

Magill Forceps- An Aid For Difficult Intubation

Z Arshad, H Abbas, L Gupta, J Bogra

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Abstract

The Magill forceps are used for nasotracheal intubation, endotracheal suctioning, passing gastric tubes, placement of tampons in the nasopharynx and extraction of foreign material from the pharynx. On many occasions they used it for other anesthesia and extra-anesthesia purposes; e.g. removal of mucous plugs, solid food particles in case of vomiting on induction, fallen loose tooth in the mouth and impacted bolus of meat. Even Ascaris worm obstructing the airway and the list would not end.^[2] Although Magill forceps are being used as an aid for nasotracheal intubation since last so many years but its use as an aid to orotracheal intubation is not described. In cases with difficult airway, in which laryngoscopic view is Cormack Lehane Grading is II/III some time we require use of a stylet as an assistance. In such situation with the use of stylet we find some problems. Therefore the aim of this study is to find out whether we can use Magill forceps as an aid for difficult intubation in place of stylet.

INTRODUCTION

The Nasal tracheal intubation was first described in 1920 by Stanley Rowbotham and Ivan Magill. They developed a device to aid the insertion of the tip of the endotracheal tube into the glottis. Magill's forceps are still the instrument of choice for nasal tracheal intubation carried out under laryngoscopic visualization.^[1]

This is a valuable instrument for Anesthesiologists to help introducing the endotracheal tube into the larynx. The Magill forceps are used for nasotracheal intubation, endotracheal suctioning, passing gastric tubes, placement of tampons in the nasopharynx and extraction of foreign material from the pharynx. On many occasions they used it for other anesthesia and extra-anesthesia purposes; e.g. removal of mucous plugs, solid food particles in case of vomiting on induction, fallen loose tooth in the mouth and impacted bolus of meat. Even Ascaris worm obstructing the airway and the list would not end.^[2]

Although Magill forceps are being used as an aid for nasotracheal intubation since last so many years but its use as an aid to orotracheal intubation is not described. In cases with difficult airway, in which laryngoscopic view is Cormack Lehane Grading is II/III some time we require use of a stylet as an assistance. In such situation with the use of stylet we find the following problems-

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of stylet.

MATERIALS AND METHODS

We have studied 50 patients of either sex with no age limit. The only criteria was the laryngoscopic view CL II/III in which there is requirement of extra aid or manoeuvre to intubate the trachea (in the form of stylet or cricoid pressure).

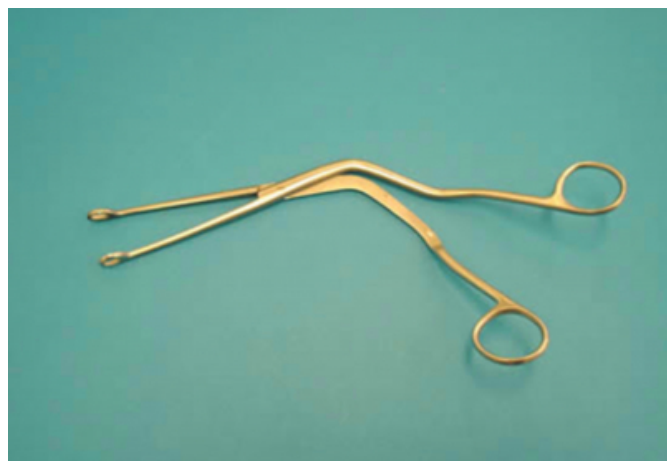
The patients were randomised equally to intubate either with the aid of Stylet or Magill forcep. In Magill forcep group, we putted Magill forcep and pushed endotracheal tube in the trachea. Then we hold the tube just above the cuff with the help of Magill forceps and forward it in to trachea. In another group of 25 patients we used stylet when required. We found Magill very useful especially when there is limited mouth opening. Further, there was less chances of trauma and also technically easy as compared to stylet.

MAGILL FORCEPS

Magill forceps are angled forceps used to guide the endotracheal tube into the laryngeal inlet during nasotracheal intubation or a nasogastric tube into the esophagus under direct vision. It is also used to place pharyngeal packs and removal of foreign bodies.

Figure 1

Fig. 1. Figure showing Magill Forceps



STATISTICAL ANALYSIS

The continuous data were summarised as Mean \pm SD while discrete (categorical) in %. The continuous variables of two independent groups were compared by independent Student's t test while discrete variables by Fisher test. A two-sided ($\alpha=2$) $p<0.05$ was considered statistically significant.

RESULTS

The outcomes of difficult intubation (Ease of insertion, Revision of curvature, Bending of stylet, Trauma, Dislodgment of tube and Average laryngoscopy time) of two groups were summarised in Table 1. The Average laryngoscopy time was lowered significantly ($p<0.001$) in patients those who received the Magill forcep as compared to those who received the Stylet (21.27 ± 1.62 vs. 28.41 ± 1.97 , $t=14.00$; $p<0.001$). Ease of insertion is a subjective phenomenon, we felt that ease of insertion with Magill is more as compared to stylet. Furthermore, in the stylet group, the revision of curvature, bending of stylet, trauma and dislodgment of tube were 24.0%, 20.0%, 16.0% and 4.0% while in the Magill group it was absent and thus not comparable.

Figure 2

Table 1: The outcomes of difficult intubations of two groups

Outcomes	Stylet (n=25)	Magill forcep (n=25)	p value
Ease of insertion (no)	X	XX	NA
Revision of curvature	6 (24.0%)	NA	NA
Bending of stylet	5 (20.0%)	NA	NA
Trauma	4 (16.0%)	NA	NA
Dislodgment of tube	1 (4.0%)	NA	NA
Average laryngoscopy time (sec)	28.41 ± 1.97	21.27 ± 1.62	$p<0.001$

DISCUSSION

Our observation with the use of stylet were as follows. In cases of anterior larynx with limited mouth opening when we try to push the tube with stylet in to larynx, we push the assembly forward at this pressure point the force can bend the stylet so the direction of force applied changes, then it becomes very difficult to introduce the ET tube in to the trachea. Whereas in similar circumstances when we use Magill forceps this problem is overcome. Sometime we have to correct/revise the curvature of stylet. This may prolong the laryngoscopy time and so the hemodynamic changes are drastic.

During the introduction into laryngeal inlet, the tip faces upward and we push forward. This move can cause trauma. During removal of stylet we hold the tube firmly applying force again in forward direction and remove the stylet. This is another cause of trauma with the use of stylet. Sometime the jerk/force produced during this manoeuvre can lead to trauma and dislodgment/ removal of tube.

The most severe upper airway damage reported after lighted stylet intubation are two reported cases of arytenoid cartilage dislocation. In neither case was more than moderate difficulty reported in achieving the intubation.^{[3][4]}

CONCLUSION

Study found Magill forceps is beneficial than Stylet in the management of difficult intubation. The Average laryngoscopy time was significantly better in Magill forceps as compared to the stylet. We found that we can use Magill forceps in place of stylet when required, if not invariably but in cases when we anticipate or face such kind of difficulty with the use of stylet to avoid the trauma, ease of insertion and to overcome the problem of dislodgment of endotracheal tube.

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Author Information

Zia Arshad

Assistant professor, Department Of Anaesthesiology, K G Medical University

Haider Abbas

Associate professor, Department Of Anaesthesiology, K G Medical University

Lokendra Gupta, MD

Student, Department Of Anaesthesiology, K G Medical University

Jaishree Bogra

Professor & Head, Department Of Anaesthesiology, K G Medical University