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Original Article

Anaesthesia Section

Comparison of Intubating Conditions between Cuff Inflation and Magill's Forceps Techniques for Nasotracheal Intubation in Adults under Direct Laryngoscopy: A Randomised Clinical Trial

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ABSTRACT

Introduction: Nasotracheal Intubation (NTI) is frequently required for oral and maxillofacial surgeries, but optimal techniques for guiding the Endotracheal Tube (ETT) towards the glottis remain debated. While Magill's forceps have traditionally been used to guide the ETT towards the glottis during NTI, the cuff inflation technique has emerged as a potentially safer alternative.

Aim: To compare the intubating conditions between cuff inflation and Magill's's forceps techniques for NTI in adults under direct laryngoscopy.

Materials and Methods: The present randomised clinical single blinded study was conducted at Dhiraj Hospital Piparia, Vadodara, Gujarat, India, from 13th July 2024 to 1st may 2025 on 80 American Society of Anaesthesiologists (ASA) I-II patients aged 18-60 years undergoing elective surgeries requiring NTI. Patients were randomly allocated into two groups using computer generated sequence: Group C (n=40) underwent NTI using the cuff inflation technique, while group M (n=40) underwent NTI using Magill's forceps. The primary outcomes included the time required for successful intubation, number of attempts, and secondary outcomes included haemodynamic response, external laryngeal manoeuvre requirement, and complications. Data were analysed using unpaired Student's t-test for numerical variables and Chi-square test for categorical variables. Statistical significance was set at $p<0.05$.

Results: A total of 80 patients were included in the study with 40 patients per group groups were demographically comparable. Total intubation time was significantly shorter in group C (40.38±3.95) compared to group M (51.84±4.78 seconds) ($p<0.001$). Group C showed higher first-attempt success rate (80.0% vs 75.0%, $p=0.008$). External laryngeal manoeuvre was required less frequently in group C 6 (15.0%) patients compared to group M 14 (35.0%) patients ($p=0.037$). The cuff inflation technique demonstrated attenuated haemodynamic response with significantly lower increases in Heart Rate (HR) and blood pressure at 1 and 3 minutes post intubation. Complications including nasal bleeding and ETT cuff damage were significantly lower in group C.

Conclusion: The cuff inflation technique provides superior intubating conditions compared to the Magill's's forceps technique, with shorter intubation time and fewer complications. It may be considered a safer and more efficient alternative for NTI under direct laryngoscopy in adults.

Keywords: Airway management, Head and neck surgeries Intraoral surgery, Intratracheal

INTRODUCTION

The NTI is an essential technique for airway management in various intraoral, maxillofacial, and head and neck surgeries where the standard orotracheal route would interfere with the surgical field [1]. NTI provides unobstructed access to the oral cavity, prevents tube manipulation by the tongue, and reduces the risk of tube damage from surgical instruments or the patient biting [2].

The traditional approach to NTI involves passing an ETT through the nasal cavity into the oropharynx, followed by direct laryngoscopy to visualise the glottis. However, a significant challenge arises as the ETT tends to lie along the posterior pharyngeal wall while laryngoscopy lifts the larynx anteriorly. This anatomical displacement creates a need for additional manoeuvres to redirect the ETT tip anteriorly towards the glottic opening [3,4].

Magill's forceps has conventionally been used to navigate the ETT from the oropharynx into the laryngeal inlet [5]. This technique involves grasping the ETT with forceps and directing it towards the vocal cords under direct visualisation. However, this approach carries potential risks including trauma to the oropharyngeal mucosa, vocal cords, or damage to the ETT cuff [6-8].

Cuff inflation technique had been suggested by Sir Gorback in 1987 for blind nasal intubation and was used clinically by Sir Van Elstraete and Sir Chung in 1993. The cuff inflation technique has emerged as an alternative method where the ETT cuff is temporarily inflated with 10-15 mL of air once it reaches the oropharynx [3,9]. This inflation elevates the ETT tip against the posterior pharyngeal wall, directing it anteriorly towards the glottis. After the ETT tip enters the glottic opening, the cuff is deflated to allow further advancement through the vocal cords [5,6,10]. Again, cuff is inflated for ETT placement beyond vocal cord.

Various studies have compared different techniques for NTI using different visualisation tools like video laryngoscopes [11-19]. However, limited research exist comparing cuff inflation and Magill's forceps techniques specifically under direct laryngoscopy [12]. Considering that direct laryngoscopy remains widely used globally due to its availability and familiarity, comparing these techniques in this context is clinically relevant [12]. Existing studies comparing cuff inflation and Magill's's forceps techniques under direct laryngoscopy are limited by small sample sizes, selective patient populations, and inconsistent reporting of complications. Larger multicentre trials with standardised protocols and broader outcome assessment are

needed to establish the optimal technique [12]. The present study aimed to compare the intubating conditions of the cuff inflation technique versus the Magill's forceps technique for NTI under direct laryngoscopy in adult patients. The primary outcomes included time required for successful intubation, number of attempts, and secondary outcomes included, external laryngeal manoeuvre requirement, haemodynamic response and complications.

MATERIALS AND METHODS

The present randomised, single blinded study was conducted in the Department of Anaesthesiology at Dhiraj General Hospital, SBKS Medical Institute and Research Centre Piparia, Vadodara, Gujarat, India. after obtaining approval from the Institutional Ethics Committee (IEC No. SVIEC/ON /MEDI /SRP/July/2024/146) from13th July 2024 to 1st may 2025. The study was registered with Clinical Trial Registry-India (CTRI/2024/12/078462) Written informed consent was obtained from all participants.

Sample size calculation was based on pilot study data, with 40 patients per group providing 80% power to detect a 20% difference in intubation time with α=0.05. Sample size per group (n) for comparing two independent means is calculated using:

$n=2\sigma^2\times(Z\alpha/2+Z\beta)^2/^2$

Where:

- n=sample size per group
- σ=pooled standard deviation
- $Z\alpha/2$=Z-value for type I error (two-tailed)
- $Z\beta$=Z-value for type II error (power)
- δ=minimum clinically significant difference between means

Based on pilot study data (10 patients per group):

- Mean intubation time group C (pilot): 42.5±5.2 seconds
- Mean intubation time group M (pilot): 53.8±6.1 seconds
- Expected difference (δ): 11.3 seconds
- Pooled standard deviation (σ): $\sqrt{\{(5.2^2+6.1^2)/2\}}=\sqrt{\{32.21\}}=5.68$ seconds
- Type I error (α): 0.05 (two-tailed)
- Power (1-β): 0.80 (80%)
- $Z\alpha/2$=1.96 (for α=0.05, two-tailed)
- $Z\beta$=0.84 (for 80% power)

Calculation: $n=2\times(5.68)^2\times(1.96+0.84)^2/(11.3)^2$ $n=2\times32.26\times7.84/127.69$ $n=505.76/127.69$ $n=39.6\approx40$ patients per group (minimum)

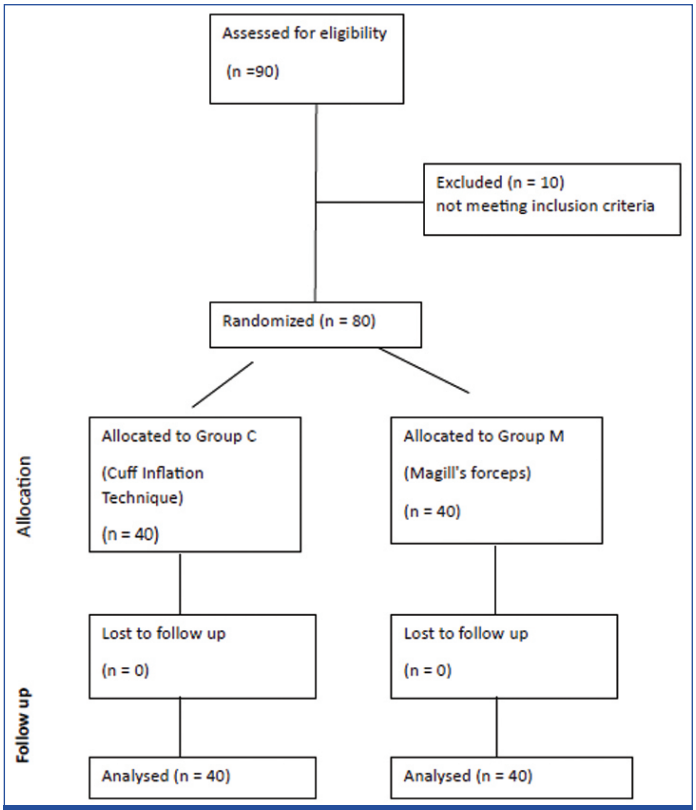
- Considering potential dropouts and to ensure adequate power, we enrolled 40 patients per group.

Inclusion criteria: Patients with either gender willing to provide written informed consent, ASA grade I and II of either gender, age between 18-60 years, elective surgical procedures requiring NTI under general anaesthesia, mouth opening ≥3 cm, and Mallampati Grade 1 or 2.

Exclusion criteria: Patients with history of upper respiratory tract infection, bleeding disorder, known airway anomaly, previous surgery in nasal cavity, nasal obstruction, Mallampati Grade III and IV, mouth opening less than 3 cm, and patients unwilling to participate Were excluded from the study.

Study Procedure

A total of 90 patients were assessed for eligibility, of which 10 were excluded (8 did not meet inclusion criteria, 2 declined to participate). The remaining 80 patients were enrolled in the study. Patients were randomly allocated into two groups based on the technique employed for NTI under direct laryngoscopy in patients undergoing surgery using computer-generated random numbers in sealed opaque envelopes [Table/Fig-1].



[Table/Fig-1]: CONSORT flow diagram.

group C- Cuff inflation technique (n=40)

group M- Magill's forceps technique (n=40)

Main investigator generated the random allocation sequence, enrolled participants and assigned participants to interventions. The present study was single blinded study. where participants were blinded to the allocation Whereas the Anaesthesiologist performing intubation was not blinded due to the nature of intervention, However, outcome assessors for post-operative complications were blinded to group allocation. All intubations were performed by experienced Anaesthesiologists with more than five years of experience in NTI.

All patients underwent a thorough preanaesthetic evaluation one day before surgery. Patients were explained about procedure and written informed consent was taken. Patients were kept nil per oral for eight hours for solids and four hours for clear liquids before surgery. Thirty minutes before induction, nasal preparation was done with xylometazoline 0.05% drops in both nostrils and nasal packing is done. Upon arrival in the operating room, standard monitoring was applied including Electrocardiogram (ECG), non-invasive blood pressure, and pulse oximetry. Intravenous access was secured with a 20-gauge cannula and Ringer's lactate infusion was started. Premedication included intravenous Inj. glycopyrrolate 0.004 mg/kg, In. ondansetron 0.1 mg/kg, Inj. midazolam 0.02 mg/kg, and Inj. tramadol 2 mg/kg. After pre-oxygenation with 100% oxygen for three minutes, anaesthesia was induced with Inj. propofol 2 mg/kg and after check ventilation Inj. succinylcholine 2 mg/kg intravenously Was administrated After disappearance of fasciculations from toes, lubricated appropriately sized cuffed Flexo metallic reinforced armoured Endotracheal Tube (ETT) was introduced into the selected nostril and advanced until it reached the oropharynx.

Direct laryngoscopy was performed using a Macintosh blade in the sniffing position. The Cormack-Lehane (CL) grade was noted. The CL grading system, introduced in 1984, classifies laryngoscopic view into four grades: Grade 1 - most of the glottic opening is visible; Grade 2 - only the posterior portion of the glottis or arytenoid cartilages are visible; Grade 3 - only the epiglottis is visible but no portion of the glottis; and Grade 4 - neither the glottis nor the epiglottis can be seen. The modified version (Yentis and Lee, 1998)

subdivides Grade 2 into Grade 2a (partial view of the glottis) and Grade 2b (only the posterior extremity of the glottis or only arytenoid cartilages visible). If CL grade was 3 or higher, or if NTI was not possible by the allocated method, the patient was excluded from the study. In The present study, none of the patients required exclusion on this basis.

In group C (Cuff Inflation Technique): Once the ETT reached the oropharynx, the cuff was inflated with 15 mL of air, which was incrementally increased by 5 mL as needed until the ETT tip aligned with the glottic opening, against the posterior pharyngeal wall. After tip of ETT entry into the glottic inlet, the cuff was deflated, and the tube was advanced further through the vocal cord. The cuff was then reinflated with an appropriate volume of air to achieve an adequate tracheal seal. After the two attempts if tube was not aligned with glottic opening using cuff inflation technique then intubation was done with the help of Magill's forceps and case was considered as failed attempt.

In group M (Magill's Forceps Technique): After the ETT reached the oropharynx, Magill's forceps were used to grasp the tube and direct it towards the vocal cords under direct visualisation. The forceps were advanced onto the distal end of the ETT from the right side, pressing it downward and medially towards the vocal cords while simultaneously applying gentle pressure at the nasal end of the tube.

An attempt was defined as the period from laryngoscope insertion to either successful tube passage through vocal cords or removal of the laryngoscope for re-attempt. External laryngeal manoeuvres (Backward, Upward, Rightward Pressure (BURP) or neck movement) were performed by an assistant when required. No desaturation events occurred during the study. Mask ventilation was available between attempts if needed.

ETT tube secured after confirmation of adequate bilateral air entry. Anaesthesia maintained with 50% oxygen-nitrous oxide combined with isoflurane and atracurium (0.5 mg/kg intravenous loading dose followed by 0.1 mg/kg /hour as a maintenance dose. Throat packing was performed in all cases after successful intubation. Reversal was achieved with Inj. glycopyrrolate 0.008 mg/kg i.v.+Inj. neostigmine 0.05 mg/kg. Patient was extubated after meeting the extubation criteria.

The following parameters were recorded:

- T1: Time from ETT introduction at nostril to oropharynx (seconds)
- T2: Time from laryngoscope insertion to tube passage through vocal cords (seconds)
- Total intubation time (T1+T2)
- Number of attempts required
- First-attempt success rate
- Haemodynamic parameters: Heart Rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), and oxygen saturation (SpO_2) were recorded at baseline, after intubation, and at 1, 3, 5, 7, and 10-minutes post-intubation.
- External laryngeal manoeuvre requirement
- Complications (sore throat, nasal bleeding, hoarseness, ETT cuff damage)

STATISTICAL ANALYSIS

Data were analysed using Statistical Package for Social Sciences (SPSS) version 25.0. Numerical variables were presented as mean±standard deviation (SD), while categorical variables were presented as frequency and percentage. The unpaired Student's t-test used for between-group comparisons of continuous variables, and the chi-square test was used for categorical variables. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 80 patients were enrolled in the present study, with 40 patients in each group. The demographic data including age, gender, weight, ASA status, and Mallampati grading were comparable between the two groups with no statistically significant differences [Table/Fig-2].

Parameters	Group C (n=40)	Group M (n=40)	t-value	p-value
Age (years)	38.7±12.5	40.2±14.8	0.487	0.623
Gender (Male/ Female)	26/14 (65.0%/35.0%)	17/23 (42.5%/57.5%)	-	0.082
Weight (kg)	65.4±8.8	68.7±11.5	1.464	0.147
ASA status (I/II)	22/18 (55.0%/45.0%)	15/25 (37.5%/62.5%)	-	0.131
Mallampati grade (1/2)	19/21 (47.5%/52.5%)	21/19 (52.5%/47.5%)	-	0.659

[Table/Fig-2]: Demographic Data
Values are presented as mean±SD or numbers. Unpaired Student's t-test was used for statistical and Chi-square test for categorical variables p value: p<0.05* statistically significant.
ASA: American Society of Anaesthesiologists

The timing parameters for intubation showed significant differences between the two groups The mean total intubation time was significantly shorter in group C compared to group M (p<0.001). The time from laryngoscope insertion to tube passage (T2) was also significantly lower in group C (p<0.001). Even the time from nostril to oropharynx (T1) was slightly but significantly shorter in group C (p=0.021) [Table/Fig-3]. The first-attempt success rate was higher in group C than in group M. Fewer patients in group C required multiple attempts, and the difference in attempt distribution was statistically significant (p=0.008). [Table/Fig-3]. External laryngeal manoeuvre was required less frequently in group C (6 patients, 15.0%) compared to group M (14 patients, 35.0%) (p=0.037) [Table/Fig-3].

Parameters	Group C (n=40)	Group M (n=40)	t-value/ χ^2-value	p-value
T1 (seconds)	10.55±1.42	11.27±1.38	2.301	0.021
T2 (seconds)	29.83±3.17	40.75±4.22	13.195	<0.001*
Total time (seconds)	40.38±3.95	51.84±4.78	11.800	<0.001*
Cormack-Lehane grade				
Grade 1	24 (60.0%)	22 (55.0%)	χ^2=1.542	0.819
Grade 2A	11 (27.5%)	10 (25.0%)		
Grade 2B	5 (12.5%)	8 (20.0%)		
Grade 3	0 (0.0%)	0 (0.0%)		
Grade 4	0 (0.0%)	0 (0.0%)		
Number of attempts				
1	32 (80.0%)	30 (75.0%)	χ^2=9.77	0.008*
2	7 (17.5%)	8 (20.0%)		
3	1 (2.5%)	2 (5.0%)		
External laryngeal maneuver required	6 (15.0%)	14 (35.0%)	-	0.037*

[Table/Fig-3]: Comparison of intubation parameters between Group C and Group M.
*Values are presented as mean±SD or numbers (%); Unpaired Student's t-test was used for statistical analysis. p<0.05 considered statistically significant. T1: Time taken for ETT introduction from the selected nostril to the oropharynx (in seconds) , T2: Time taken from the introduction of the laryngoscope to visual confirmation of tube passage through the vocal cords (in seconds)
Note: No patients with CL Grade 3 or 4 were included as per exclusion criteria.

Baseline haemodynamic parameters were comparable between groups. After intubation, both groups showed increases in HR and blood pressure, but the rise was significantly lower in group C at 1, 3, and 5 minutes post-intubation. HR differences were significant at 1 and 3 minutes (p=0.021, p=0.018), while SBP differences were significant at 1, 3, and 5 minutes (p=0.003, p=0.006, p=0.015). Similar trends were observed for diastolic and mean pressures, with higher elevations in group M. Oxygen saturation remained stable and comparable in both groups [Table/Fig-4]. Postoperative

Parameters	Time	Group C (n=40)	Group M (n=40)	t-value	p-value
Heart Rate (HR) (beats/ min)	Baseline	80.3±6.2	78.6±5.9	1.257	0.211
	Post intubation				
	1 min	91.7±7.3	95.8±8.5	2.341	0.021*
	3 min	87.4±6.8	93.2±7.6	2.424	0.018*
	5 min	83.5±5.9	88.1±6.7	1.931	0.057
	10 min	81.2±5.4	83.3±5.8	1.680	0.097
Systolic BP (SBP) (mmHg)	Baseline	119.5±6.4	118.2±6.8	0.893	0.373
	Post intubation				
	1 min	134.8±8.7	144.2±11.6	3.075	0.003*
	3 min	128.6±7.9	138.7±10.2	2.836	0.006*
	5 min	124.3±7.2	131.5±8.9	2.496	0.015*
	10 min	121.4±6.5	123.2±7.1	1.243	0.217
Diastolic BP (mmHg)	Baseline	76.3±5.8	75.5±6.1	0.611	0.543
	Post intubation				
	1 min	86.7±7.5	94.5±8.9	2.737	0.008*
	3 min	82.9±6.7	89.4±7.8	2.615	0.011*
	5 min	79.5±5.9	83.7±6.4	2.269	0.027*
	10 min	77.1±5.5	78.3±5.7	0.986	0.324
Mean BP (mmHg)	Baseline	90.7±5.4	89.7±5.7	0.815	0.416
	Post intubation				
	1 min	102.7±7.3	111.2±9.2	2.984	0.004*
	3 min	98.1±6.5	105.8±7.9	2.703	0.009*
	5 min	94.4±5.8	99.6±6.7	2.401	0.019*
	10 min	91.9±5.2	93.3±5.4	1.206	0.231

[Table/Fig-4]: Haemodynamic Parameters.
Values are presented as mean±SD or numbers. Unpaired Student's t-test was used for statistical analysis p value: p<0.05 * statistically significant

complications were observed less frequently in group C compared to group M. While the incidence of sore throat and hoarseness of voice was not significantly different between groups, nasal bleeding and ETT cuff damage occurred significantly less frequently in group C [Table/Fig-5].

Complication	Group C (n=15)	Group M (n=15)	p-value
Sore throat	5 (12.5%)	8 (20.0%)	0.363
Nasal bleeding	2 (5.0%)	7 (17.5%)	0.047*
Hoarseness of voice	6 (15.0%)	9 (22.5%)	0.390
ETT cuff damage	3 (7.5%)	8 (20.0%)	0.032*

[Table/Fig-5]: Postoperative Complications.
Values are presented as numbers %) ;Chi-square was used for statistical analysis p value: p<0.05 *statistically significant
Note: Some patients experienced multiple complications; percentages represent individual complication rates

DISCUSSION

NTI was popularised by Sir Magill's in 1920. NTI is a valuable technique in head and neck, but navigating the ETT from the oropharynx to the glottic opening remains challenging. Complications can occur during NTI like epistaxis, trauma to nasal mucosa, perforation of pyriform fossa, retropharyngeal perforation or olfactory nerve damage. Therefore, in the present study wire reinforced (Flexo metallic) tube was preferred. Preformed tubes are difficult to pass even under direct laryngoscopic vision, as they do not conform to the airway curvature and tend to remain along posterior pharyngeal wall [12].

The present study demonstrates that the cuff inflation technique offers significant advantages over the traditional Magill's forceps technique for NTI under direct laryngoscopy. Patwa A et al., found that the cuff inflation technique consistently improved the navigation of all flexometallic ETT [6]. With cuff inflation, intubation was successful in 19 of 20 patients (95%), and concluded that in normal patients, tracheal tube cuff inflation in the oropharynx increases the success rate of blind NTI. Elstraete ACV et al., assessed the efficacy of tracheal tube cuff inflation in the oropharynx as an aid to blind NTI [20].

Intubation parameter: The most notable benefit was the significantly shorter intubation time in the cuff inflation group (40.38±3.95 seconds vs. 51.84±4.78 seconds, p<0.001). The shorter intubation time with the cuff inflation technique can be attributed to the simpler and more direct approach it offers. This reduction in intubation time is clinically relevant as prolonged intubation attempts can lead to hypoxaemia, increased stress response, and potential adverse events. This finding aligns with the study by Patwa A et al., who reported comparable intubation times between the two techniques but noted easier tube navigation with cuff inflation [12].

The results also showed a higher first-attempt success rate with the cuff inflation technique (80.0% vs. 75.0%), with fewer patients requiring multiple attempts compared to the Magill's forceps group. This is consistent with the findings of Khadake SM et al., who reported increased success rates with cuff inflation, particularly in difficult NTI cases [6]. The improved success rate can be attributed to the more controlled and predictable movement of the ETT tip with cuff inflation, reducing the likelihood of improper positioning or trauma. Elstraete ACV et al., reported 95% success with cuff inflation in blind NTI, while the present study extends these findings to direct laryngoscopy [20]. The improved success rate likely results from the predictable anterior movement of the ETT tip with cuff inflation, reducing mal-positioning and trauma.

Other finding in the present study was that external laryngeal manoeuvre was required significantly less frequently in the cuff inflation group (15.0%) compared to the Magill's forceps group (35.0%) (p=0.037). This suggests that the cuff inflation technique provides better alignment of the ETT with the glottic opening, reducing the need for additional external manipulation. This finding aligns with the study by Sangamala VPK et al., who reported that number of additional manoeuvres, haemodynamic responses and complications were reduced with cuff inflation technique compared to conventional technique [21]. The reduced requirement for external laryngeal manoeuvre not only simplifies the intubation process but also potentially reduces the risk of cervical spine movement in patients where such movement should be minimised.

Haemodynamic paameter: The haemodynamic response to intubation is a crucial consideration, particularly in patients with cardiovascular co-morbidities. This study demonstrated a less pronounced increase in HR and blood pressure in the cuff inflation group compared to the Magill's forceps group during the immediate post-intubation period. The significant differences observed in SBP, DBP, and mean arterial pressures at 1-, 3-, and 5-minutes post-intubation suggest that the cuff inflation technique induces less sympathetic stimulation. This attenuated stress response might be attributed to reduced manipulation and stimulation of the oropharyngeal structures with the cuff inflation technique. Similar findings were reported by Patwa A et al., who noted a reduced stress response with cuff inflation compared to Magill's forceps [6].

Complication: Regarding complications, there were statistically significant differences in some adverse events between groups. Notably, the incidence of nasal bleeding (5.0% vs. 17.5%, p=0.047) and ETT cuff damage (7.5% vs. 20.0%, p=0.032) was significantly lower with the cuff inflation technique. This reduced complication rate can be attributed to the avoidance of direct instrumentation of the oropharynx and potential trauma (before throat packaging) from the Magill's forceps. Lin CH et al., similarly reported reduced cuff damage with this technique [9].

The avoidance of direct forceps instrumentation likely accounts for these differences.

The cuff inflation technique offers several practical advantages beyond the measured outcomes. It eliminates the need for an additional instrument (Magill's forceps), potentially reducing the risk of cross-contamination and the cost associated with sterilisation. Additionally, it can be particularly valuable in settings where Magill's forceps may not be readily available or in cases where oropharyngeal abnormalities limit the use of forceps. Despite these advantages, the cuff inflation technique has certain limitations. It requires careful attention to the amount of air used for cuff inflation, as overinflation could potentially cause mucosal injury or impair the view of the glottis. Additionally, in patients with severely distorted upper airway anatomy, the predictable movement of the ETT tip with cuff inflation might be compromised, potentially necessitating alternative approaches [9,21].

Limitation(s)

The main limitations of this study include the inability to blind the Anaesthesiologist to the group allocation due to the nature of the interventions. Additionally, only patients with normal airways (Mallampati grade 1-2) were included, which may limit the generalisability of the findings to patients with difficult airways. The slight but significant difference in T1 times between groups, though likely due to random variation, could suggest unconscious bias. Additionally, throat packing performed in all cases may have contributed to postoperative sore throat and hoarseness, potentially confounding these outcomes. Future research could address these limitations by conducting larger multicenter trials and including patients with varying degrees of airway difficulty.

CONCLUSION(S)

The cuff inflation technique proved to be a safe and effective alternative to Magill's forceps for NTI under direct laryngoscopy. It was associated with shorter intubation time, higher first-attempt success, reduced need for external manoeuvres, and attenuated haemodynamic response, with fewer complications observed. These advantages make it a valuable technique for routine clinical use. Nevertheless, proficiency in both methods remains essential for Anaesthesiologists to adapt to varied clinical scenarios. Larger multicentre studies are warranted to confirm these findings and establish wider applicability.

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