

**COMPARISON OF EFFICACY AND HAEMODYNAMIC CHANGES BETWEEN
ENDOFLEX WITH GLIDE-RITE STYLETTED STANDARD ENDOTRACHEAL
TUBE IN GLIDESCOPE VIDEO LARYNGOSCOPY INTUBATION.**

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ABSTRACT

The Glidescope Videolaryngoscope has been widely used for intubation in recent years. Due to the unique angulation of the blade, a dedicated stylet is provided, utilized to facilitate intubation. The Endoflex endotracheal tube is a single lumen with in-built flexing mechanism and a friction lock that allows for easy articulation of its distal tip over a range of angles without the need for a rigid stylet. The aim of this study was to evaluate between Endoflex with Glide-Rite stylet and standard endotracheal tube in Glidescope video laryngoscopy intubation in terms of time for intubation, intubation attempts, intubation difficulty, hemodynamic changes and complications. This study was conducted from August 2013 till February 2014 involving a total number of 88 patients aged between 18 to 55 years old. The results showed that the mean insertion time to intubation with Endoflex is longer compared to Glide-Rite stylet standard endotracheal tube with a p value <0.001 and also had a higher fraction of second attempt with $p:0.006$. Visual analogue scores were higher in Endoflex with $p:0.011$.

There were no statistically significant differences in terms of haemodynamic changes and complications between both groups.

In our study, we conclude that Endoflex was generally more difficult to insert as reflected by longer intubation time, more intubation attempts, and higher intubation score.

ABSTRAK

Glidescope Videolaryngoscope telah digunakan secara meluas untuk intubasi pada masa kini. Oleh sebab Glidescope Videolaryngoscope mempunyai “blade” yang unik lengkoknya (curvature), yang memerlukan “stylet” khusus disediakan, digunakan untuk memudahkan intubasi. Endoflex tiub adalah lumen tunggal dengan mekanisme lenturan yang dibina khas dan mempunyai kunci geseran yang membolehkan mudah penyetaraan hujung distal ke atas pelbagai sudut tanpa memerlukan “stylet” khusus. Tujuan kajian ini adalah untuk menilai perbezaan antara Endoflex dengan Glide-Rite stylet tiub endotracheal standard dalam Glidescope video laryngoscopy intubasi dalam masa jangka untuk intubasi, bilangan percubaan intubasi, kesukaran intubasi, perubahan hemodinamik dan komplikasi intubasi antara keduanya. Kajian ini telah dijalankan dari bulan Ogos 2013 hingga Februari 2014 yang melibatkan seramai 88 pesakit berusia antara 18 hingga 55 tahun. Kajian menunjukkan masa untuk intubasi dengan Endoflex lebih panjang berbanding Glide-Rite stylet tiub endotracheal standard dengan nilai $p < 0.001$ dan juga mempunyai pecahan yang lebih tinggi dengan percubaan kedua dengan nilai $p: 0.006$. Skala analog visual adalah lebih tinggi dalam Endoflex dengan nilai $p: 0.011$.

Tidak ada perbezaan statistik yang signifikan dari segi perubahan hemodinamik dan komplikasi antara kedua-dua kumpulan.

Dalam kajian kami, kami membuat kesimpulan bahawa Endoflex pada umumnya lebih sukar untuk intubasi seperti yang ditunjukkan oleh masa yang lebih lama intubasi, lebih percubaan intubasi, dan skor intubasi yang lebih tinggi.

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1.INTRODUCTION

Endotracheal intubation is a procedure by which a plastic tube is inserted through the mouth down into the trachea (the large airway from the mouth to the lungs). The endotracheal tube serves as an open passage through the upper airway. The purpose of endotracheal intubation is to permit air to pass freely to and from the lungs in order to ventilate the lungs. This can be done by direct vision of the vocal cord with the assistance of curved Macintosh or straight Miller. However if the vocal cord is being too anterior to be visualised certain types of blade, such as McCoy blade is helpful in intubation. Furthermore, with the advancement of optical technologies, various types of indirect laryngoscopes have been invented to provide the best intubation condition and successfulness for examples supraglottic device, fiberoptic, bouffards and videolaryngoscopes such as Glidescope.

The Glidescope Video Laryngoscope is relatively new intubating device. It has a digital camera incorporated to display a view of the vocal cords on a monitor. This allows the placement of a tracheal tube to be visualised. It was designed to provide a view of the glottis without alignment of the oral, pharyngeal and tracheal axes. The laryngoscope blade bends through 60° at the midline and is 18 mm wide. It was designed to give an improved view of the glottis, as it is able to 'look around the corner', and it may be useful for all intubation including both normal and difficult airways.

Laryngoscopy with Glidescope requires less upward lifting force (4.9–13.7 N) to expose the glottis, compared with Macintosh (35–47.6 N) (P. Niforopoulou et al 2010). When less force is applied to the soft tissues during intubation, there will be less oropharyngeal injuries. However, there are few complications reported such as perforation of the palatopharyngeal arch (Leong WL., et al 2008), the palatoglossal arch (Hirabayashi Y et al 2007) and the soft palate (Cross P., et al 2007) have been reported with the Glidescope.

To aid in obtaining the right angulation, several adjuncts are available in the market, such as the GlideRite rigid stylet,(Turkstra TP et al, 2007) and the Endoflex ETT (Phua D., et al 2008.) Glide-Rite rigid stylet has a 60 degree angle to accommodate the standard endotracheal tube to ease the intubation process. Unlike Endoflex, the standard tube tip is not adjustable, which can make it difficult for the practitioner to position in the airway in certain patients. Prior to EndoFlex, practitioners relied on stylets to help them form the tip bend (often referred to as a "hockey stick" or "J" shape) required in a difficult airway situation.

The ENDOFLEX tube is a polymer single lumen tracheal tube designed to allow the practitioner to flex and lock the distal tip into a 'J' shape without the stylet. It has flexible distal tip that is articulated by a durable monofilament cable,controlled by friction lock.It allows for articulation of its tip to a desired angle without the need for a rigid stylet such as Glide-rite rigid stylet. Endoflex ETT distal articulation closely followed the 60 ° angle of Glidescope and Glidescope Rigid stylet .

In this study, we compare Endoflex endotracheal tube with Glide-Rite Stylet standard endotracheal tube in Glidescope video laryngoscopy intubation in term of efficacy of intubation in both endotracheal tube and also we hypothesized that intubation with Endoflex associated with less complications.

The Endoflex ETT appears to be promising alternative to the Rigid Stylet in Glidescope intubation,with its advantage being possible reduction or elimination airway injuries associated with the use of rigid stylet. In this study also,we compare haemodynamic changes associated with Endoflex intubation as compared to Glide-Rite Stylet standard endotracheal tube in Glidescope video laryngoscopy.

2.LITERATURE REVIEW

2.1Videolaryngoscopy and intubation

Endotracheal intubation consists of inserting a tube into a patient's trachea in order to ensure airway patency and protection and also provide positive-pressure ventilation for adequate oxygenation. Magill developed this technique after World War 1 because of the difficulty of administering chloroform by mask to patients with facial injuries. It is typically performed using direct laryngoscopy (DL), but alternative techniques such as fiberoptic intubation or video laryngoscopy intubation are used.

Indications for intubation :

- i) To ensure airway patency in unconscious patient
- ii) To protect the lungs from aspiration of gastric contents
- iii) To provide positive-pressure ventilation ,in the setting of respiratory failure or general anaesthesia.

Few complications of intubation :

- i) Inability to intubate the trachea in a patient who cannot ventilate spontaneously ,lead to hypoxia
- ii) Incorrect endotracheal tube (ETT) placement (esophageal or bronchial intubation)
- iii) Trauma to the airway during ETT insertion
- iv) Aspiration of gastric contents prior to intubation.
- v) Haemodynamic surges, arrhythmia

The use of direct laryngoscopy is however contraindicated in patient with predictable difficult direct laryngoscopy due to abnormal anatomy or trauma to the airway and when there is contraindication to extending the head because of trauma to the cervical spine .

Videolaryngoscope, for example Glidescope , is a useful device that can offer management in both normal and complicated / difficult airways in term of:

- i) it improves the view of the epiglottis and vocal cords (beneficial in patients with limited mouth opening and in patients contraindicated to extend the neck)
- ii) it also requires less force than the direct laryngoscopy, which may cause less airway trauma , less cervical spine movement , and may decrease haemodynamic response to intubation .
- iii) You JS et al. 2009 states that Glidescope is a strong educational tool for airway management teaching.

Haemodynamic changes such as sudden increase in blood pressure during anaesthesia particularly intubation period may be hazardous to patient with cardiac disease and raised intracranial pressure (Rooper A H., et al 2004).

F.S Xue., et al 2007 showed no difference in term haemodynamic responses to orotracheal intubation using Glidescope versus conventional Macintosh direct laryngoscopy. However study by Mahjoubifar and Boroojiny., et al 2010 have reported reduction in mean arterial pressure (MAP) after intubation with Glidescope compared to direct laryngoscopy Macintosh.

2.2 Glidescope

2.2.1 History & features

The Glidescope was first launched in 2001. It was designed by vascular and general surgeon John Allen Pacey and became the first commercially available video laryngoscope. Glidescope is one of the novel video laryngoscopy intubation devices containing high-resolution video camera embedded within the blade and a light source mounted beside the camera for illumination, allowing indirect visualization of the glottis. It is connected by a video cable to a high resolution LCD monitor.

It was designed to offer the advantage of being able to 'look around the corner', allowing a view of the glottis via the camera without having to align oral, pharyngeal and tracheal axes. Glidescope eliminates the necessity for this three-axis alignment and facilitates visualization of the glottis by incorporating angulated blades at 60 degree angle. It provides superior views of the glottis compared to the standard direct laryngoscopes in patients with both normal and difficult airways (D.A Sun., et al 2005). It is made from medical grade plastic, giving durability and allowing repeated sterilizations.

In most patients, the Glidescope provided a laryngoscopic view equal to or better than that of direct laryngoscopy and it has potential advantages over standard direct laryngoscopy for difficult intubations. Study by D.A Sun., et al 2005, found out that laryngoscopy grade was improved in the majority of patients with Cormack & Lehane grade > 1 and in all but one patients who were grade 3 laryngoscopy.

Glidescope is gaining popularity because of its ease of use and high success rates in difficult intubation scenario .The role of Glidescope has been in routine orotracheal ,(Cooper RM.,et al 2005, & D.A Sun.,et al 2005), and also nasotracheal intubation (Jones PM., et al 2008).Although it frequently provides a good glottis view,due to it's incorporating angulated blades at a 60 degree angle in Glidescope ,as a result,it may be difficult to advance the endotracheal tube(ETT) through vocal cords into the trachea unless a stylet is used and trauma associated with its insertion also possible.

The Glidescope has special features (as described by Verathon) includes:

- i) The steep 60 degree curve blade improves the view of glottis by reducing the requirement for anterior displacement of the tongue.
- ii) The CMOS(complementary metal-oxide-semiconductor) APS(active pixel sensor) digital camera is attached at the point of the blade (rather than at the tip).This placement allows the operator to more effectively view the field in front of the camera.
- iii) The video camera is recessed for protection from blood and secretions which might otherwise obstruct the view.
- iv) The video camera has a relatively wide viewing angle of 50 degrees.
- v) The heated lens innovation helps to prevent fogging of the lens ,which might obscure the view.



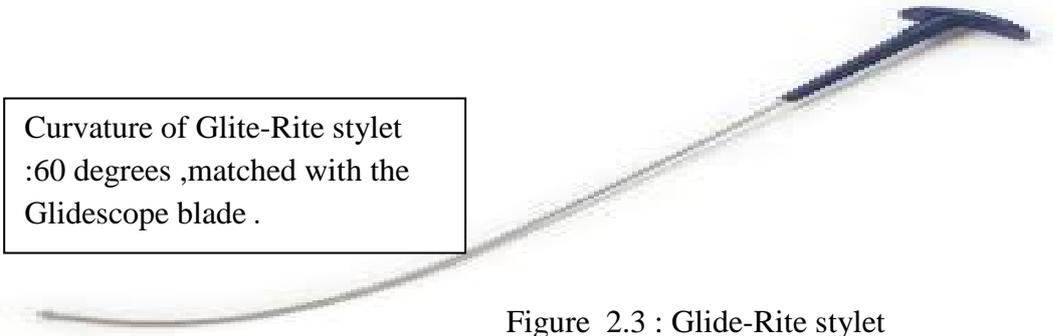
Figure 2.21 : Glidescope Components

2.3 Glide-Rite Stylet

A stylet is usually necessary when using the Glidescope videolaryngoscope for orotracheal intubation .A special stylet,the GlideRite Stylet was designed for this purpose.It is a rigid stylet provided by Glidescope manufacturer to facilitate intubation.It is a rigid,non-malleable stylet that is specifically optimized for use with the angulated blade of the Glidescope.

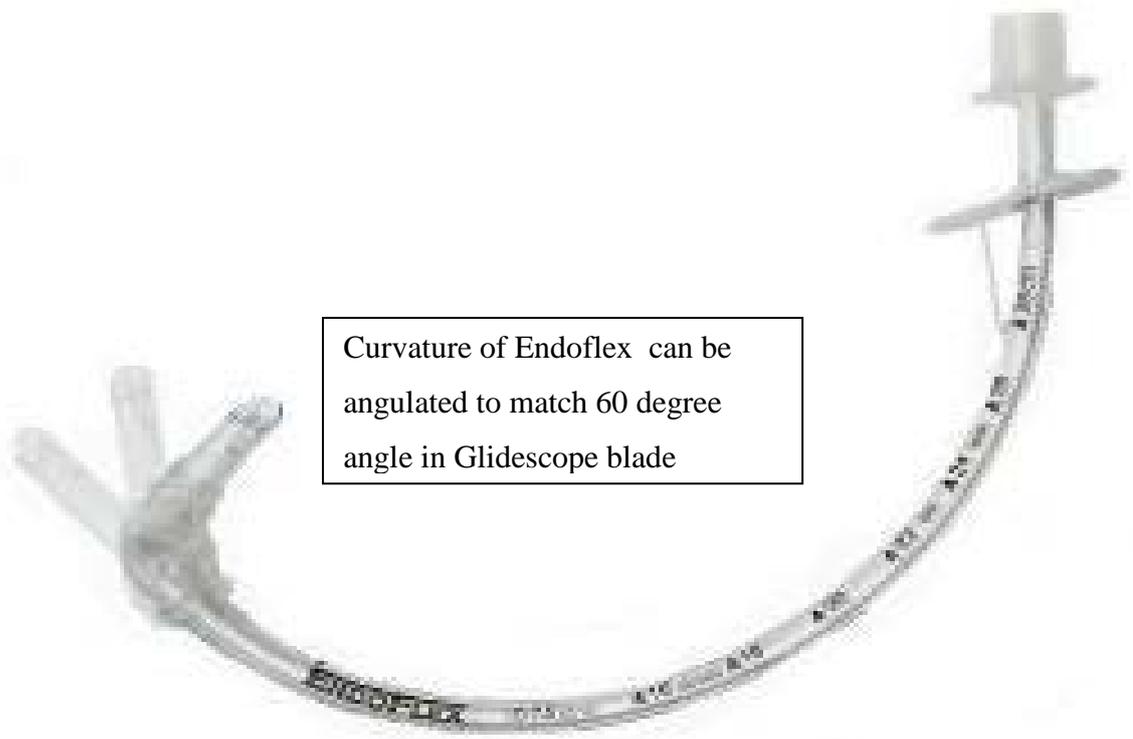
According the manufacturer, GlideRite Rigid Stylet shape complements the unique angle of the GlideScope video laryngoscope and provides maneuverability for quick placement of an endotracheal tube (ETT).It also provides improved stylet/ETT insertion can be viewed in real time ,helping ensure accurate tube placement .

GlideRite Rigid Stylet was designed to match the curvature of Glidescope blade,matched the 60 degree angle of blade. For Glidescope intubation,in order to place endotracheal tube optimally into the trachea,various authors have recommended different curvatures of the ETT/stylet,including matching the blade's 60 degree angle,configuring the endotracheal tube with a 90 degree bend,or using a J-shaped ETT .Endoflex tube also has been introduced to match the 60 degree angle in Glidescope blade so that it will facilitate easier intubation process.



Curvature of Glite-Rite stylet :60 degrees ,matched with the Glidescope blade .

Figure 2.3 : Glide-Rite stylet



Curvature of Endoflex can be angulated to match 60 degree angle in Glidescope blade

Figure 2.3.1: Endoflex endotracheal tube

Technique of insertion

Several techniques have been studied to make videolaryngoscopic intubation easier ,for example modifying the angle of the ETT tip and changing the configuration of the overall ETT shape but there were no single novel technique.Study by Nielson et al 2010 showed that airway adjunct such as Bougie have no significant different compared to standard stylet.

Intubation technique (as suggested by Verathon Medical)

a) Patient's mouth must be looked directly while introducing the videolaryngoscope using the left hand .It should be placed in the midline of the oropharynx.The handle is held with the left hand,in the same way as a conventional laryngoscope.

The tip of the laryngoscope blade is gently inserted in between the teeth under direct vision.Occasionally,certain maneuver examples like a scissor technique to open the mouth or a jaw thrust technique to lift the tongue anteriorly must be employed so that the blade can be passed underneath it.

There is no sweeping of the tongue to the right that was commonly done with conventional laryngoscopy.This is because identifying the anatomy becomes very difficult with the Glidescope if one deviates from the midline.

As soon as the tip of the laryngoscope blade passes the teeth,the operator should direct their attention to the video monitor and use the landmarks on the video screen to navigate to the larynx.Typically ,the uvula will be the recognizable structure seen if the blade is correctly situated in the midline.

The operator should then continue to advance the blade down the tongue ,past the uvula,with a slight elevating motion until the epiglottis is seen.

At this point,it is best to continue advancing the blade in the vallecula,with some gentle lifting forces,to lift the epiglottis out of the way.The blade should ultimately be seated in the vallecula much in the same way that a curved blade should be.

If the glottic opening cannot be exposed ,the blade can be withdrawn a bit, placed under the epiglottis and lifted up,as one would do with straight blade.If using the straight-blade technique ,one has be careful not to lift too hard as this will tilt the angle of the larynx making the intubation more difficult.

b) With the laryngoscope inserted,the monitor must be looked to identify the epiglottis.The videolaryngoscope is manipulated as necessary to obtain the best glottic view.

c)The patient's mouth must be looked directly while carefully guide the distal tip of the tube into the position near the tip of the laryngoscope not at the screen.This is important to avoid injuring the tonsils or soft palate.

d) The monitor is looked back to complete the intubation process,gently rotate or angle the tube to redirect as needed.

Glidescope applications/indications :

- 1) Routine airways, first use intubations, replacing direct laryngoscopy (DL)
- 2) Difficult airways
- 3) Airway management in morbidly obese patients
- 4) Normal or restricted oropharyngeal views/visualization and assessment of the oropharynx
- 5) Cormack-Lehane Grades I–IV laryngeal views
- 6) Trauma airways—excellent when dealing with blood and secretions in the airway
- 7) Patients requiring cervical spine immobilization
- 8) Re-intubation and endotracheal tube exchange in intensive care unit (ICU) settings
- 9) Naso- tracheal intubation
- 10) Insertion of transesophageal echocardiatic probes
- 11) Video-guided foreign body removal
- 12) Awake intubation for difficult airway management
- 13) Insertion of double lumen tubes (DLTs)
- 14) Video-guided tube exchange in the ICU

15) Paediatrics

a) neonatal ICU (NICU) applications: intubation of low birth weight infants

b) NICU confirmation of stability and position of endotracheal tubes,

c) intubation “syndromic children” (eg: Pierre Robin Syndrome)

16) Teaching airway anatomy to novice airway managers. You JS et al. 2009 reported that Glidescope gives a high degree of satisfaction of learning tool among premedical students.

Glidescope contraindication

Sackles JK et al 2006 stated that only absolute contraindication of Glidescope is restricted mouth opening of less than 14 mm, as this is the width of the widest portion of the blade. When using Glidescope to visualize the glottis, it occasionally takes longer time to pass the tube into the trachea once glottis is visualized, as compared to direct laryngoscopy. The relative contraindication for this airway device is would be in situation which the tracheal tube must be placed rapidly, for example a patient who desaturates very rapidly as any delay in establishing secure tracheal tube/airway would be fatal to patients.

Glidescope advantages

According to Sun et al 2005 ,Glidescope provide an equal or better laryngoscopic view than conventional laryngoscope in most patients though it may takes longer time for intubation .The better glottic view is due to its 60 degree blade curvature compared to the normal curve of conventional Macintosh laryngoscope. Sun., et al 2005 also stated that Glidescope may reduce attempts of intubation and improve the Cormack-Lehane score markedly compared to direct laryngoscope.

Glidescope can be introduced in the larynx without moving the neck as it glides following the oropharynx curvature.This is beneficial in patient with cervical fractures as minimal/no neck movement is very important and crucial during intubation period.Any crude cervical/neck manuevre will significantly affect patient's neurological deficit .A study by Turkstra et al 2005 showed that cervical movement was reduced by 50% at the C2-C5 segment when the Glidescope were used compared to conventional Macintosh laryngoscope.

Glidescope disadvantages

Glidescope is molded to a sharp 60 degree curvature at its blade to aid in the viewing of glottis. Although it frequently provides a good glottis view, due to its incorporating angulated blades at a 60 degree angle in Glidescope, as a result, it may be difficult to advance the endotracheal tube (ETT) through vocal cords into the trachea unless a stylet is used and trauma associated with its insertion also possible.

This may pose a challenge to pass the tracheal tube into the larynx as the stylet needs to be bent to a similar curvature as the Glidescope blade. A special stylet, the GlideRite Stylet, was designed to match the curvature of Glidescope blade.

There are few complications associated with such rigid stylets that have been reported and include soft palate (Hsu WT., et al 2007) pharyngeal and tonsillar lacerations and perforations (Malik AM., et al 2007). A careful and gentle intubation should be practiced and applied whenever possible.

2.4 Endoflex endotracheal tube

Introduction

The Endoflex tube is a polymer single lumen tracheal tube with an in-built flexing mechanism and a friction lock that allows for easy articulation of its distal tip over a range of angles and achieve the J-shape required for Glidescope intubation without the need for a separate stylet. It was developed and manufactured by Merlyn Associates, Tustin, California. Endoflex ETT distal articulation closely followed the 60 degree angle of the glidescope video laryngoscopy and Glidescope Rigid Stylet (DSK Phua., et al. 2008).

The Endoflex tube has friction lock to retain activation of built-in flexing mechanism. The operator would not need to simultaneously manipulate ETT and can activate flexing mechanism using one hand, making it is easy for manipulation of ETT and articulation of distal tip. It enables the airway manager/clinician to rapidly and safely adjust the tip of the tube into position for a variety of difficult airway situations.

The Endoflex ETT appears to be a promising alternative to the Rigid Stylet in Glidescope intubations, with its main advantage being the possible reduction or elimination of upper airway trauma associated with the use of rigid stylets. The Endoflex with its flexible, articulating tip (allowing for changes in angulation if needed to facilitate intubation) is directed to the glottis opening. Once the tip of Endoflex has been passed beyond the vocal cords, the friction lock is released, thus allowing the Endoflex to passively return to its normal curvature aiding passage into the trachea.

EndoFlex enables the practitioner to perform both routine and difficult intubation procedures. The key is its flexible tip. It enables the practitioner to adjust the tube and place it exactly where it needs to be in the patient to rapidly find the trachea and successfully establish an airway.

COMPONENT OF ENDOFLEX ENDOTRACHEAL TUBE

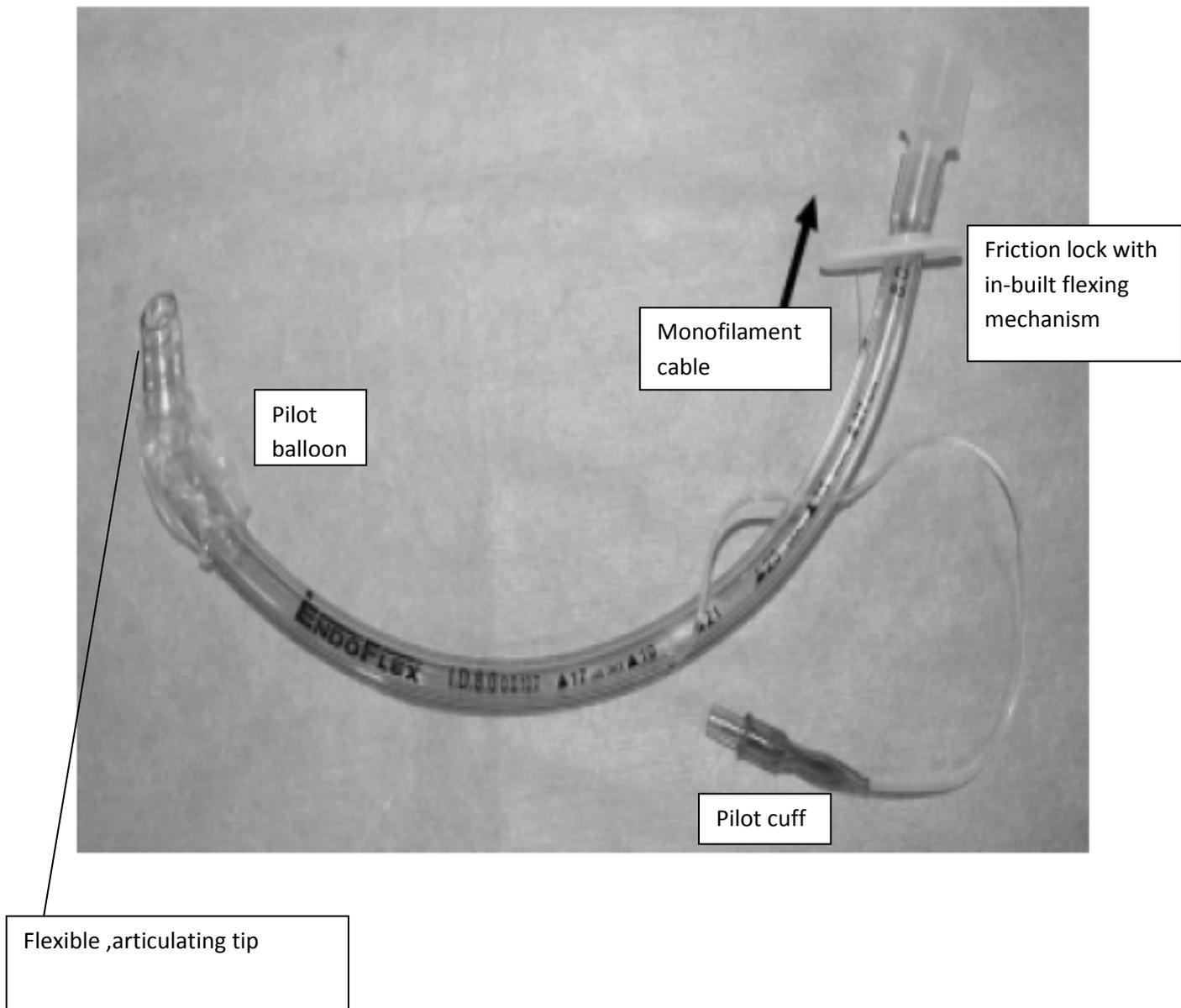


Figure 2.4 : Endoflex endotracheal tube component .

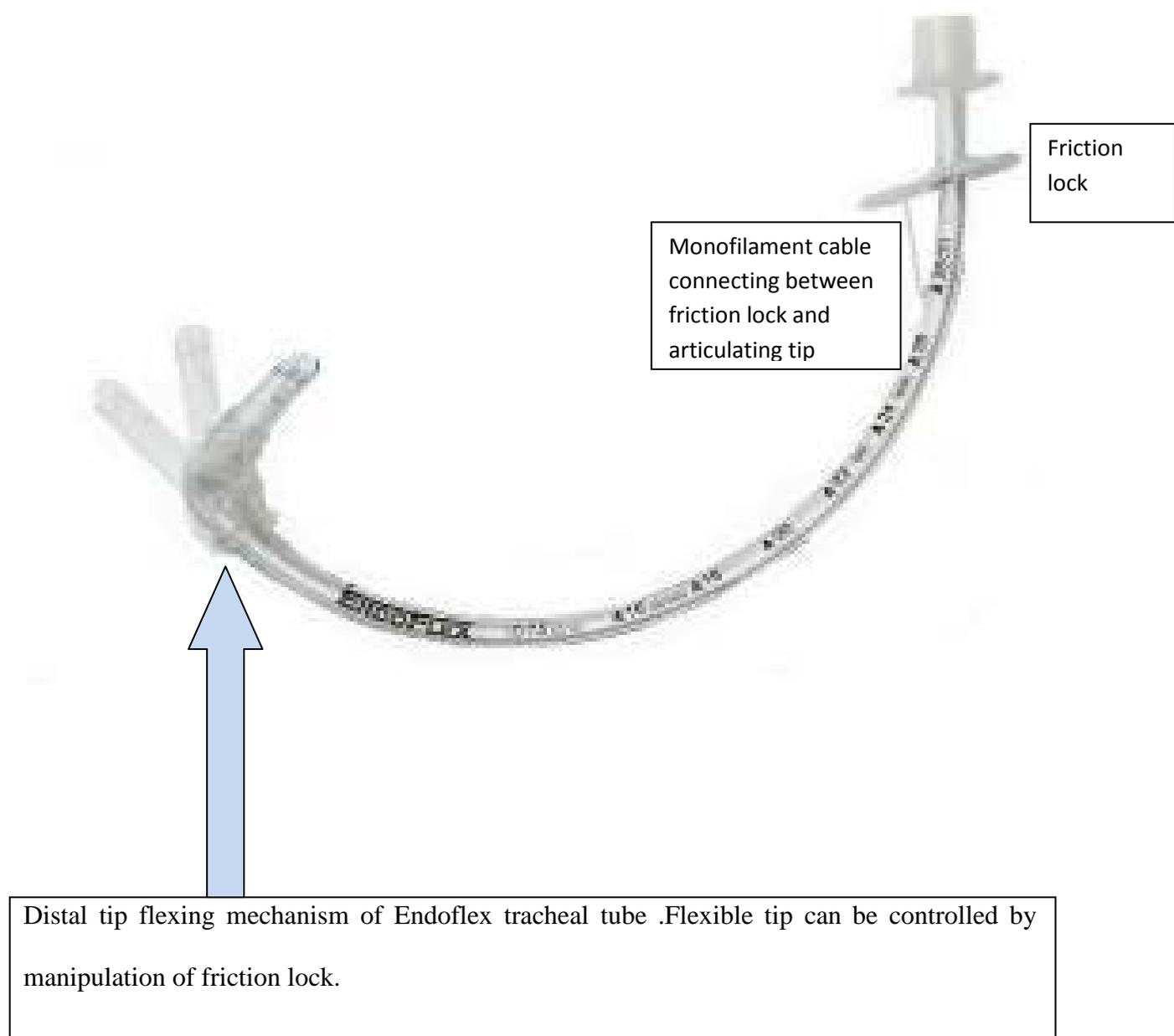


Figure 2.4.1 : Endoflex endotracheal tube mechanism.

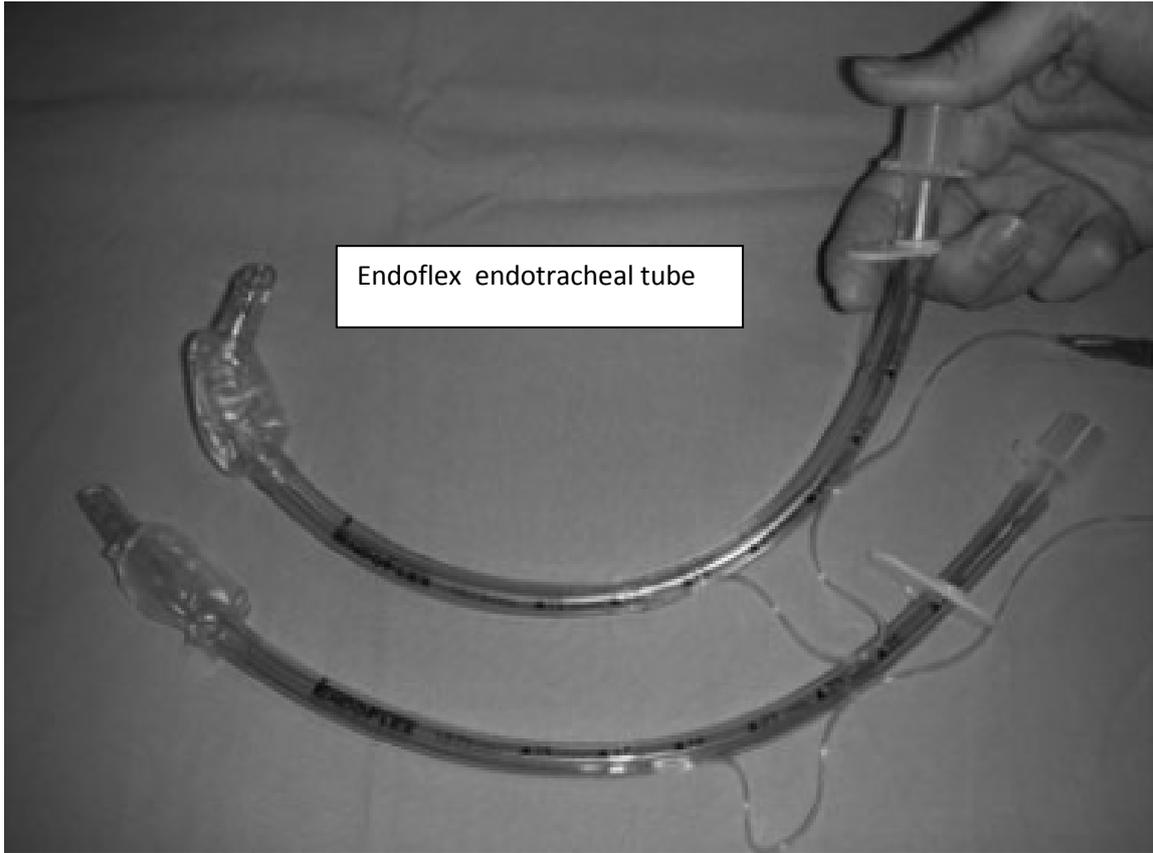


Figure 2.4.2 : Endoflex endotracheal tube



Figure 2.4.3: Conventional/standard endotracheal tube .

TECHNIQUE OF INSERTION

Endoflex tube is a tracheal tube with an in-built flexing mechanism and a friction lock that allows for easy articulation of its distal tip. Its distal tip flexing mechanism of Endoflex can be controlled by manipulation of friction lock located at its upper proximal part.

The tip can be flexed by withdrawing monofilament cable that connected between the friction lock and its distal tip. Under direct laryngoscopy or video laryngoscopy, laryngeal view is obtained, then this tube can be inserted without the need of stylet.

The Endoflex with its flexible, articulating tip allowing for changes in angulation if needed to facilitate intubation is directed to glottis opening. Once the tip of Endoflex has been passed beyond the glottis/vocal cords, the friction lock is released, thus allowing the Endoflex to passively return to its normal curvature aiding passage into the trachea.

Features of Endoflex (as described by manufacturer)

- 1) Safer endotracheal tube
- 2) Provides faster intubation
- 3) Patented flexing mechanism
- 4) Optimum tube design

1) Safer endotracheal tube

EndoFlex enables clinicians to quickly and safely adjust the distal tip when they encounter difficult airway situations, eliminating possible tracheal trauma from a stylet. The endotracheal tube lumen is never occluded, which saves valuable time.

2) Faster intubation

In most cases, EndoFlex can be adjusted to fit the airway, eliminating the need to find, insert, bend, and remove a stylet. Even in situations which do not require a stylet, a slight flexion adjustment of the EndoFlex tip can make the intubation smoother and faster.

3) Patented flexing mechanism

The EndoFlex patented, flexible distal tip is articulated by a durable monofilament cable, which is controlled by an exclusive friction lock. Protective membranes cover the articulation notch and cable, maintaining tube integrity.

4)Optimum tube design

i)Firm tube body is the ideal feature for easy intubation – stiff but not rigid. The shape is the Magill curve, which most clinicians have found is the best shape for successful intubations.

ii)A smoother, more-tapered Murphy eye and a more gently rounded distal tip reduce the possibility of trauma to the soft tissues and make smooth insertion of endotracheal tube.

iii)A full-length radiopaque line allows easy tip location by X-ray.

iv)A top quality pilot balloon with self-sealing valve is standard on EndoFlex cuffed tubes.

ADVANTAGES & DISADVANTAGES

Endoflex ETT distal articulation closely followed the 60 degree angle of the glidescope video laryngoscopy and Glidescope Rigid Stylet (DSK Phua., et al. 2008). This angulation helps in obtaining better laryngoscopic view as in glidescope blade. It achieves the J-shape required for Glidescope intubation without the need for a separate stylet.

The Endoflex ETT appears to be a promising alternative to the Rigid Stylet in Glidescope intubations, eliminating possible tracheal trauma from a stylet. EndoFlex can be adjusted to fit the airway, eliminating the need to find, insert, bend, and remove a stylet.

A study by Yamakage M., et al 2010 concluded that the Endoflex endotracheal tube represents a beneficial tool for smooth oral and nasal intubation without requiring assistance or adjuvant equipment and duration of intubation was significantly shortened in oral and nasal intubation using Endoflex tube. Regarding haemodynamic changes during intubation, there were no significant difference between Endoflex and conventional stylet endotracheal tube (Yamakage M., et al 2010).

However, a new study by Gaszynska E., et al 2013 concluded that EndoFlex tube does not improve intubation success rate compared to conventional endotracheal tube with stylet as it requires more maneuvers facilitating intubation in cervical spine immobilization patients.

Endoflex tube has a firm body is the ideal feature for intubation, it is stiff but not rigid. This feature, not rigid body as compared conventional endotracheal tube combined with stylet-free feature reducing airway trauma/morbidity associated with intubation. Endoflex also may be associated with less laryngeal morbidity (Soresen MK., et al 2013).

3. STUDY OBJECTIVES

3.1 General objectives

To study the efficacy and haemodynamic changes between ENDOFLEX endotracheal tube versus Glide-Rite Stylet standard endotracheal tube in glidescope video laryngoscopy intubation.

3.2 Specific objectives

1.To compare the ease of intubation between endotracheal tube (ENDO FLEX) and Glide-Rite Stylet standard endotracheal tube in glidescope video laryngoscopy intubation.

Ease of intubation is determined by comparing :

- the mean insertion time
- the number of attempts required to insert the devices.
- intubation difficulty (VAS: visual analogue score ,0-3= easy , 4-6 =moderate
7-10 =difficult)

2.To compare haemodynamic stability/changes between endotracheal tube (ENDO FLEX) and Glide-Rite Stylet standard endotracheal tube in glidescope video laryngoscopy intubation.

- comparing serial changes in blood pressure, MAP and heart rate changes seen.
- maximal BP and HR values during observation and intubation times were also noted.

3.To describe the incidence of complication between endotracheal tube (ENDO FLEX) and Glide-Rite Stylet standard endotracheal tube.