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THE INVENTION OF FIBEROPTIC VIDEOGUIDE INTUBATION

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ABSTRACT

Introduction: Airway management is one of the most important medical priorities. Despite its benefits, intubation can be sometimes associated with many complications and hardships. Hard intubation can have dangerous consequences, including hypoxia, increased intracranial pressure, cardiac collapse-vascular, traumatic anatomical areas and inflammation. The purpose of this device building is to reduce such complications.

Material and Method: This tool can be used to examine film and photographs of pharyngeal organs, epiglottis, vocal cords and proximal esophagus episodes and the upper esophagus, trachea and bronchi.

Discussion: Conventional laryngoscopes and video laryngoscopes are the instruments used in intubation, each of which has its own functional limitations. Of these limitations, it is difficult to intubate that due to the lack of proper view of the anatomical routes, the processor may fail. Fiberopathic videography is a tool that can be used in the chest tube intubation, especially in difficult conditions, operating rooms, and other pre-hospital settings.

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Results: Fiberopathic videography, a simple and very inexpensive tool that can visualize anatomical paths, shape simplicity directly facilitates the process of commuting and reduces potential complications.

Keywords: Fiberoptic, Videoguide, Intubation, Thracea.

INTRODUCTION

Airway management is one of the most important medical priorities. One of the most common and effective procedures in this section is intubation, which, despite its benefits, can sometimes be accompanied with many complications and difficulties. In difficult conditions, access to the appropriate airway, both in sick patients and patients who are selectively underwent aggressive or surgical procedures; It may have a cardiovascular hypoxemia and collapse, which will be a Threatening lives of patients. Among these, the most injuries caused by hypoxia during intubation are patients who have undergone a respiratory failure (1). Performing this procedure in patients with respiratory failure hospitalized in the ICU section can range from 11% to 15% with hypoxia, cardiovascular collapse, neurological complications, etc. (2). In addition to elective patients and candidates for surgery and ICU patients who manage their airways through intubation, a large group of patients with traumatic disease, including patients with head and neck trauma, chest and multiple trauma, are also included in this procedure. There are indications that about 10,555 deaths occur due to trauma, of which 22% are traffic accidents, and it is estimated that in 2525 trauma (injury) is the third leading cause of death in the world. In Iran, the traffic accident statistics cover 245 injured per year, which accounts for 555 most common areas of injury, chest, head and neck in patients with multiple trauma (multiple injuries) (4 and 3). Laryngoscopy incidence, problem intubation, and 1 to 8 percent of this case / ventilation treatment problem have been reported differently in various studies, but it occurs at 1 (1). In most cases, severe intubation can also be predicted and investigated, which can have dangerous consequences, including hypoxia, increased intracranial pressure, cardiovascular collapse, traumatic anatomical areas, and inflammation and hardening of the process. In different institutions about intubation of the problem, there are various descriptions such as congenital jaw malformations, excessive obesity, short neck, mild opening of the mouth, throat and laryngeal lesions, facial traumas, grade 3 and 4 Malapatha tests, and ... also listed.

The American Anesthesi Society describes three criteria for this purpose:

A. Two attempts or more for intubation and failure

B. Application of specific appendices along with ordinary laryngoscopes

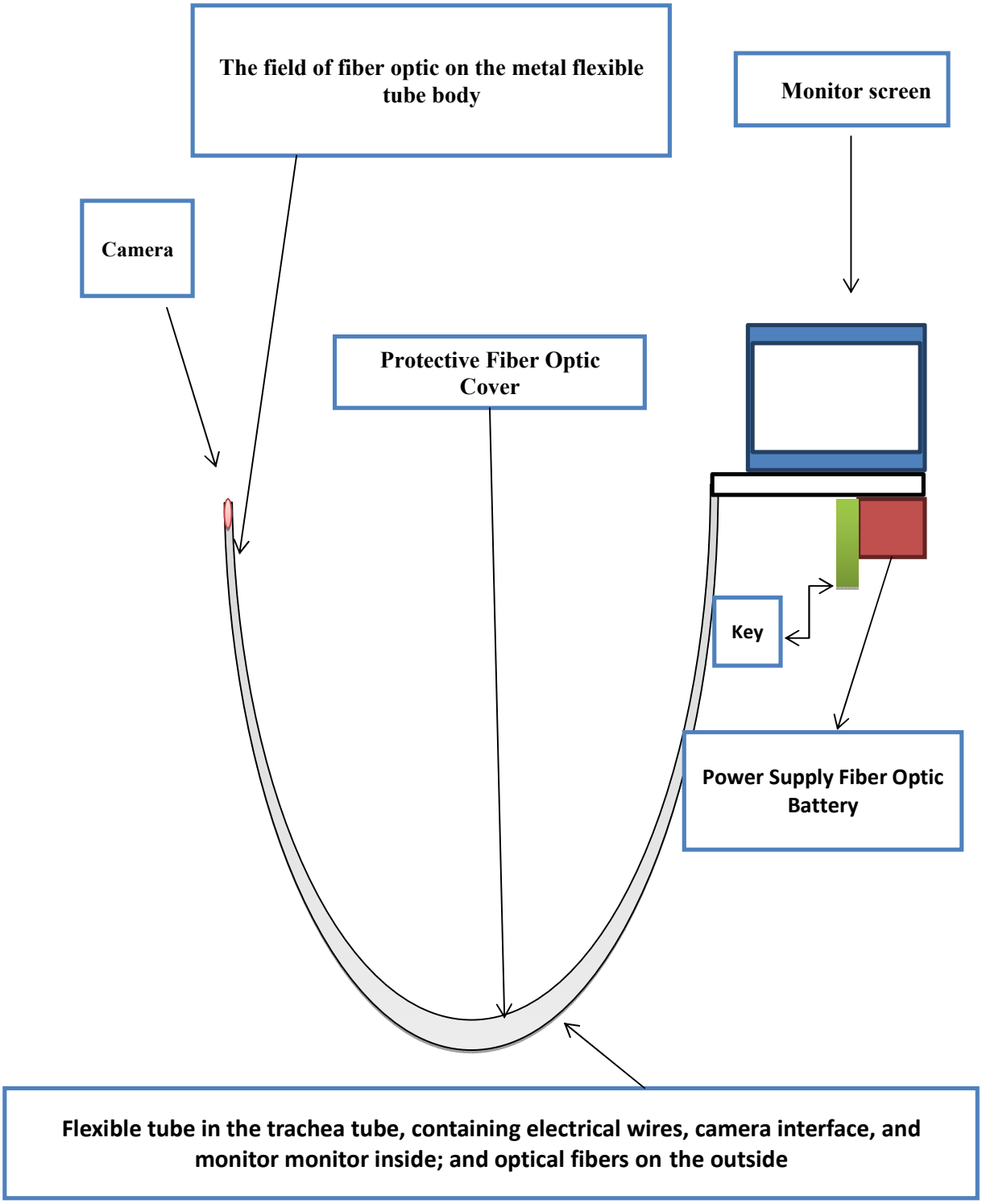
C. Use of tools and peripheral devices and multiple techniques for intubation and failure in the processor

In conventional conditions, in order to perform intubation, conventional laryngoscopes are also used with direct vision. But in patients with severe procedure, it requires more advanced and sensitive equipment and techniques. Among these, the tools are non-fibro-optic and non-fibro-visual video larrogoscopes with monitoring system. In many anesthetic communities in the management of patients with an airway problem recommend the use of oral or nasal (nose) fiberopathic devices (7). Fiber-optic and non-optic fiber optic intubations are available in two ways: (1) Rigid tools (2) Flexible tools are among the fibergraphic hard tools, video laryngoscopes and phlebopoietic and non-fibro-optic glidoscopesThey are uncompromising and after conventional and adjunct laryngoscopes, they may be the second means of managing airways in severe intubation conditions. The tip of the laryngoscope is located in a supraglottic space, and rigorously and inextensibly, by specialist force, displays an anatomical route along the line of airborne line on the monitor. It is generally non-portable and space-saving, and is most commonly used in operating rooms (8). Fiber-optic and non-fibro-optic flexible tools are more sophisticated tools for managing airways management, with a light source of non-fiber and fiery light. These tools are video or non-graphic and are inside the trachea and are mobile and flexible and anatomical route is represented by expert maneuvers along the curved line along the straight line and on the screen of the monitor or direct view. These tools can be portable or fixed. However, these devices may also be associated with limitation and failure in some patients with airborne discharge and shortness of breath (9-15).

MATERIAL AND METHOD

The technique of making this device is that we chose a soft and flexible copper metal pipe with a length of 32.5 cm. Then, at the end, we installed and fixed the digital camera, which was installed after the soldering of 10 thin electric wires over its specific regions. Afterwards, the electric wires passed through the flexible tube port and removed it from the end of the tube. For the monitor screen, I used a mobile monitor and connected 10 thin electric wires connected to the camera at a specific location on the monitor with a solder. In the future, the fiber optics were

made up of 42, which provided sufficient light on the path, using a glue on the flexible tube body, and in order to protect it, we enclosed the dark protective cover around it. The front of the fiber optic is also installed on the LED lamp and installed the lamp with an electric power cord with 2 battery packs along with the switch on / off, in the vicinity of the monitor. How to use a videophobia video guide in an intubation probe (endotracheal intubation) is that first, the device was so advanced that the camera's distance from the end of the ETT was lower than the camera at the end of it, inside the trachea, so that it was less than 2 cm in front; This means that the catheter should not damage the tissues by 2 centimeters from the end of the ETT. Next, the monitor and the light source that used the optical fiber is used to illuminate the desired paths clearly on the monitor. Laryngoscope without light source is used to open the jaw and open the pathway. Of course, in patients with complete anesthesia, the laryngoscope can be diverted to the front, followed by the appearance of epiglottis and eventually ETT, which is not so common and safe. Then we direct it into the trachea. At this stage, we can examine all the paths during the ETT of voice cords on the monitor page, from the location for the correct placement, or the presence of an external object and inflammation or lesion in the pathway, ETT. (Figure 1)


The field of fiber optic on the metal flexible tube body
Monitor screen
Camera
Protective Fiber Optic Cover
Key
Power Supply Fiber Optic Battery
Flexible tube in the trachea tube, containing electrical wires, camera interface, and monitor monitor inside; and optical fibers on the outside

RESULTS AND DISCUSSION

One of the challenges of the intubation procedure, especially with simple laryngoscopes, is the success or failure of the process so that can be life-threatening or deadly in some circumstances. This tool, with the exact anatomical representation of the process, is presented to the expert and surrounding people alive, and given the fact that the passage of the pipe and the pipe through the vocal cords is the most important factor in the success of the processor, it is proven by the expert and the surrounding people. Despite the positive impact that they have, video laryngoscopes also have a lot of space, cost and portability. Such searches, especially in the interior, have not been found, but in other parts of the world we have found inventions in this regard, some of which are mentioned. Stylight Fiber Optic Intubation, by George Hwa Kou King in 1990 with the US5733241 A is made up of an ETT and provides direct tracking of the path determined by optical fibers, and directs the ETT to the trachea and intubates. Flexible Stylet Flex Optics Intubation, by Gary H. Flam in 1997 with the US5607386 A number is made inside the ETT, and without video and photo capability, it is done with a direct view of the intubation processor. Optic fiber. COPA-induced intubation was developed by Robert S Greenberg in 1998 with WO1999038432 A1, which is performed with a tubular tube in the oral throat of the intubation and ventilation proce. Fiber optic bronchoscope using ETT in the processor, by Dean Allgeyer in 2551 and numberUS20010001957 A1, which is used through the use of an endotracheal tube in bronchoscopy and intubation. Video Intubation Tool by Robert Michael Chuda in 2558 and the US20080236575 A1 was made, like the tool we made, video on the category but the source of light is the source of non-fiber optics. Anatomical and intuitive video was created by Robert Michael Chuda in 2514 and US20140275772 A1, which has video and non-optical fiber light sources.

The differences that the video guide has with the above and other tools are:

1. Some tools follow the direction of vision directly through the mirror duct or prism while this device monitors the anatomical route via a digital camera.
2. In addition to video review and direct monitoring, it also has the ability to capture and send video impulses and store them.
3. The light source of this device is a strong LED lamp that transmits light spectrum to optical fibers, while using other direct light sources.

4. Anatomical pathway monitored by the catheter is consistent with the focus of the catheter, while in some monitoring systems, the monitoring system is large or non-directional and requires a high degree of focus and excellence.

5. This device is much less expensive than other tools.

The most important innovative step of this tool is the existence of a digital monitoring system installed on the tool, which is also compatible with the trajectory shows the direct image and can provide all the anatomical, photo and film areas slow. Another innovative step in this tool is the technique of building and embedding light source and supplying energy to the device itself simple and compact.

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CONFLICT OF INTEREST

None

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