 0.46 feet. The difference in height between the two groups was not significant ($P = 0.161$) as shown in Table no. 2. In the present study, the mean weight of the patients in Group L was 59.90 ± 10.09 kg, while in Group B, it was 60.64 ± 7.96 kg. The difference in weight between the two groups was not significant ($P = 0.718$) as shown in Table no.3. In our study, the mean BMI of patients in Group L was 24.02 ± 3.06 , while that in Group B was 24.77 ± 3.01 . The difference in BMI between the two groups was not significant ($P = 0.272$) as shown in Table no.4. In our study, in Group L, 65% of the patients were ASA I (26 patients), and 35% were ASA II (14 patients). Similarly, in Group B, 67.5% of patients were ASA I (27 patients) and 32.5% were ASA II (13 patients). The difference in ASA classification between the groups was not significant ($P = 0.813$) as shown in Table no.5. In the present study, in Group L, 6 patients (15.0%) had MPS I, 32 (80.0%) had MPS II, 2 (5.0%) had MPS III, and none had MPS IV. In Group B, 9 patients (22.5%) had MPS I, 27 (67.5%) had MPS II, 2 (5.0%) had MPS III, and 2 (5.0%) had MPS IV. This difference in MPS distribution between the groups was not statistically significant ($P = 0.388$) as shown in Table no.6. In the present study, the mean oropharyngeal leak pressure was 27.62 ± 2.77 cm H₂O in Group L and 21.19 ± 3.31 cmH₂O in Group B. The difference in OPLP between the two groups was statistically significant ($P < 0.0001$) as shown in Table no.7. In our study, all patients in both groups had a successful LMA insertion on the first attempt (100% in each group) as shown in Table no. 8. In the present study, the meantime taken for LMA insertion was 17.95 ± 3.57 seconds in Group L and 19.08 ± 4.69 seconds in Group B. The difference in insertion time between the two groups was not significant ($P = 0.231$) as shown in Table no.9. In our study, in Group L, insertion was easy in 38 patients (95.0%), and moderate in two patients (5.0%). Similarly, in Group B, insertion was easy in 30 patients (75.0%), moderate in eight patients (20%), and difficult in two patients (5%). There is a significant difference in ease of insertion was observed between groups ($P = 0.038$) as show in Table no.10. In our study, the mean MAP was 98.05 ± 11.04 mmHg in Group L and 99.78 ± 8.84 mmHg in Group B, with no significant difference at baseline ($P = 0.443$). The mean MAP was 86.90 ± 12.16 mmHg in Group L and 83.73 ± 10.32 mmHg in Group B, with no significant difference at 1 minute after induction ($P = 0.212$). The mean MAP was 83.30 ± 11.35 mmHg in Group L and 83.50 ± 10.10 mmHg in Group B, with no significant difference at pre-insertion ($P = 0.934$). The mean MAP was 83.73 ± 13.26 mmHg in Group L and 84.53 ± 11.87 mmHg in Group B, with no significant difference at 1 minute after insertion of LMA ($P = 0.777$) as shown in figure no.2. In the present study, the mean SpO₂ was $99.73 \pm 1.78\%$ in Group L and $98.83 \pm 1.32\%$ in Group B, with no statistically significant difference at baseline ($P = 0.284$). The mean SpO₂ was $99.83 \pm 0.50\%$ in Group L and $99.85 \pm 0.53\%$ in Group B, with no significant difference at 1 min after induction ($P = 0.829$). The mean SpO₂ was $99.95 \pm 0.22\%$ in Group L and $99.83 \pm 0.55\%$ in Group B, with no significant difference at pre-insertion ($P = 0.186$). The mean SpO₂ was $99.98 \pm 0.16\%$ in Group L and $99.90 \pm 0.50\%$ in Group B, with no significant difference at 1 min after LMA insertion ($P = 0.365$). In the present study, bleeding occurred in two patients (5.0%) in Group B, while no patients in Group L experienced bleeding (0.0%). There was no significant difference in bleeding between the groups ($P = 0.614$). In our study, sore throat occurred in 10 patients (25.0%) in Group B, while only 2 patients (5.0%) in Group L experienced sore throat. The difference between the groups was statistically significant ($P = 0.012$). In our study, cough was reported by 1 patient (2.5%) in Group L and 2 patients (5.0%) in Group B. There was no significant difference in the incidence of cough between the groups ($P = 0.556$).

TABLES:

Table No. 1 Shows mean age between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
AGE (years)	36.80	8.56	37.60	8.73	0.680

Table No. 2 Shows mean height between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
HEIGHT (ft)	5.18	0.40	5.05	0.46	0.161

Table No. 3 Shows mean weight between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
WEIGHT (kg)	59.90	10.09	60.64	7.96	0.718

Table No.4. Shows mean BMI between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
BMI	24.02	3.06	24.77	3.01	0.272

Table No. 5 Shows comparison of ASA between two groups

		Group				P value
		Group L		Group B		
		Count	Column N %	Count	Column N %	
ASA	I	26	65.0%	27	67.5%	0.813
	II	14	35.0%	13	32.5%	

Table No.6 Shows comparison of MPS between two groups

		Table Note Shows Comparison of MPS between two groups				P value
		Group		Group		
		Group L		Group B		
MPS	I	Count	Column N %	Count	Column N %	0.388
	II	6	15.0%	9	22.5%	
	III	32	80.0%	27	67.5%	
	IV	2	5.0%	2	5.0%	

Table No.7 Shows mean OPLP between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
OPLP (cmH2O)	27.62	2.77	21.19	3.31	<0.0001

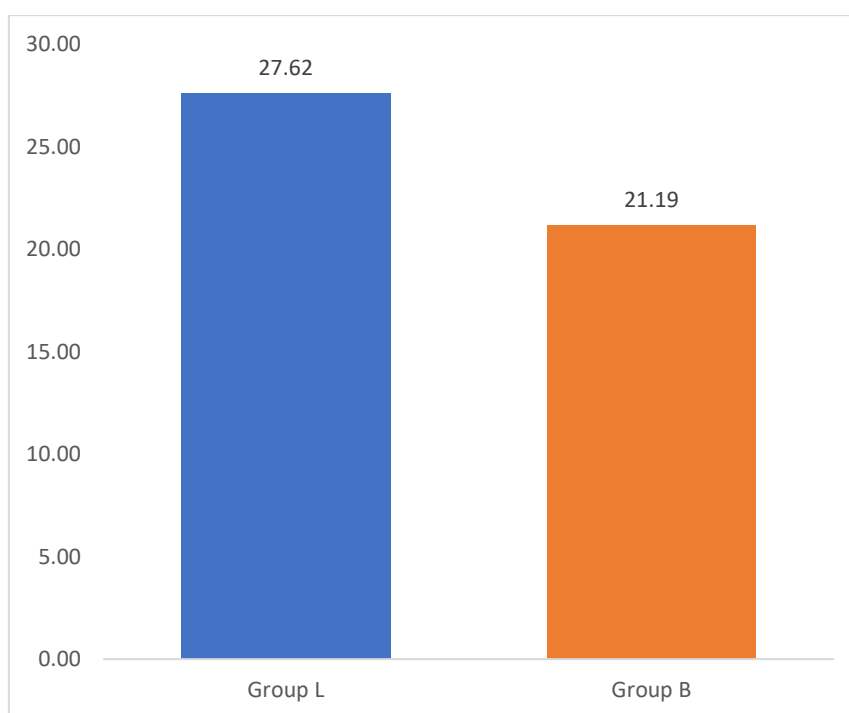


Figure Showing comparison of OPLP between two groups

Table No. 8 Shows comparison of LMA insertion on the first attempt between two groups

		Group				P value
		Group L		Group B		
		Count	Column N %	Count	Column N %	
1st attempt	Yes	40	100.0%	40	100.0%	Na

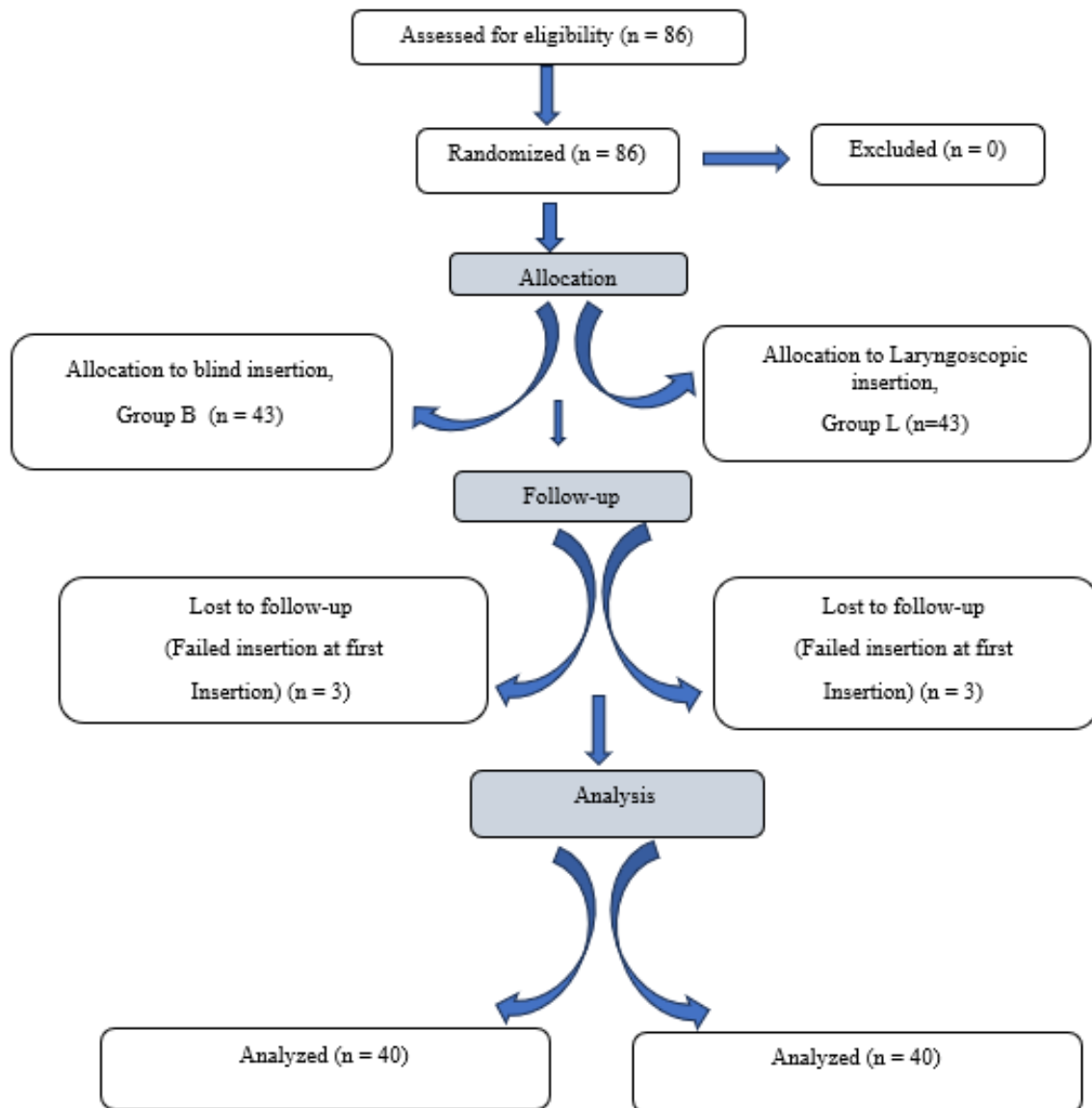
Table No. 9 Shows mean insertion time between two groups

	Group				P value
	Group L		Group B		
	Mean	Standard Deviation	Mean	Standard Deviation	
Time taken for insertion (seconds)	17.95	3.57	19.08	4.69	0.231

Table No. 10. Shows comparison of ease of insertion between two groups

		Group				P value
		Group L		Group B		
		Count	Column N %	Count	Column N %	
Ease of insertion	Easy	38	95.0%	30	75.0%	0.038
	Moderate	2	5.0%	8	20.0%	
	Difficult	0	0.0%	2	5.0%	

RESULTS



DISCUSSION

The fundamental rule of the general anaesthesia is to maintain the upper airway. Airway management can be done by facemask which is less invasive, endotracheal tube which is invasive and laryngeal mask airway which is less invasive procedure. Complications of endotracheal tube insertion includes epistaxis from nasal intubation, oropharyngeal trauma, inadequate sealing. Laryngeal mask airway provides a better seal than facemask due to its end to end coherence within the larynx. Laryngeal mask airway is easy to use in a difficult airway where examination of vocal cords cannot be done. Insertion of endotracheal tube requires an experienced and trained personnel whereas laryngeal mask airway insertion can be done by minimal trained personnel as it does not require laryngoscopy. Therefore, laryngeal mask airway has been used as an alternative to face mask and endotracheal tube insertion. Several types of laryngeal mask airway has been developed such as PLMA I-gel, LMA supreme since its discovery by Dr Brain in 1981. For the ideal placement of the laryngeal mask airway in the anatomical position several techniques has been used such as blind insertion and insertion using laryngoscope.

Blind insertion of the laryngeal mask airway were widely used and it is being used as one of the common insertion technique worldwide. However, it has lead to failure in placement of the laryngeal mask airway with this approach. Insertion with the help of a laryngoscope has lead to the better placement of the laryngeal mask airway in the anatomical position and higher insertion success rate. Application of Laryngoscope assisted guided technique or direct laryngoscopy in laryngeal mask airway insertion was first reported by Lee^[7]. The laryngeal mask airway is placed in extra-tracheal location within the hypopharynx. Proper placement of the laryngeal mask airway is required to minimize any unanticipated events of airway and to increase their deliberate purpose. Oropharyngeal leak pressure (OPLP) helps us in determining the precision of the placement of the laryngeal mask airway. Successful placement of the laryngeal mask airway is indicated by High oropharyngeal leak pressure in positive pressure ventilation. Oropharyngeal leak pressure can be used as an indicator to determine the efficacy of the laryngeal mask airway. In our study, the mean age of patients in Group L was 36.80 ± 8.56 years, while in Group B, it was 37.60 ± 8.73 years. The difference in age between the two groups was not significant ($P = 0.680$). In a study by Choo et al^[8], they observed that the mean age of the patients in laryngoscope guided technique was $23.3(4.0)$ whereas in standard technique it was $23.5(4.1)$. In our study, the mean height of patients in Group L was 5.18 ± 0.40 feet, while in Group B, it was 5.05 ± 0.46 feet. The difference in height between the two groups was not significant ($P = 0.161$). Kim et al^[9] in their study observed that the mean height in laryngoscope guided insertion group was 164.4 ± 8.2 (cm), while in blind insertion group it was 164.3 ± 8.8 (cm). The difference in height between the two groups was not significant ($P=0.981$) which is similar to our study. In the present study, the mean weight of the patients in Group L was 59.90 ± 10.09 kg, while in Group B, it was 60.64 ± 7.96 kg. The difference in weight between the two groups was not significant ($P = 0.718$). In a study by Koay C.K^[10], it was observed that the mean weight in laryngoscope guided LMA insertion was $65(13)$ kg and in standard LMA insertion technique it was $62(10)$ Kg. In a study by Arnish D et al^[11] it was observed that the mean weight in laryngoscope guided insertion group was 62.7 ± 9.7 kg, while in blind insertion group it was 63.1 ± 10.7 kg. The difference in weight between the two groups was not significant ($P=0.847$) which is similar to our study. In our study, the mean BMI of patients in Group L was 24.02 ± 3.06 , while that in Group B was 24.77 ± 3.01 . The difference in BMI between the two groups was not significant ($P = 0.272$). In a study by Ozgul et al^[12], it was observed that the mean BMI(kg/m²) in video laryngoscope guided group was 25.95 ± 3.8 (kg/m²) while in standard digital group it was 26.31 ± 4.02 (kg/m²). The difference in BMI between the two groups was not significant (0.618). The difference in BMI between the two groups was not significant in our study as we had an inclusion criteria of BMI of 18.5 to 29.9 (kg/m²). In our study, in Group L, 65%(26) of the patients were ASA I, and 35% (14) were ASA II. Similarly, in Group B, 67.5% of patients were ASA I (27 patients) and 32.5% were ASA II (13 patients). The difference in ASA classification between the groups was not significant ($P = 0.813$). Patil et al^[13] observed that 315/24 patients were in ASA status I/II in video laryngoscope assisted LMA insertion while 25/30 patients were in ASA status I/II in blind insertion. In the present study, in Group L, 6 patients (15.0%) had MPS I, 32 (80.0%) had MPS II, 2 (5.0%) had MPS III, and none had MPS IV. In Group B, 9 patients (22.5%) had MPS I, 27 (67.5%) had MPS II, 2 (5.0%) had MPS III, and 2 (5.0%) had MPS IV. This difference in MPS distribution between the groups was not statistically significant ($P = 0.388$). In a study by Kim et al^[9], they observed 23/18/9/0 in MPS class I/II/III/IV in laryngoscope guided insertion while they observed 21/20/9/0 in MPS class I/II/III/IV in blinded insertion. The difference in MPS distribution between the two groups was not statistically significant ($P= 0.907$) which is similar to our study. In the present study, the mean oropharyngeal leak pressure was 27.62 ± 2.77 cm H₂O in Group L and 21.19 ± 3.31 cm H₂O in Group B. The difference in OPLP between the two groups was statistically significant ($P < 0.0001$). In a study by Bihani et al^[15], they observed the oropharyngeal leak pressure was $27.9(1.58)$ cm H₂O in laryngoscope guided insertion while in blind insertion oropharyngeal leak pressure was $25.94 (0.63)$ cm H₂O. The difference in OPLP between the two groups was statistically significant which is similar to our study. In our study, all patients in both groups had a successful LMA insertion on the first attempt (100% in each group). In a study by Kim et al^[9], they observed the first attempt success rate in blind insertion group was 44/50(88%) while the first attempt success rate in laryngoscope guided insertion group was 45/50 (90%) which is contrast to our study. In the present study, the mean time taken for LMA insertion was 17.95 ± 3.57 seconds in Group L and 25.08 ± 4.69 seconds in Group B. The difference in insertion time between the two groups was significant. The difference in insertion time between the two groups was significant. Kim et al^[9], in their study also observed that the difference in insertion time between the two groups was similar which is comparable to our study. In our study, in Group L, insertion was easy in 38 patients (95.0%), and moderate in two patients (5.0%). Similarly, in Group B, insertion was easy in 30 patients (75.0%), moderate in eight patients (20%),

and difficult in two patients (5%). There was a significant difference in ease of insertion was observed between groups ($P = 0.038$). In a study by Ozgul et al^[12], they observed the ease of insertion (easy/difficult/impossible) in video laryngoscope group was 60/0/0 whereas in blind insertion group it was 46/11/2. There was a significant difference in ease of insertion between two groups which is similar to the present study. In our study, the mean MAP was 98.05 ± 11.04 mmHg in Group L and 99.78 ± 8.84 mmHg in Group B, with no significant difference at baseline ($P = 0.443$). The mean MAP was 86.90 ± 12.16 mmHg in Group L and 83.73 ± 10.32 mmHg in Group B, with no significant difference at 1 minute after induction ($P = 0.212$). The mean MAP was 83.30 ± 11.35 mmHg in Group L and 83.50 ± 10.10 mmHg in Group B, with no significant difference at pre-insertion ($P = 0.934$). The mean MAP was 83.73 ± 13.26 mmHg in Group L and 84.53 ± 11.87 mmHg in Group B, with no significant difference at 1 minute after insertion of LMA ($P = 0.777$). In a study by Bihani et al^[15], it was observed that both groups had statistically comparable Mean arterial pressure. In the present study, the mean SpO₂ was $99.73 \pm 1.78\%$ in Group L and $98.83 \pm 1.32\%$ in Group B, with no statistically significant difference at baseline ($P = 0.284$).

The mean SpO₂ was $99.83 \pm 0.50\%$ in Group L and $99.85 \pm 0.53\%$ in Group B, with no significant difference at 1 min after induction ($P = 0.829$). The mean SpO₂ was $99.95 \pm 0.22\%$ in Group L and $99.83 \pm 0.55\%$ in Group B, with no significant difference at pre-insertion ($P = 0.186$). The mean SpO₂ was $99.98 \pm 0.16\%$ in Group L and $99.90 \pm 0.50\%$ in Group B, with no significant difference at 1 min after LMA insertion ($P = 0.365$). In a study by Kim et al^[9], they observed that SpO₂ in laryngoscope guided insertion at baseline was 99.0 ± 1.3 , 1 min after induction it was 99.9 ± 0.4 , at the time of insertion it was 99.9 ± 0.4 and 1 minute after LMA insertion it was 99.8 ± 0.7 whereas in blind insertion group SpO₂ at baseline was 99.0 ± 1.3 , 1 min after induction it was 99.9 ± 0.3 , at the time of insertion it was 99.8 ± 0.6 and 1 minute after LMA insertion it was 99.8 ± 0.4 . There was no statistically significant difference at baseline, 1min after induction, pre-insertion and 1 min after induction. The findings are similar to our study. In the present study, bleeding occurred in two patients (5.0%) in Group B, while no patients in Group L experienced bleeding (0.0%). There was no significant difference in bleeding between the groups ($P = 0.614$). Bihani et al^[15] observed that 4% patients had bleeding in laryngoscope guided group whereas 14% patients had bleeding in blind insertion group which is similar to our study. However, Patil et al^[89] observed that 12% of the patients had bleeding in video laryngoscope guided group whereas 9% of the patients had bleeding in blind insertion group which is in contrast to our study. In our study, sore throat occurred in 10 patients (25.0%) in Group B, while only 2 patients (5.0%) in Group L experienced sore throat. The difference between the groups was statistically significant ($P = 0.012$). Koay C.K^[10] observed that 100% of the patients in both the groups had sore throat which is contrast to our study. In our study, cough was reported by 1 patient (2.5%) in Group L and 2 patients (5.0%) in Group B. There was no significant difference in the incidence of cough between the groups ($P = 0.556$). Patil et al^[13]. In our study, hoarseness was not reported by any patient in either Group L or Group B (100.0% in both groups).

CONCLUSION

Through our study we conclude that Laryngoscope guided LMA insertion for patients undergoing laparoscopic cholecystectomy is a better option compared with blind insertion of the LMA. Laparoscopic guided insertion leads to better placement of the LMA and lesser incidence of bleeding, sore throat.

LIMITATIONS OF THE STUDY

In our study, we have focused on the importance of laryngoscope guided placement of LMA and blind insertion for optimal sealing of the hypopharynx in patients undergoing laparoscopic cholecystectomy under general anaesthesia. Vision guided placement of the LMA would be better for localization of the anatomical placement of the LMA. Due to unavailability of the fiberoptic bronchoscope we were not able to see the percentage of glottic opening. This study was conducted using cLMA, use of other newer 2nd generation Supra glottic devices are required for better validation of our study and limited sample size. We have taken ASA I/II class patients for our study and the results may not be applicable to patients falling under ASA III/IV.

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